

**THE DISCOURSE OF EFFICIENT SPATIALITY:
AMBIGUITIES OF ACTIVE PARTICIPATION IN SPACE
WITH PERSONALIZED LOCATION-BASED ANALYTICS**

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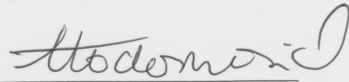
2013

DECLARATION

I hereby declare that the thesis is my original work and it has been written by me in its entirety.

I have duly acknowledged all the sources of information that have been used in this thesis.

This thesis has also not been submitted for any degree in any university previously.

A handwritten signature in black ink, appearing to read 'Tatjana Todorovic', is written over a horizontal line.

Tatjana Todorovic

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TABLE OF CONTENTS

Declaration	ii
Acknowledgments	iii
Summary and Organization of the Study.vi
Chapter 1. Introduction.	1
1.1. Personalized Location-Based Analytics for the ‘Meaningful Spatiality’	1
1.2. Location-Based Utility Network For Future ‘Intelligent Cities’	9
1.3. Advances of Mobile Lifestyles: Personalization and Efficiency Improvements.	17
1.4. Efficient Spatiality and the Ambiguity of Active Participation in Space	26
Chapter 2. Active Participation in Urban Space: Points on Predictability, Reversed Visibility and Calculations.	40
2.1. Active Participation and the ‘Space’ for Negotiating Spatiality	43
2.2. Disappearing Technologies and Reversed Visibility in Relation to the Analytical Capacities	55
2.3. Rethinking Calculative Technological Apparatus: <i>Enframing</i> and Openings	67
2.4. Incalculable and Unpredictable as Potentiality and Enabling Ground . .	80
Chapter 3. Strategies of Systems of Control: Active Participation and the Discourse of Personal Risk-Management.	94
3.1 The Language of Efficiency and Practicality	96
3.2. Risk As a Dominant Logic of Control and Individualization of Risk . .	106
3.3. Self-Regulation, Calculative Normalization and Optimization as a New Strategy of Systems of Control	116
3.4. Personalization As Customization and Optimization of Spatial Experiences.	128

Chapter 4. Information Potential and the Efficient Spatiality.	143
4.1. Informed/Calculative Mobility	145
4.2. Efficiency of the Technological Apparatus and Efficiency Compliance	155
4.3. Technological Efficiency as a Cause and a Solution	168
4.4. Urban-Technological Fantasies: Cities, Technologies and Promises	179
4.5. Mastering Spatial and Temporal Dimensions Through Technologies of Mobilities	190
Chapter 5. Active Participation with Outsourcing Sensorial and Analytical Capacities	205
5.1. Program At Work: Learning, Sensing, and Predicting With a Principle of Narrowcasting	209
5.2. Outsourcing Sensorial and Analytical Capacities: Level of Engagement	218
5.3. Alternative Strategies: Performing Space and Urban ‘Resistance’	227
5.4. Active Participation in Urban Space: From Enhanced to Efficient Spatiality	236
5.5. Naturalization: Between Appropriation and Peculiar Invisibility	244
Chapter 6. Conclusions	
Active Participation in Space: In Between Calculability and Incalculability	258
Works Cited	272
Examples Cited	293

SUMMARY AND ORGANIZATION OF THE STUDY

Recent introduction of revolutionary tools for generating ‘meaningful’ spatiality—personalized location-based analytics and recommending services—have set the trend for increased location-data analysis and opened up a whole new world of spatial relationships in contemporary cities. This informed mobility presents promising possibilities for citizens to actively participate in the construction and negotiation of urban space, and are promoted as a part of the ‘next urban utility network’ for the future; specifically, so-termed intelligent cities. However, as I show in this thesis, such a notion of active participation is implicated with the mainstream discourses of efficiency, in which active participation becomes the necessary practical utilization of information potential, and the praised ‘personalization’ becomes a form of self-regulation and efficiency compliance. As such, users are indeed becoming ‘active,’ mobilized to work towards optimization and normalization of the system, while not exactly engaged as active participants in actual negotiation and construction of spatiality. In the opening chapter, I problematize the notion of apparent ‘active participation’ in urban space with automatic and effortless calculative and analytical technologies, and I raise several questions that help define the thesis. Namely, could such systems, which rely heavily on efficient calculations and recommendations in everyday use, indeed hold a position as a valuable ground for user-generated cities, the negotiation and re-appropriation of imposed spatiality, and under what conditions?

In Chapter 2, I move to an inquiry into the ‘conditions’ by which negotiating spatial practices presumably emerge, introducing Lefebvre’s concept of autogestion, in which we can recognize the notion of self-governance towards “user-generated urbanism”; De Certeau’s space for ‘maneuvers’; and Virilio’s arguments on the reversed visibility of power vs. reaction complex and implications towards analytical powers. What they suggest is the space outside of the domain of mainstream system of control and calculations, a valuable space of ‘absence,’ which further allows interpretation and social failures in order to ‘test,’ re-think and negotiate imposed spatiality. I then link these to the *enframing* nature of technologies

and the need to reconsider our current instrumental approach to technologies as to allow self-revealing (un-concealing) openings (as discussed by Heidegger), that could also be incalculable and unpredictable as a valuable space of potentialities (Marcuse). In Chapter 3, I tackle the powerful ‘personal efficiency’ discourse and investigate the extent to which ‘active participation’ is, in fact, absorbed by mainstream strategies of power. Promises for personal (individual) empowerment, ‘personalization’ and personalized efficiency work for the system on power by necessitating self-regulation and individual risk-management, as such ensuring normalization, optimization and the overall stability of the system, here supported by insights from Foucault, Marcuse, Borgmann, and others. In Chapter 4, I explore new spatial (urban) relations and conceptions that arise in view of information potential and personalized efficiency—so-called mobile lifestyles based on intensified and informed mobility; discussed against a brief history on efficient urban/technological apparatuses and the persistence of urban issues and inequalities. Finally, in Chapter 5, I look into the possibilities for appropriation and ‘reaction’ in light of implications arising from the tendencies toward outsourcing sensing and data analysis with effortless and often invisible automatic software that generates ‘meaningful’ spatiality. By incorporating the perspectives of artists working in the field of locative media art and discussing the potential appropriation and playfulness through the process of “normalization,” I again underscore crucial points for the active and critical engagement in space—an ongoing, engaged and experimental approach—along with technologies and surrounding issues, an approach that does not attempt to necessarily clarify and define spatiality, but instead allows ‘things’ to reveal themselves. What emerges is the need to reconsider our current instrumental and efficiency-bound approach to this potential ‘next urban utility network’ and to work instead towards a more open system that will allow greater engagement, constant questioning, and an awareness of the ‘invisible,’ incalculable and unpredictable.

CHAPTER 1 – INTRODUCTION

1.1. Personalized Location-Based Analytics for the ‘Meaningful Spatiality’

More than just broadcasting your location and helping find nearby friends, these apps can deliver personal and contextually-relevant information that can help us discover and experience more of what’s around us. (Altman)

At the South by South-West Conference (SXSW) held in Austin, Texas in March 2010, one panel dedicated to the “The Life Graph” announced what was, at the time, a new trend in location media development. Altman, CEO and co-founder of location-based social network Loopt, explained the relevance of this “contextually-relevant information” as “predictive recommendations with rich local content *that matters the most to you here and now*” (emphasis added), which will supposedly “revolutionize how individuals interact with the world around them” (Altman). Location-based media is generally seen as a ‘revolutionary’ tool, a novel and unique way by which to understand and experience urban space today. This is viewed as an attractive ‘novelty’ because contemporary navigation tools and location-based media encompass notions such as personalization, contextualization, and customization of spatial and other content using location-based tools.

As I discuss at length in this thesis, it is becoming even more important today to analyze one’s surroundings. This trend originates from the ever-increasing need to note and generate meaningful spatiality, as well as the

meaningful connection between the vast data stored online and its potential users. Not surprisingly, along with an increase in the complexity and multitude of spatial information, urban space is fast becoming “over-coded” (Crang and Graham; Dodge and Kitchin “Code/Space”). In today’s context, it appears that nearly every thing and every individual can be quantified and measured in one way or another, a process that is further amplified by the instantaneity and pervasiveness of various calculative and predictive computational processes. Often conveniently embedded within mobile phones, such utilities are becoming even more user-friendly and are overwhelmingly present in everyday lives; as the Quantified Self movement illustrates: “the mainstreaming of the Quantified Self movement [...] has succeeded in bringing data analysis and wearable technology into our daily lives” (*Time.com*).

In general, it is assumed that such tools will help ease the pressure of real-time decision-making on a day-to-day basis, answering to the demand of contemporary busy lifestyles: “In a world characterized by information glut, the goal is not to master the totality of available facts (an impossible task) but to seek out what one needs as one goes along (Andrejevic “Monitored Mobility” 144). Therefore, to obtain the most satisfactory use from online data sets of geo-spatial information, the goal is to cross ‘basic’ navigational tools with predictive analytics and, by generating customized recommendations, to further presumably ‘enhance’ the user’s experience of space by making it ‘more personal.’

Location-based services today provide a wide array of functions and applications that can be approximately sorted, based on the function they

perform to the end-users: from positioning and navigation tools, over mapping, space annotations and content information, to location-based social networking. Such services develop further, not only to describe what is around us; a range of location-based applications offers ‘personalized’ navigation through online spatial data delivering personalized recommendations. For instance, the latest Google and Microsoft Bing augmented maps offer various applications for the creation of ‘personalized maps’ that record users’ preferences. This often presumes the gathering of personal data by means of locating, tracking and collecting users’ whereabouts and spatial habits with the support of mobile applications such as, for instance, Placeme, whose aim it is to help individuals to “always remember your places” (*Placeme.com*).

Advancements in instantaneous web browsing and various analytical platforms and applications mean that data, which contain geo-spatial information alongside overlapped demographics, users’ daily movements and routines and personal preferences, are then stored for often-immediate computations and recommendations. This thesis focuses on such, more recent, personalized calculative applications and services being offered, along with predictive analytics; services that allegedly “understand” the context in terms of the users’ location, which then provide site-specific recommendations that ‘matter to the user,’ as praised in Altman’s speech.

As such, we have platforms that are able to “analyze locations for your business or personal needs” (*ShowNearby.com*) or “understand mobile users’ behavior by analyzing location and other sensor data” (*Alohar Mobile*) and many others. Finally, the latest location-based services on the market propose even more refined “sensing” applications that will limit or exclude searches,

and conveniently and effectively facilitate an automatic matching service between space and users. Such refined ‘sensing’ applications are essentially predictable analytics and recommendation services. Sense Networks, for instance, is one such website that offers “indexing the real world using the location data for predictive analytics” (*SenseNetworks*); and Macrosense is its supporting platform that computes information collected and stored in Sense Networks’ databases, further described as: “Platform for analyzing large amounts of mobile location data in real-time to drive *relevant recommendation, personalization and discovery*” (emphasis added).

What is interesting is that, as long as the service is turned on, Macrosense continually sorts and clusters information and computes ‘personalized’ recommendations for users, even before the search is completed. “Citysense [supported by Macrosense platform] eliminates the need to search: Instead, it evolves searching to sensing” (CitySense website). In effect, this means that, instead of using ‘traditional’ search engines when we need something (which, of course, also includes a certain logic of what, and in which order, appears on your search results), such platforms will apparently ‘sense’ what is the most ‘meaningful’ information for each user, where, and when.

As we can see, ‘meaningful’ in the language of promoters is interchangeably used with personalized, efficient, targeted, customized, to name a few. CabSense, a practical application of above-mentioned ‘sensing’ services provided by Sense Networks, “analyzes tens of millions of data points to help you find the best corner to catch a cab in New York City.”

Applications such as ShowNearby is just one of many that promotes analysis of one's surroundings as more efficient and superior way:

Location Intelligence made smarter and friendlier: ShowNearby

Analytics is the perfect location *intelligence tool* that gives you rich insights into your potential traffic and marketing effectiveness.

Powerful, flexible and easy-to-use features now let you see and analyze your location in an entirely new way. (*ShowNearby.com*)

While not obligated in any way to heed the recommendations, often, users feel obliged to do so to act in a responsible and effective manner, and because it 'makes life easier.' As we can see from the above excerpt, this service is attractively advertised as a more intelligent and more productive way of analyzing 'your location.' Outsourced analysis will presumably help with individuals' decision-making, since the calculation of 'the best' choice is in the hands of what is perceived to be more reliable devices, the so-termed "intelligence tools" (*ShowNearby.com*), designed and promoted as easy-to-use and intuitive for users to navigate through, without requiring that they must have a deeper understanding of how the actual technology supporting such application works. Such valuable tools will apparently empower users to become more efficient by increasing their effectiveness and gain over time, and are viewed as a necessity in their bid to maintain a competitive advantage over others.

For now, it is important to understand that what may seem an urge for more challenging processing and thinking on one's surroundings, 'making sense,' in actuality, calls for a software-based 'understanding' of one's surroundings as being ultimately an easier, more efficient and more precise

way. The strategy is not only to alert city dwellers to the necessity to process the magnitude of now-available information, with “analyze your location” imperatives; the attention is towards the right, ‘suited for your needs’ experiences, as opposed to the unreliability of instinctive and unconscious decisions. Hence, spatial experiences and decision-making become mediated by software that aids in rational, commonsense perception and use of space. More and more similar applications and services continue to flood the market, offering to mediate spatial experiences with embedded sensors and automatic computation of data, which will alleviate (or, in some instances, replace) cognitive burden and ‘overcome’ human sensorial ‘bias,’ but more importantly, with an equally efficient solution.

Even if such practices are seen as simply innovative, or a fun and interesting way by which to understand our surroundings, this playfulness comes with promises to supposedly recreate, enhance and, most importantly, ‘personalize’ their surroundings while, in actuality, becoming a *necessary aid* by which to navigate through the multitude of geo-location data and optimization of available information. In this thesis, therefore, I critically investigate notions of ‘personal’ and ‘custom-made’ that predictive and recommending technologies would presumably foster. Promoted together with contemporary mobile lifestyles, with far-reaching mobility and individuality, the praised qualities presumably pave the path towards the notion of enhanced spatial experiences and spatiality over which users have some ‘control’; presumably to enable active participation in the production of social space, eventually leading towards greater social change. However, such ‘active participation’ in urban space, encompassed by the discourse of efficiency,

more likely corresponds to efficiency compliance rather than allegedly empowering practices, as I show in this thesis. In the following chapters, I discuss some of the trade-offs users have to weigh between benefits and ‘compromises,’ in consequence finding themselves compelled to submit to specific technologies so as to stay ‘in the game.’ Eventually, anticipated ‘freedom’ to move and manipulate location and timing is becoming a *necessity* rather than a choice, in order to sustain contemporary mobile lifestyles.

My intention is to seize the mainstream industries’ promises and product placement strategies within the sphere of mobile media and location-based services and to describe actual services and applications as presented on their promoting websites and through their marketing material. I include supporting promoting material that government-led campaigns direct at their citizens. I focus my analysis with examples of such services and platforms that support and ensure the discourse of ‘meaningful,’ in other words efficient, in other words informed, spatial experiences that call for *using*, instead of ‘simply’ living space. My main interest is not to focus on one application, or even one ‘type’ of application as much as to underline and analyze several characteristics of calculative processes that support recommending services and on-line analytical platforms and generate supposedly ‘meaningful’ information. More importantly, such services are presented as empowering tools with which to understand and efficiently use urban space today and, as such, present the core of recently envisioned location-based urban utility network. Among the currently more than 800,000 different mobile applications available at Apple’s App Store alone (Apple Press Info), location-based applications and others that utilize location also play a significant role,

starting with Google Maps, which is one of the most downloaded applications (*9to5mac.com*). Moreover, mobile Internet browsers support the real-time ‘discovery’ of surroundings, as much as various applications do. In the following sections and throughout this thesis, I continue to present multiple recent examples of online analysis platforms and associated applications for predictive analytics and recommending location-based services, with more detailed analysis in Chapter 5 (“Outsourcing Sensorial and Cognitive Capacities”) on the supporting software.

The goal here is to understand the ideology that directs the *calculative interpretation* of geo-spatial data: this new ‘meaningful’ spatiality which should not be left to chance; which is denominated by effective, efficient and safe use of one’s surroundings based on available ‘useful’ information; which seduces with ‘personal,’ custom-made and user-generated cities, offering to cater individual preferences and more exciting spatial experiences; and much more, according to the promoting channels. The attempt is to first underline and question plausible assumptions surrounding the use of such personalized services and rejuvenating visions of spatial experiences and spatiality that these supposedly facilitate. The further focus is to analyze such urban participation, particularly in relation to everyday urban life and its supposed regenerative powers against mainstream strings of control and abuse. By investigating not only the affordances of such services and the extent to which the nature of calculative processes support personal wants, we look also at the extent to which mainstream strategy for spatial optimization incorporates so-called personalization and, as such, absorbs appropriating potential.

1.2. Location-Based Utility Network For Future ‘Intelligent Cities’

It is important to understand that emerging personalized location-based analytics are frequently promoted, developed and implemented in the context of the so-called ‘Intelligent Cities’ concept—a current fantasy of the city/information technologies complex that embraces real-time streaming and data analysis of all sorts:

The real-time city is now real! The increasing deployment of sensors and hand-held electronics in recent years is allowing a new approach to the study of the built environment. The way we describe and understand cities is being radically transformed—along side the tools we use to design them and impact on their physical structure. Studying these changes from a critical point of view and anticipating them, is the goal of the SENSEable City Laboratory, a new research initiative at the Massachusetts Institute of Technology. (SENSEable city lab)

To illustrate this concept further, I present several points from a report, “Smart Mobile Cities: Opportunities for Mobile Operators to Deliver Intelligent Cities.” This is a joint report by Accenture, a “global management consulting, technology services and outsourcing company”; Cisco (NYSE: CSCO), “the worldwide leader in networking that transforms how people connect”; and The GSMA, a party representing “interests of mobile operators worldwide, focused on innovating, incubating and creating new opportunities for its membership and driving the growth of the mobile industry” (Accenture, Cisco and the GSMA) whose avowed goal is to define what Intelligent Cities

might be, and to outline its further development. Together, they define

Intelligent City as:

A city in which citizens and services providers have access to enhanced information flow. Such city *maximizes the utilization of its key resources* by leveraging data gathered through widespread embedded sensors and controls, real time data analytics and ubiquitous communications. A city which combines disparate data, sets to *offer productivity insights and enhancement to its citizens and service providers*. A city which *maximizes the economies of scope and scale* across its multiple infrastructure layers through a common service delivery platform, or Urban Operating System (“Urban OS”). A city which uses innovative technology and innovation to strive to go beyond economic targets, to deliver *sustainable quality of life improvements* for its citizens, its industry and the local environment. (Accenture, Cisco and the GSMA, emphasis added)

At the same time, this report is a platform to promote, not only the ideal embedded in the “Intelligent City,” but also efforts for the implementation of the technological system that will support it. As we can see, maximizing utilization, economical growth and productivity are just a few promises of such smart “Intelligent Cities.” These are only a part of the larger framework of technology-driven discourses dominated by efficiency, safety, security, antifraud, empowerment, productivity, reliability, flexibility, economic rationality, and competitive advantage paired with commonsense and rationality, but also the fear of being excluded (as listed by Dodge and Kitchin in their recent work *Code/Space: Software and Everyday Life*). As

such, the concept of Intelligent Cities is generally rounded up with the premise of sustainability and overall lifestyle improvements, as we see in this excerpt rendering efficiency and effectiveness as even more commonsensical. CO2GO application, one of many user-friendly applications, sprang out of the same SENSEable City Lab at MIT, and is presented in the *CNN.com* article, “Hacking the city for a greener future,” as an avenue for individual contribution to this greater cause, along with increasing individual performance: “In a nutshell, hacking the city data can help its inhabitants to be greener. It can also help city planners make better choices for the future, they say” (Kermeliotis).

What is also noticeable in this, and similar reports, is the launch of “common service delivery platform, or Urban Operating System” (Accenture, Cisco and the GSMA), which is essentially a centralized supporting platform, a technology that feeds information to its users over mobile phones and location-based services. Technological support is, of course, indispensable for anticipated scenarios in smart cities. In Chapter 5, I explain in more detail the technology that runs such systems; for now, I wish to stress the fact that the “maximization of utilization,” as the Accenture et al. report has come to pass, also presumes *embedded sensors, real time data analytics* and *network of communication*, skillfully blended within the environment and our everydayness. The Intelligent City is, ultimately, grounded in and operated by software that becomes increasingly invisible, pervasive and ubiquitous. In the following chapter, I discuss some implications of such invisibility, mainly Virilio’s assertions on reversed visibility and the implications that the seeming disappearance of power structure has on analytical powers of city dwellers. In

Chapter 5 I also address the *invisibility* in terms of automatic sensing and analysis and in the context of Borgmann's *level of engagement* and supposed appropriation of such tools. For now, it is important to understand that the suggested intelligent urban system can *only* operate through the use of software-supported devices, which include ambient and mobile technologies, sensors that are embedded in smartphones, sustaining and encouraging self-monitoring, that are also present within architecture and street furniture; and, of course, the network and online platforms that facilitate *information flow* and *real-time* analytics.

Mobile networks will be a critical component of these new and re-designed cities. Not only in providing the connectivity glue that ties all of the devices, information and people together, but mobile networks are also critical in providing the information, insights and *value-added services* that will truly make our cities intelligent. (Professor Carlo Ratti, Director of MIT's Senseable Cities Lab, qtd. in the Accenture, Cisco and the GSMA report)

This elevates the mobile network's stature to indispensable, without which an Intelligent City cannot possibly exist. It is the connectivity glue that enables information exchange between users and, more importantly, between the user and online analytical platforms and other "value-added services," as stated above. Location-based services, including personalized predictive analytics, are, therefore, also an essential premise, *a next utility network* for these 'Intelligent Cities.' In this context, such services are probably best defined as "information services accessible with mobile devices through the mobile network and *utilizing the ability to make use of the location of the*

mobile device” (Virrantaus et al. 66, emphasis added). The most important premise, it seems, is the ability of such services to ‘make use’ of the location or, to be more precise, *utilize the utilization* of location, which means that embedded sensors in mobile phones already recognize the location; collect and store that information, with further possibilities to cross that ability with online analytical platforms in order to make use of the rich content of geo-spatial databases for our own benefit.

In summary, location-based services support ‘intelligent’ cities by screening and collecting data, then by connecting users to the analytical platforms and other databases. However, such services not only provide information to its users, or to whoever is watching; more importantly, they *‘fill in’* urban space with *meaning* and *opportunities*. Livehoods, for instance, is another project that utilizes location-based social networking, such as check-in patterns, paired with tweets and other social media activities around the city, offering new ways to “conceptualize the dynamics” and analyze the “character” of the city:

A new way to conceptualize the dynamics, structure, and character of a city by analyzing the social media its residents generate. By looking at people's check-in patterns at places across the city, we create a mapping of the different dynamic areas that comprise it. (Livehoods website)

This example also shows that, regardless of the level of ‘utility’ on offer, such practices and platforms have a tendency to describe and conceptualize the city in a ‘new way,’ nothing less than a *character* and the *dynamics* of the city, which is largely based on manipulation of *available*

information with *available* software. Livelihoods operate on a similar principle, (of narrowcasting), as any predictable and recommending platform; it generates and analyzes patterns of use, and draws conclusions from it.

Therefore, not only is there vast information to be presented; there is a potential opportunity with potentially useful (meaningful) information. This ‘meaningful’ use of space corresponds to purportedly efficient (useful) commonsense and ‘informed’ mobile lifestyles to which users are compelled to submit, further subjecting mobility of users to the *practical manipulation* of available data. This further supposedly implies that any information can be put to good use, with value-added services, analytical platforms and mobile networks. In fact, the way we manipulate, interpret and ‘make use’ of data becomes even more valuable than the content and the information itself. This means “maximizing utilization of its key resources,” as stated in the Smart Mobile Cities report, or what will, to use Professor Ratti’s words, “truly make our city intelligent” (qtd. in Accenture, Cisco and the GSMA). Of course, such increased preoccupation with the informational potential of the location transforms the space into bits and pieces of potentially useful information. Or rather, lived space becomes the information potential, fertile ground for the infinite feed of information, a *key resource* as stated in the Smart Mobile Cities report.

One way or another, contemporary urban space has been reshaped by the impact of information; in particular, by its operational value and calculative manipulation:

Information [...] enhances functioning of a particular environment [...]
information and space are so fused that the space cannot function

without information and there is no un-coded, manual alternative.

(Crang and Graham 198)

Crang and Graham further term such environments as “sentient urban environments” in an attempt to more accurately reflect contemporary abilities of technologies to ‘learn’ and to possess anticipation and memory. As such, ‘sentient’ environments are again based on tracking, predicting and recalling, in which different actors have the ability to intervene. For instance, they list military strategy in the name of security; marketing strategy of customization in the name of convenience; or artistic attempts to enhance urban space (Crang and Graham). Similarly, mobility, pervasiveness and instantaneous mobile media are crucial concepts that reshape the city in what McQuire calls the “media-architecture complex” (*The Media City*). He defines this contemporary city as a “media city” in which urban spaces are defined by decentralized digital networks and digital media, particularly mobile digital media; the city in which new urban forms emerge in the shape of the public media screens and wireless mobile devices. Yet, he reiterates, each and every individual needs to resolve a number of relational problems in space, which further increases one’s responsibility to ‘calculate’ the right choice (“Mobility, Cosmopolitanism”). In other words, ‘where am I now’ today is asked not only when one is lost or discovering distant new places, or as a philosophical question; this question has become a part of day-to-day situations to resolve a multitude of “spatial relational problems” (Dodge and Kitchin *Code/Space*). Subsequently, determining the ‘sense of place’ in everyday life becomes the central preoccupation, and to a much greater extent than before. And where an understanding of space develops over time through the multitude of daily

practices and interactions, often unnoticed and unregistered, today's understanding of the location refers to a constant re-capturing of 'the meaning' of one's surrounding—i.e., informed mobility.

In Chapter 5, I discuss in more detail technological outsourcing and the nature of narrowcasting software. For now, my intention is to investigate the promises raised by information potential, first by disclosing this peculiar 'call' to analyze location and one's surroundings, and the urgency to 'make sense' of it. Personalized spatial analytics and recommending services rely on this contemporary perceived need to analyze and evaluate one's surroundings and to use the space in the *best way* possible, whether for overall or personal good. From the point of view of the single user, this popularly termed "mobile lifestyle" implies overcoming spatial and temporal constraints; for instance, 'saving' time or multitasking, which further implies *utilizing the information potential*, as described in this section. This new 'informed' mobility, with the aid of the technological system, mobile informational network, embedded sensors and value-added services, therefore emerges as desirable and empowering so as to gain an advantage in the new order of "spaces of flows," as Castells ("Space") posits, and the way to cope with the ubiquitous "virtuality," in the context of the *contemporary demands for the active real-time production of social space*, as McQuire ("Mobility") and Dodge and Kitchin (*Code/Space*) show.

However, as I discuss in Chapter 4, such promising technology systems do not simply resolve pre-existing problems, but are, in fact, the origin of the very same problems they offer to solve. The omnipresent mobile technologies create a pretentious semblance of hectic "mobile lifestyles" and

subsequently appear as its ideal solution. The aspect of enhanced mobility rests upon a common belief that location-based services foster personal ‘choice’ and users’ ‘freedom’ to explore the city, at the same time ‘allowing’ space and time for a number of tasks. Yet, this informed mobility intensifies the expansion of our daily routines, adding new and transforming familiar ones, at the same time transferring them to unfamiliar neighborhoods. Consequently, users are exposed in their daily routines to a series of new ‘riddles and problems’ to be solved with expected efficiency standards. In that context, location-based services and other calculative services again appear as a ‘solution’ by providing information whenever and wherever they are ‘needed’ and, as such, support informed ‘mobile lifestyles.’

1.3. Advances of Mobile Lifestyles: Personalization and Efficiency Improvements

A phone is no longer a phone. It’s your alter ego [...] it’s fundamental to everything that you do. It’s an extension of everything that we are. [...] It is more accurate notion of where we are. It could take picture better than we can remember things and on and on and on. (Schmidt, in his talk at *Mobile World Congress*, Feb 2010)

This telling quote summarizes all the praise and excitement that surround mobile phones, advanced smartphones, and so on, in an attempt to illustrate the latest trends in mobile computing development and to convince the audience that the mobile computing, especially powerful smartphones, should come before desktop personal computing. The excerpt is part of a

keynote speech at the 2010 Mobile World Congress (February 2010) by Google's Chief Executive Officer, Eric Schmidt, who announced the company's priority to the "Mobile First" strategy in the latest development of Information and Communication Technologies. The obvious advantage, as suggested above, is certainly regarded as our self-*improvement* through such technological outfitting. It promises a life that would be so much better, so much more than what we, humans, could ever even think of achieving without it. Schmidt continues with more of the same, in his bid to emphasize the advantages of mobile computing over personal desktops:

[smartphone] is more specific. It's more human. It's more location-aware. It's more interactive. It's more dynamic. It's more personal. It's more satisfying to them [users].

His speech very cleverly charms the audience and future potential users, by bringing out the personal aspect of such technologies. The aspect of *personalization*, reflected here in "more specific" and "more location-aware," among others, also suggests that these technologies will do better whatever *we* need them to do. Smartphones are therefore promising tools that will supposedly embrace and even encourage individualization; after all, these gadgets have become our "alter ego" and are now an "extension of everything that we are," as stated in the excerpt above. This aspect of *personalization* is, in other words, another crucial premise for luring its potential users and placing such technologies on the market. Such *personalization* would supposedly customize the available content in geo-spatial databases, services and even urban space altogether, to fit individual usage. However, what is, on the one side, presented as advantageous, both improvements and

personalization, on the other, then becomes a required form of participation in such an imposed (mobile) lifestyle. In this section, I point to some of the issues that emerge with such necessities, dependence, new burdens and problems; all the while, the power structure more and more fades into the background.

Later in this thesis, I show how such invisibility of power structure is a dangerous deception, with effects such as ‘domestication’ and diluted analytical powers of city dwellers, as Virilio reminds us. I also show that the mobile lifestyle necessity, even though seemingly appearing to engage towards ‘active participation,’ is in tune with an ideology of individual risk-management, and a new strategy of the systems on power towards a control over its citizens, as I outline from views by Beck, Giddens, and Foucault. Predictive and recommending calculations in space, as I will show, further present the supporting mechanism of system on power, a performance benchmark by which the system ensures normalization and optimization.

Corporate giants such as Google, with the reputation of having both trend-spotters and trendsetters among its developers of new technologies, play a significant role in defining the development course among competing and alike industries and so direct the future use of end products. In summary, this strategy in Schmidt’s speech emphasizes the importance of mobile computing—smartphones, to be more precise—which further involves the development of even smaller and more powerful computing chips; even better and faster mobile broadband connectivity; and so-called cloud computing, an outsourced server that could store more data and facilitate ever more complex applications on mobile phones. As elaborated thus far, the *speed* of

networking that allows *instantaneous* communication, information retrieval, and computing power is one of the indispensable means for smooth functioning of such lifestyles. This aspect also contributes in advertising the overall *efficiency* discourse, by emphasizing the ‘obvious’ opportunities for more efficient management of daily activities.

All this extends the functionality of mobile phones, so a phone is no longer *just* a phone, as Schmidt points out. As such, the latest promise for enriched, informed mobility is indeed surpassing the communicational function, if it was ever intended only for communicating. Recent mobile computing platforms (smartphones such as Android, iPhone, Symbian, BlackBerry, Windows phone, and others) are already handling a large number and variety of *helpful* applications and services. More precisely, this means that by outsourcing the storage and complex data processing in the ‘cloud,’ smartphones offer the efficient use of even more complex applications. The computing itself will be outsourced to the online analytical platforms, and adjunct applications for mobile phones would provide generated sets of results in form of recommendation and predictions. With such powerful outsourced computing capacity, fast network, and a wide array of supporting applications, smartphones are currently promoted as the ‘backbone’ of contemporary mobile lifestyles:

For those who have them, telephones and wireless phones support mobile lifestyles, access to all manner of personal and information services, and instant contact with friends and family (Amin and Graham 11).

The praised ‘mobile lifestyle,’ which is, in fact, the underlying premise of Schmidt’s speech, is enhanced and informed mobility where ‘being mobile’ stands for the efficient performance based on ‘informed’ decisions. Hence, smartphones emerge as ‘the best,’ if not the only tool, to efficiently manage daily tasks and activities in such way as to save time and overcome spatial boundaries; for extraction and convergence of all our daily activities, from work to leisure, regardless of time and location—within a pocket-size device.

In this context, location, positioning and geographical data are consequently gaining more value on mobile phones than, for instance, desktop versions of augmented world maps, both ‘originally’ offering to ‘explore’ the space. While the former distances the user in terms of processing information and actual action in space, the later, being “more accurate notion of where we are” (Schmidt) compel users towards *immediate space processing and action*. The crucial assumption among users is that provided information is customized for each one, indicated by the “more accurate notion” from the Schmidt’s speech. This aspect of personalized mobility further contributes to the idea of a seeming possibility for active participation and reconstruction of one’s surroundings by ‘free’ and ‘playful’ ‘manipulation’ of geo-spatial data, which I also discuss, in Chapter 5. Besides being personal, the smartphone supposedly enables even more dynamics and flexibility in terms of mobility and multitasking, which, read between the lines, proposes more ‘choice’ to their users, more user control over technologies and supposedly even more control over their own everyday lives. Hence, with Internet connection on mobile phones geo-spatial information are closer and ready for immediate retrieval which further implies availability to choose where, when and what;

and, furthermore, suggests the availability of ‘informed decisions’ on wherever, whenever and on-the-spot premises. With ‘value-added services,’ mentioned by professor Ratti earlier in this chapter, users are not only conquering the imposed time-space frameworks, but assumingly have an opportunity to ‘manipulate’ and have a ‘control’ over their own multiple frameworks: *to further adjust, customize and personalize their spatial strategies*. In the following chapters, I discuss the extent for control by users of location-based data analytics and recommendation services; for now, it is important to seize the supposed promises, here mainly personalization and efficiency, and the ambiguities that accompany such promises.

As highlighted in several instances, mobile phones, before anything else, are said to be extremely ‘personal and individual.’ In fact, mobile phones are seen as an extension of the body which, as the often-used term ‘hand phone’ suggests and, as Kopomaa notes (*The City*), then becomes an extension of our perceptual and analytical capacities, along the lines Google’s Schmidt outlined in his speech. This greater-than-ever personal relationship with these technologies most certainly originates with the miniaturization, portability and individual ownership of mobile phones to begin with. Intimate connection to the mobile phones, as Kopomaa and other studies have shown, transforms what was once perceived as public urban space to an intimate and private space. Using public space for intimate personal conversation, from disclosing the intimate subject of conversation over the more comfortable and relaxed ‘body language,’ to the appropriation of one’s environs as an intimate place for conversation, depicts a de-placement of private and public (Sussex Technology Group). With mobile phones, users seem to have more ‘freedom’

in front of strangers than in front of their closest ones. Interestingly enough, this study shows that one of the major drivers for the popularity of mobile phones among teenagers was their anticipation of liberation from parents' control while, at the same time, parents believed they would have more control over their children by being able to 'know where they are'; in other words, to 'stalk' them (Brown et al.). This point remarkably resembles the dynamics between the *invisibility of power* and *visibility of everyday practices* of city dwellers, the phenomenon of reversed visibility that I further discuss in Chapter 2. It is also reflected in the dynamics between mobile network providers and their customers when it comes to promises of empowerment and liberation surrounding mobile information potential. While the power structure, network owners and policy makers gain more and deeper insights into their surveyed users' lives, for instance, their trajectories and checked-in places, feelings of empowerment and liberation among mobile media users still prevail. The intimate connection to one's mobile phone seen as an extension to one's body, as mentioned earlier in the text, therefore adds considerably to the feeling of personal and to a sense of control and 'being in charge' that the user might have over it, at the expense of power control. Gandy's point on the invisibility and concealment of supporting infrastructure and providers is another underlying aspect for such overwhelming support. Yet, as I have noted before, this deception is dangerous, precisely because of its false impression of user control, as it conceals the processes of the more efficient social sorting and enforcement of power.

In summary, presumed personalization and efficiency improvements, empowerment and active involvement in cities are the prominent contributors

for embracing enhanced mobility around the city supported with intensive information flow. This is enabled by the connection between online geo-databases and various information analytical platforms and widely spread mobile phones with multiple convergences of functions. Therefore, it seems as if such advanced mobile phones offer so much ‘more,’ wrapped in powerful associations such as flexibility, time-space management, multitasking and efficiency; in reality, with each upgrade of mobile phones, and with each new application, the list gets even longer. However, the mobile phone is not simply an answer to emerging lifestyle changes; to begin with, extensive use and reliance on mobile technologies actually stimulate and induce vibrant and mobile lifestyles. At same time, what was seen as ‘freedom of movement’ with the emergent popularization of mobile phones, has now become a constraint: a burden of being always reachable and available, prolonging working hours, intruding into ‘private’ and intimate life, resulting information overload, and much more.

Such dependence is also a result of the growing necessity to calculate and analyze locations, as elaborated in several instances in this thesis. In the context of McQuire’s contemporary ‘relational space’ (“Mobility, Cosmopolitanism”), social relations and social meaning of space are no longer a pre-given, but *have* to be *actively constructed* within the pressures of immediacy and mobility. As McQuire points out, today’s media-architecture complex puts everyone under the pressure to continuously attempt to understand and re-conceptualize the space in which they live. These promises of immediate processing and action, even more so with the recent efforts to bypass processing of space with predictable and recommending services,

come with an ever-greater reliance and dependence on mobile technologies. I will investigate this urgent *necessity* and the discourse of utility and efficiency through the plausible imagery surrounding informational potential of mobile and calculative technologies in Chapters 3 and 4. This necessity, in turn, affects the interpretation of space and eventual negotiation practices, as I discuss in greater detail in Chapter 5. What becomes clear, nonetheless, is that users are *mobilized* towards personalized efficiency with support of calculative and predictive practices, while maintaining overall *impression of user-control* over their own choices, mobility, processes, and others. However, it is precisely the *invisibility* of power and seeming empowerment of the controlled subjects that makes that power even stronger. A city's comparative advantages largely arise from its network of users, in that city dwellers contribute to this supposed overall efficiency. This system of tools and applications that bloomed on the market, whether helping business and start-ups advertise and position themselves on the scene, or public policies planning the cities, or overall efficiency and Intelligent City fantasy, would hardly function unless the wider public is involved. It is precisely users' history of recorded whereabouts, personal needs and preferences that further feeds the system with valuable information to help it maintain the system in the first place. It is thus crucial to submit users/clients/citizens to this prevailing 'analyze your location' necessity so that the system can perpetuate itself. For the same reason, as I wish to convince my readers, it is crucial to reveal the extent to which informational mobilization is also necessary to optimize users' whereabouts to fit the overall stability of the system, statistical tendencies and patterns.

1.4. Efficient Spatiality and the Ambiguity of Active Participation

Urban space and everyday life are, without the doubt, a part of a complex system in which defining and negotiating spatiality is a continuous ‘battle’ over the interpretation of social meaning of space between those on power, who strive to construct and ‘stabilize’ the system for certain interests, and different social groups and individuals who have their own, often unconscious, terms under which the same system is ‘stabilized.’ Hence, even though we receive new orders of time and space experience through representation and the way we ‘imagine’ it, both time and space are understood and experienced through ‘practice’ or the way we act in it (May and Thrift *TimeSpace*). As Dodge and Kitchin further remind us: “Space is not simply a container in which things happen; rather, spaces are subtly evolving layers of context and practices that fold together people and things in time and space” (“Code/Space” 13-16). As such, spatiality is never a formed and fixed space. Spatiality is a continuous and ongoing process; it is relational, contingent, active, something that is produced or constructed through social relations and material practices (Massey); it is “constantly bought into being as an incomplete solution to an ongoing [spatial] relational problem” (Mackenzie and Simonodon, qtd. in Dodge and Kitchin “Code/Space” 71). Spatiality itself is inseparable of its temporal dimension and, as such, defined as “material organization of time-sharing social practices [...] in spaces of flows” (Castells “Information Age” 412). May and Thrift further term this spatiality *TimeSpace*, in which “spatial variation [is] a constitutive part rather

than an added dimension to the multiplicity and heterogeneity of social time” (“Introduction” 5).

Nonetheless, this heterogeneous social time, the “radical unevenness in the nature and quality of social time itself,” as explained by May and Thrift, is shaped by individual timetables and rhythms; as well as by various sources of social control, discipline and mainstream rhetoric; and by technological instruments and devices themselves (such as the clock, in the most direct sense, or electricity) (“Introduction” 5). My interest in location-based services is precisely in its capacity to mediate and visualize the process of spatiality and understanding of space, and the power to influence the process of the becoming of spatiality. It is rather the complexity of relations between people, their material practices, technologies, social relations and discursive practices that all together shape the process of spatiality. In the light of such contemporary technological advancements and, in particular, intensified urban mobility and flows, Amin and Thrift outline a “new kind of urbanism” and new kinds of struggles:

We are moving towards a different, more restless and more dispersed, vocabulary through a constant struggle over the three Rs of urban life: *new social relationships, new means of representation and new means of resistance*. Together, the experiments with these three Rs may add up to new, more ‘distanced’ modes of belonging, which we can now at least glimpse. (48, emphasis added)

In a broader context, this study is an attempt to identify and outline Amin and Thrift’s “three Rs” of contemporary urbanism, marked by an enhanced use of calculative technologies; in this case, personalized location-

based analytics and recommending services. To outline this emergent re-fashioned spatiality this investigation discusses location-based services, its surrounding imagery that outlines today's aspirations for the cities of the future; current discourses behind the development and 'necessities'; as well as the properties of supporting predictive calculative technologies that afford certain social interactions. As we now understand, location-based technological apparatus does not simply enable and complement these practices; more likely, it structures and defines in a way that enables, or disables, new urban representations, relationships, and resistance: "they show the little narratives that organize, frame and enable our engagement" (Crang and Graham 809).

Hence, my aim is to analyze the ways in which these technologies are implemented in mainstream use, by looking into: discursive practices¹ visible through promoting strategies for current development and integration of various calculative location-based services and often unfair terms under which users are conditioned to use such services. It becomes ever more necessary to investigate how are these systems planned and implemented, and what or who controls and directs it: is it the development sector, with their promoting strategies; the users themselves with the power to appropriate technology in their own terms; or, is it, in fact, the technology itself, calculative nature of software with its own affordances and constraints? While the assumption is, of

¹ Foucault introduced the term 'discursive practices' I use in this thesis, which he defines as: "One of a series of related terms—others being discursive formations, objects, relations, regularities, and strategies." Discursive practices are characterized by groups of rules that define their respective specificities. In contrast to the analysis of Discourses as Systems of Signs, Foucault treats discourses as "practices that systematically form the objects of which they speak" (*Dictionary of Cultural and Critical Theory*, Ed. M. Payne, 1997, Blackwell Reference Online).

course that all three ‘sides’ shape the terms of use, re-use and/or abuse, which I attempt to acknowledge and embrace throughout this research; enhanced location-based analytical platforms re-fashion contemporary urban social relationships and, with, that re-fashion the valuable ground for negotiating and discussing (spatial) alternatives. For that reason, we should not that easily dismiss spatial representation and mainstream discourses and simply assume that implemented technological systems will, somehow, by the magic of everyday practices of city dwellers ‘be appropriated.’

The seeming invisibility of mobile networks and supporting location-based services gives the false impression that a system of control does not exist. The goal is to address these ‘invisible’ but profound changes brought about by the proliferation of mobile computing that re-fashion urban everyday life. While seemingly invisible, these networks of communication and geo-spatial databases operate with the support of actual physical infrastructure, social networks and institutional forms (Gandy) that all together, in fact, shape the cultural meaning of the city space.

As Lefebvre reminds us, contemporary modern everydayness is shaped by commoditization and monopolistic capitalism in which clearly “the State plays the role of the manager of consumer society” (“The State” 64). The state, as a representative of monopolistic capitalism, strives to transform lived space and the natural world into a profitable force of production in which everyday life has to become essential site for the reproduction of capitalist social relations (Gardiner 91). Contemporary everyday life marked by the informed mobility, the so-called mobile lifestyle, as I will show, then also serves as a potential ground for crafting new necessities and new profitable

desires for the citizens to indulge in. It also reveals, to an extent, the ‘necessity’ for calculative support for contemporary informed decisions, even when it is to generate ‘random’ suggestions. In spatial terms, this is reflected in the decline of “unstructured urban space, or non-instrumentalized play” (Gardiner 90). Whether such personalized and customized spatiality trend could, at all, represent an alternative strategy, is questionable. Such a trend leads towards impoverishment of the qualitative aspects of human existence, as “there is no active participation in commodified forms of leisure, space and entertainment” (Gardiner after Lefebvre 89-90). Therefore, a goal of ongoing critique of ‘new kind of urbanism,’ as I believe Lefebvre would argue as well, is precisely to demystify the myth of consumer society embodied in ideological appearance of ‘personalization,’ this new form of individualism and “the individual acting for and by himself” (“The State” 63). Lefebvre reminds us:

And yet individualism was only an appearance and an illusion, the hanging curtain behind which reality of capitalism concealed itself. Today, monopoly capitalism gives the appearance of a consumer society where everything is made for the consumer, where the needs of the consumer are the very rule of capitalist production. This conceals the reality of this production and the fact that the capitalistic producers manufacture the consumers themselves, if only through advertising or through studies of the market... (“The State” 63-64)

Even though the physical structure may not be subject to the constant transformation, the focus is on the manipulative flexibility of content use and the mobility of users subjected to constant change and flow, the ‘mobile

crowd' that 'performs' the city space. For instance, extensive calculation and predictable solutions for individual spatial risk-management attempt to limit 'undesirable' encounters and experiences, at the same time framing and directing 'desirable' urban mobility and interaction. Hence, even if the potential users/consumers are free to move in 'unpredictable' ways, the seemingly nonexistent system of power is following, multiplying and re-discovering itself through the discourse of assured efficiency. As I will show in this thesis, the concept of informed mobility comes with an attempt to calculate and represent everyday reality as 'accurately' as possible. The point is that the presented reality is still just a rendering. The question is, to what extent such renderings of reality transform the 'hidden' reality of everyday life and 'unstructured' space crucial for negotiating spatiality? Not only do these technologies and practices in space actually visualize and materialize formerly invisible urban trajectories and activities, it also brings on "the opacities of mobility and the hidden geographies of memory" (Crang & Graham 791). Yet, as De Certeau asserts, it is precisely this *invisibility* of city movements and innumerable tactics, and the opacity provided by social practices such as walking (40-41) that serves as a 'response' to main forces of power "De Certeau was skeptical of attempts to stabilize such knowledge, suggesting it ossified and drained the very life he celebrated (Crang and Graham 809).

Therefore, this overwhelming dependency on technological support and spatial data processing needs to be further addressed with attention to this reversed visibility, including additional guiding questions such as: What kind of new spatiality, new social meaning of space, are these customized technologies fostering? Who benefits the most out of the calculative spatial

efficiency; and who, in fact, controls the customization of solutions? What happens with those aspects and spatial layers that are excluded from the online databases and calculative practices? Even more so, it remains to be discussed if such platforms marked by predictions and recommendations, leave at all any ‘unstructured’ space that both Lefebvre and De Certeau have underlined as crucial for critical engagement and negotiation of spatiality? For that reason, I will discuss technological outsourcing, the politics of ‘upgrading’ and even replacing cognitive and sensorial with the calculative practices; and the nature of calculative practices themselves, with intentions to investigate the terms and possibilities of ‘active participation’ and Thrift’s ‘resistance’ within the domain of easy-to-use and disappearing analytical platforms. The main goal of this investigation, therefore, is the discussion on personalized spatial efficiency, with predictability and recommendations in space, and the room for potential alternative shapes of spatiality as a reaction to mainstream framing. In other words, do personalized analytics and recommending location-based services challenge ‘the system’ and present appropriate channels for city dwellers to negotiate and re-claim spatiality? Could they support the urban change for ‘users,’ and under which terms exactly?

Media theorists continue to debate location-based media advancements as democratizing and empowering, regardless of the fact they revolve around the same ‘problematic’ technologies they often criticize. McQuire notes: “There is still space for social interactions outside of the dictates of surveillance and spectacular forms of commodity display” (“Mobility, Cosmopolitanism” 57). As I will present in Chapter 5, practices such as “crowd sourcing” and “participatory urban sensing” (see Crandall), as well as

art activism that utilizes location-based technologies, are often seen as a potential against mainstream patterns of use: to increase the levels of citizen participation in the governance of cities; to create oppositional vision of urban space; and to render visible the systems of knowledge production (for e.g., in Crang and Graham). As such, these practices would relate to Amin and Thrift's "new means of resistance," the third "R" of "new kind of urbanism" outlined earlier in this section. The same practices are also seen to open the door towards the "new social relationships" in the cities, once adopted by mainstream users of location-based utility network.

Such practices show that, while cities are re-shaped by landmarks built for tourists, creating an even more 'fantastic' content and transforming surroundings towards Debord's grandiose spectacles and extravagant cities, we also see those that are learning to recycle, re-use or appropriate space and extract personal meaning. As the study on how urban space has become transformed by skateboarders (Borden "Skateboarding") shows, existing urban space is re-used as a skating field. Even when certain places were custom-crafted specifically for their use, skateboarders soon found themselves back on city streets, in search for exciting experiences and interesting places to skate (Borden). Similarly, with an enormous body of so-called user-generated content and voluntary personal material being disclosed through (mobile) social networking, it is assumed that even some calculative practices are able to re-use the existing space by creating space for new relationships and meanings. Thus, this investigation ends with points on the proposed 'resistance,' and terms under which art activism, participatory sensing and similar practices, in fact engage with both technologies and the surrounding

discourses. While without a doubt, such platforms and supporting applications mediate and shape how people communicate today, which I will show in this thesis; the question is whether the same platforms, offering personalized predictive analytics, and the customized use of location-based services, could indeed challenge and negotiate the imposed system, resisting “new means of representation” in the same way art practice suggests?

This thesis, therefore, attempts to unearth the complication that the discourse on efficient spatiality, with its supporting automatic analytical platforms, obscure and inform in attempts of the power structure to absorb the ‘resistance.’ The overall objective is to challenge the mainstream ‘management ideology’ and personalized efficiency, so far assumed as commonsensical and desirable, and to investigate the space it leaves for unstructured and ‘non-instrumentalized’ spatiality. The main body of this work will investigate to what extent power/technological complex absorbs ‘resistance’ through this reversed visibility and powerful personal efficiency discourse; and to what extent the proposed ‘active participation’ is framed by discourses and software and, as such, diluting the actual analytical and negotiating power and of its users. I will analyze attempts to incorporate the same ‘resistance,’ in which active participation becomes yet another ‘requirement’ from the system. In doing so, I will argue that the proposed playfulness and ‘active participation’ in space are not unlimited users’ choice and creativity, but are, in fact, requirements by the mainstream ideology: it is allegedly more intelligent, more productive to do so—and necessary in order to maintain competitive advantage. My attempt is to adequately address points of overwhelming dependence on calculative technologies and prevalent

notions of efficiency in space that may, in fact, contradict praised potentials. I investigate the current implementation and development strategies of this new urban utility network that, at least in its concepts, try to advocate perfect predictability and certainty, in order to finally discuss potential alternative directions which allow and not limit the potential ‘space’ for negotiating and appropriating spatiality. ‘Personalized’ analytics and predictive spatial practices, in their endeavors to limit chance, random and guide new ways of urban exchange, indeed create new uncertainties, among which the most ‘uncertain’ is if the suggested urban/technological complex could at all present a valuable space for contestations and negotiations of spatiality.

In this introductory chapter I have attempted to introduce and outline the popular discourses surrounding the development and implementation of location-based utility network and point to the complicity within the very concept of ‘active participation’ in space with such tools. In this chapter, my intention was to unfold the discussion that will take place in the following chapters, in which I proceed to investigate the dominant discourse of efficiency and its channels through which active participation is in fact absorbed. As we come to realize, such participation is not actively pursued as much as it is forced on city dwellers with mobile lifestyles and easy-to-use technologies, and in that sense ‘appropriation’ might have more to do with necessity, coping, adjusting and expected compliance with the mainstream efficiency discourse.

Chapter 2, Points on Predictability and Calculation is Space, opens with what appears to be the crucial element for city dwellers to negotiate spatiality in their own terms *apropos* the dominant order, grounded in concepts developed by Lefebvre and De Certeau. Both Lefebvre and De Certeau, I argue, claim that the critical and analytical capacities through which urban dwellers strategize and appropriate in their own terms mainstream spatial representations, lay precisely in the domain outside of the calculative and predictable. For Lefebvre, that is the space of *autogestion*, and for De Certeau, it is a *void* that leaves the crucial *space for maneuvers*, both valuable for symbolic interpretation and negotiating whatever imposed spatiality. This argument is further strengthened by Virilio's questioning of invisible technologies and technological agency in modern techno-culture based on "aesthetics of disappearance" (*The Lost Dimension*) in relation to the critical and analytical powers. As spatial processing becomes replaced by a seamless location-based analytics, affecting the analytical powers of urban dwellers, it in fact reflects the dominant logic of systems of control and this reversed visibility between the source of power and supposed 'reaction.' The discussion is supported by Heidegger's investigations on the nature of calculations and technologies that are, according to him, in their essence 'enframing' ("The Age") and, as such, limits users' choice and control. I underline what I believe is the crucial point in Heidegger's discussions, namely the poetic (non-instrumental) approach to technology and the task of thinking that concerns the process of un-concealment and *openings* that amidst the enframing reveal the things themselves and let us say something to us, as Heidegger would say ("The Question" and "The End"). Furthermore, with his insights on

‘actualities’ and ‘potentialities,’ Marcuse argues the realm of ‘potentiality’ includes the incalculable and unexpected as not only inevitable, but also potentially desirable options (*One-Dimensional*). In that sense, predictable recommendations aspire to clear options from risky and undesired encounters, which exist within the realm of ‘actualities’ in an attempt to control future activities and encounters. However, as I argue, negotiating spatiality requires potential accessibility to both foreseen and unforeseen options.

Chapter 3, Strategies of Systems of Control, investigates the origins of anticipated efficiency of daily routines and the prevalent ‘need’ to efficiently manage one’s current and future activities around the city. The suggestion is that the prevalent dependence on personalized predictive calculations and recommendations is a strategy of systems on power, and not the user’s choice, as commonly assumed. The discussion in this chapter is based on Foucault’s definitions of ‘governmentality’ and ‘normalization’ (*Security, Territory*) and the notion of risk as a ‘dominant logic of control’ (*Beck Risk; World Risk*). The advocacy of personalized efficiency is a new mode of representing power in cities by promoting individuation through personalized predictive recommendations as ‘practical’ support to contemporary requirements to constantly construct’s one’s life narrative (*Giddens The Consequences; Modernity; “Risk”; Runaway*). However, its main goal is to ensure self-regulation for an overall spatial efficiency through customization (Andrejevic, “Monitored Mobility”); in other words, standardization, normalization and optimization, in light of which predictive analytics and recommending services then emerge as a requirement rather than a choice.

Chapter 4, Cities, Technologies and Promises, situates the predictable analytics and recommending services within the principal discourse of information potential set in the context of efficiency of urban/technological complex. As such, the concept of “Intelligent Cities” relies heavily on leveraging information potential, dealing with plausible imagery in relation to the urban present and future that those technologies of efficiency promise to support. With a brief glimpse to similar past promises with different technological advancements, predictive analytics and recommending location-based services are situated within the framework of the informational potential of contemporary urban/technological complex. Contemporary personal spatial efficiency discourse then places location-based services in everyday use as a ‘promise’ to sustain modern mobile lifestyles, by facilitating mobility and space/time manipulation. However, as I hope to show in this chapter, mobile lifestyles, as other technological advancements, are the requirement of modern times re-shaped by the increasing dependence on same technologies that should ‘resolve it.’

Chapter 5, Outsourcing Sensorial and Cognitive Capacities and Active Participation, further investigates the nature of calculative technologies and the way in which location-based applications and supporting software operate. The process of ‘narrowcasting’ is the principal behind ‘personalized’ location-based services, is again a ‘perfect fit’ for mainstream spatial strategies. At this point, I discuss the possibilities of appropriation and improvisation within the domain of predictable and recommending services, in relation to the issues brought thus far throughout the thesis: ‘personalization’ and efficiency compliance with supporting automatic software and the

principle of narrowcasting; and naturalization of such processes with its peculiar invisibility and the level of engagement with given technologies. I contrast such tendencies with main concepts developed within so-called alternative practices, such as participatory sensing and location-based media art practice, in order to point to the inconsistency and ambiguity in defining ‘active participation’ in the process of commercialization and implementation of such systems for the mainstream use.

Chapter 6 is the **concluding chapter** that ties together all the arguments and conclusions made throughout this thesis, with the hope of convincing my readers that we need to re-think the attitudes toward the current development and implementation of location-based utility network, in particular pertaining to possible active participation and spatial negotiation with automatic ‘personalization’ and recommendations in everyday urban life.

CHAPTER 2

ACTIVE PARTICIPATION IN URBAN SPACE: POINTS ON PREDICTABILITY, REVERSED VISIBILITY AND CALCULATIONS

In the previous, introductory chapter, my intention was to outline the discourses surrounding the promotion and placement of location-based utility network; more importantly, to underline the “call” and urgency for active participation in urban space. In this chapter, my goal is to present the theoretical grounds on which I base my discussion on the ambiguity of ‘active participation,’ implicated with predicable analytics and recommending services. This chapter is dedicated to a search for what is, in fact, an ‘active participation’ pertaining to urban performativity, as the works of Lefebvre, De Certeau, Virilio show; and pertaining to technologically aided calculative practices, discussed in the works of Heidegger and Marcuse. What I believe all these authors have in common is their shared concern over critical and analytical powers that are at the core of the ‘active’ in active participation. Another connecting thread is the metaphor of an *absence* of some sort, which both defines the critical analytical powers and undermines the presence of spatial representation in everyday life. In the work of Lefebvre, such absence is often referred to as a void, space ‘outside’ of, or in between; for De Certeau, it is a ‘room for maneuver’ and space for interpretations; for Virilio, it is the dynamics between visibility and invisibility; for Heidegger, these are the openings or clearings for raveling of the truth and poetic interventions; and for Marcuse, it is unpredictability. This chapter serves as a blueprint in which what

is argued as essence of active participation, such absences and ‘openings,’ will be contrasted and sought for in the remaining chapters of this thesis amidst the discursive and enframing trends; to finally, in Chapter 5, suggesting possibilities (or rather, pointing to the conditions) suitable for appropriating such technologies so as to preserve and open new possibilities for spatial dialectics and, as such, to preserve the regenerative power of everyday life.

The chapter opens with a discussion on two seminal theorists on urban life, Henri Lefebvre and Michel de Certeau. In this section I search for an essence behind Lefebvre’s concept of autogestion, often interpreted as a self-governance, and De Certeau’s ‘room for maneuver,’ concepts that resemble the most contemporary aspirations for active participation in space and even ‘user-generated’ urbanism. To both Lefebvre and De Certeau, significance of everyday life lays in terms of a power to appropriate imposed spatiality; in other words, the possibilities to ‘perform’ in urban space. In this section, I wish to remind my readers that the same authors argued that performative power calls for critical and analytical interpretation, and that the vital characteristics for such appropriation are non-instrumentalized and unformed spatiality; in other words, outside of the domain of calculative and predictable. While such views may seem contrary to the potential of mundane everyday practices and, as such, labeled ‘elitist,’ I will show that this ‘critical’ and ‘analytical’ in their work relate precisely to the capacities to rethink and negotiate spatiality within the spontaneity and informality of the everyday rhythms and patterns.

Of course, calculative and predictable space is the space of perfect visibility or, as Virilio would argue, a space of ‘disappearing technologies’ and

reversed visibility. Therefore, the following segment connects the calculability and predictability with the current state of pervasive yet invisible technologies. This ‘syndrome’ is recognizable as the technological apparatus and source of power slowly fades in the background, becoming invisible, while the everyday practices, formerly invisible and tangible ‘tactics,’ as De Certeau would say, are visualized, classified and operated with and, as such, arguably controlled. This vulnerability of ‘tactics’ endangers regenerative and interpretive powers in everyday life. Inseparable from software-based predictability and recommendation systems, automatic ‘personalization’ is about outsourced sensing and thinking; therefore, as Virilio puts it, such practices reduce the actual engagement with technologies and distances from actual analysis, further diluting critical and analytical engagement of city dwellers. In the final two segments, I discuss the nature of calculative operations, first with Heidegger’s argument in which calculative operations *enframe*; i.e., limit and channel critical and analytical processes into those specific to calculative operations. But more importantly, I look into his arguments on ‘openings’ and clearings that amidst the enframing allow, or grant, truth to reveal and unconceal itself; and further down I look into his views on ‘saving powers’ of technologies, grounded in the concept of *techné* and the critical and analytical approach to technologies themselves. In the final section I look into Marcuse’s observations on ‘one dimensionality’ and the space of actualities, and his arguments against the exclusion of potentialities. In an attempt to clear the reality from unreliable and undesirable experiences, predictable and recommending services also clear users’ options from unpredictable yet potentially different, alternative choices.

This chapter is, therefore, a theoretical argument for incalculability and unpredictability; or rather, an argument against calculability and the fantasy of perfect predictability. This chapter will strengthen my position, further down the road, on the need to reconsider implementation of such location-based utility network in view with the valuable space for potential contestation where city dwellers would be able to, both consciously and spontaneously, engage with the environment in a more analytical and critical way. This chapter also grounds my position that we need to understand and engage with our tools more, and not leave to automatic ‘personalization,’ sensing and outsourced analytics, a point that I will also come back to in Chapter 5. This, of course, involves not only technological proficiency, but also an understanding on the supporting discourses and narratives, implications and complicities that technological and discursive practices obscure and conceal.

2.1. Active Participation and the ‘Space’ for Negotiating Spatiality

Spatial appropriation presumes the empowering and regenerative potential of everyday spatial practices, in which city dwellers are able to re-think, discuss, re-define, re-claim whatever imposed discourses, spatiality, as well as technology, from the mainstream strings of control. Everyday life therefore serves as valuable ground for negotiating imposed spatiality. At the same time, as promoted by the developers, everyday practices surrounding location-based technologies enable novel and unique views and manipulations of spatiality. Given the prevalence and dominance of calculative technologies in everyday life, among which are numerous calculative location-based

applications, my intention with this thesis is to re-investigate the empowering potential of such systems and implications that implementation of such systems in everyday life have on negotiating powers of city dwellers. The following discussion therefore dwells within the realm of the theory of everyday life and everyday practices, here focusing on several points raised by Lefebvre and De Certeau. It is important to stress that despite the obvious attempts on the part of mainstream culture to structure and design all aspects of social life, both Henri Lefebvre and Michel de Certeau maintain “boundless faith in the regenerative capacity of everyday life, the resistant qualities of the body, and the unquenchable spirit of contestation and radical subjectivity...” (Gardiner 99). Still, such restoration does not happen by default or by the pure magic of everyday life’s self-restoration powers. My intention is to remind readers that the often quoted spontaneous, subconscious and invisible everyday practices reside precisely outside of calculative and predictable, in the unformed and uncontrolled segments of everyday life, aspects that, I claim, Lefebvre and De Certeau found ‘empowering.’ The regenerative capacities of everyday life are situated within the space of ‘absent’ or failed control, within the domain of incalculable and unpredictable, as these authors argue. Therefore, what is on one hand claimed as ‘empowering’ for users by developers², increased efficiency and productivity, efficiency compliance and risk-management, which presume predictable analytics and calculations of all sorts; present the attempt of systems of control to clear the everyday experiences from allegedly unpleasant, undesirable, and non-meaningful experiences. As such, calculative practices, predictive analytics and

² In Chapter 1, I outlined a sampling of examples, and will continue to do so in the following chapters.

recommending services attempt to clear everyday life from those spaces ‘in between,’ at the same time challenging the ‘empowering’ and ‘performative’ notions advocated by these two theorists of everyday life.

Lefebvre understands that the superstructure, a dominant culture, ‘naturally’ attempts to make everyday life coherent. Social representations of society, through knowledge, ideology and culture, set norms, models, values, collective and imperative forms of conduct, roles and forms of control: “They normalize the individual and impose a minimum amount of cohesion and coherence in his everyday life” (Lefebvre 60). On the other hand, everyday life is a level of social practice within the totality of represented space that contains levels on its own: “rhythms and cyclic time scales [are] one of the contents of everyday, with all that they organize and command, even when they are broken and fragmented by linear time scales.” (Lefebvre *Critique* 19). Everyday life exists in a concrete space and time; it is an actual meeting point where the materiality of everyday experiences encounters the imposed structures. This is precisely why Lefebvre states that everyday life is so important, being the crucial “site where we enter into a dialectical relationship with the external natural and social worlds in the most immediate and profound sense” (Gardiner 76). More importantly, in the quest to answer the question whether recommending and predicting platforms indeed support and allow this ‘dialectical relationship’ or in fact undermine it, it is crucial to note that the ‘dialectical relationship’ Lefebvre talks about does not occur through prescribed and formalized channels or the contemporary prescribed ‘feedback’ channels.

The superstructure attempts to render a future metamorphosis of the everyday impossible, so as to successfully reproduce the existing social organization, through calculations, plans and designs, among others. Correspondingly, the modern capitalist space translates and therefore maintains: *homogenization* with its centralized control, unifying structure and exchangeability, dominant rules of the market and modes of production; *fragmentation* with its differentiation and specialization, and segmented social activities; and *hierarchy* with its unequal power relations, center vs. periphery dichotomy, and others (Lefebvre “Theoretical Problems”; paraphrased, emphasis added). On the other hand, everyday life is also lived and not only conceived and, as such, is a site of unexpected and spontaneous and “non-instrumentalized spaces of urban life” (Gardiner 96). Hence, as everyday life contains both controlled and uncontrolled sectors, inevitably, it contains a ‘problematic’ segment of individuals caught in everydayness, which is:

A perpetual confrontation between empowerment and powerlessness. It will experience an inner struggle to *appropriate* life, a struggle against whatever *disappropriates* it. (Lefebvre *Critique* 58, original emphasis)

As I briefly sketched in the introductory chapter, for Lefebvre, everyday life represents a space within which the State exercises its power, for instance, through consumerism; but it is also the space where individuals can argue against, and struggle against, that same power. This constant ‘conflict’ with formed and controlled—the intrinsic dialectic of impossible and possible, random and certain, achieved and potential—is a positive and desirable quality of lived everyday space in which space for the contestation of space is

therefore essential and should be preserved. The everyday—more precisely, this space for—contestations and negotiations “can only exist dialectically, in the endless conflict between nature and man, between matter and the techniques which wield power over it” (Lefebvre *Critique* 64), by recognizing the needs and desires outside of the state. Here is where everyday life maintains the role of “demarcation and junction between the *uncontrolled sector* and the *controlled sector* of life” (46, original emphasis). On the one side, this implies that the controlled sector intentionally obscures some segments of everydayness potentially significant to make true free decision; on the other, it refers to the unintentional concealment of accidental and unplanned potentiality that is equally important. In other words, everyday transforms life/world through a critical and dialectical approach to everyday life itself through true choice and freedom to decide which, incidentally, includes the choice of unintentional and accidental potentiality: “The real can only be grasped and appreciated via potentiality, and what has been achieved via what has not be achieved. But it is also a question of *determining* the possible and the potential and of knowing which yardstick to use” (46, original emphasis).

Lefebvre advocates a ceaseless creation and re-creation of lived time and space based on the non-calculable that plays the role of a ‘test-bed,’ a sort of spontaneous and unformed segment of the system that will manage the balance between controlled and uncontrolled, and in doing so maintain the space for contestations and ‘critical dialectics.’ This is what Lefebvre terms *autogestion* (Lefebvre “Theoretical Problems”). The ‘autogestion’ principle conceptualizes everyday life as representing radical democracy, progressive,

democratic and egalitarian ways of organizing social space and time: “Only through *autogestion* can members of a free association take control over their own life” (150). ‘Autogestion,’ therefore, is a form of revolutionary spontaneity of today, as means of struggle and for the reorganization of society, from everyday life to the State (142, paraphrased) in which we can also recognize contemporary concept of user-generated urbanism.

The principle of *autogestion* may appear spontaneously, but it still requires a set of circumstances in which the most important is to “excavate everyday life for political possibilities that point toward alternative, more progressive, democratic, and egalitarian futures” (Brenner and Elden “Introduction” 38-39). Hence, Lefebvre asserts that, if the world is to be transformed, it has to be through the ongoing critique of everyday life that is “a radical critique aimed at attaining the radical metamorphosis of everyday life” (*Critique* 23). Of course, the everyday life itself is interminable, but that does not put it out of reach of the power system. Lefebvre reminds us that “the principle of the State tends to limit the principle of autogestion” (“Theoretical Problems” 148). In other words, everyday life should struggle against attempts to be formed and put under state’s control, against “instrumentalized space.” This suggests that so as to maintain the ongoing metamorphosis of everyday life (its ‘elasticity,’ metaphorically speaking), we need to preserve the space, outside of instrumentalized and formalized, for an ongoing analysis and critique of everyday life, even if there are no issues to be argued against, yet. (Let us imagine this hypothetically.)

Similarly, De Certeau argues that, in fact, the potential to struggle against control through everyday practices, is essentially grounded in

symbolic interpretation. De Certeau was particularly optimistic with regard to the power of human agency and resistance (Gardiner 158), and further possibilities for appropriation through the creative and improvised nature of everyday spatial practices: “a way of thinking invested in a way of acting, an art of combination which cannot be dissociated from an art of using” (De Certeau xv). While his views would agree with Foucault’s, for instance pertaining to the goal of disciplinary apparatuses towards effective surveillance and control of heterogeneous practices, he disagrees that the whole of society, especially not everyday life, functions according to one dominant principle. Therefore, De Certeau emphasizes the manipulative and colonizing powers of actual, lived experiences and everyday practices, those “innumerable and infinitesimal transformations of and within the dominant cultural economy in order to adapt it to their own interests and their own rules” (xiv). He maintains the position that it is through this ‘act of using’ and ‘consuming’ space that city dwellers are able to create experiences and meanings along with (or even despite) imposed ones; that not only are city dwellers the users, but also co-producers, of space where “secondary production [is] hidden in the process of its utilization” (xiii). Yet, even though he emphasizes the power of everyday practices, perhaps to the extent of exaggerating, he elaborates at length on the essential conditions under which this is possible. Symbolic interpretation is possible under the condition that there is a capacity for that interpretation, or what he terms “room to maneuver” or, in other instances ‘void,’ which is again, as I assert, the space outside of the formed and pre-calculated.

More precisely, for De Certeau, this cultural activity of the non-producers of culture are, in fact, co-producers, seeking to appropriate, use, and attribute meaning to cultural artifacts in a myriad of unexpected and surprising ways (Gardiner 170). To De Certeau, these are simply ‘tactics’: “clandestine forms taken by the dispersed, tactical, and makeshift creativity of groups or individuals already caught in the nets of “discipline” (xiv). On the one side, to organize and control, the system employs ‘strategies’ that are, indeed, predisposed to rationalize, calculate and predict, as much as the current power system attempts to do similarly by promoting predictable analytics and recommending services. Strategic space is, at least according to De Certeau, in the domain of ‘visible,’ where visibility points to the determined and straightforward meaning of space translated to its users. As such, ‘strategies’ limit, with the goal of eventually eliminating spontaneity, unexpectedness and openness of the system for the interpretations. On the other, tactics are the complete opposite: spontaneous, invisible and creative. Let us put aside, for a moment, the actual reversed visibility of strategies and tactics that I shall elaborate on later; the emancipated and creative use for De Certeau still crucially depends on the capacity for ‘symbolic interpretation’ and the available space for improvisation. “Spatial rhetoric,” the process of appropriation places, is possible if manipulation of “the basic elements of a constructed order” is possible, as it assumes the space for symbolic interpretation and deviations from “proper meaning”(100). In De Certeau’s terms, the ‘proper meaning’ corresponds to the represented and formed meaning of space imposed through the mainstream ‘strategies.’ By contrast,

everyday practices as ‘tactics’ suggests the ability to appropriate space rely on a ‘reading’ beyond the imposed meaning:

Hence the necessity of differentiating both the “actions” or “engagements” (in the military sense) that the system of products effects within the consumer grid, *and* the various kinds of room to maneuver left for consumers by the situations in which they exercise their “art.” (Certeau xvii, original emphasis)

Therefore, the main distinction between strategies and tactics is the “room to maneuver,” as De Certeau would say. It is, in fact, the vital feature for symbolic re-interpretation and eventual appropriation of space. Hence, even though everyday life is inevitably marked by both the formed and unformed, controlled and uncontrolled social space, both authors believe that the ‘regenerative’ power of everyday life resides precisely in this unformed lived users’ space with its own ‘rhythms’ that are outside of the conceived and designed. De Certeau’s “room for maneuver” has to allow for many ways of operating, certain levels of subconscious, and space for interpretations. As such, it cannot be determined, and has to reside outside of the calculations and mainstream strategies, and critically relies on the invisibility and unpredictability of ‘tactics.’ Hence, when advocating the visibility of strategies but invisibility of tactics, De Certeau refers not only to the actual traceability of tactics and further abuse by strategies. This invisibility is also a lack of exact and formed meaning, implied by the main channels of representation, quite contrary to what spatial analytical and recommending platforms seek to do. Spontaneity and unpredictability is, once again, indispensable for all the ‘space’ it leaves open to interpretation, and actual

playfulness. It is precisely this “void” in de Certeau’s terms, and what further down in this chapter Heidegger discusses as ‘openings,’ which is necessary for constant reconstruction of spatiality, more specifically for alleged emancipation: “Far from expressing a void or describing a lack, it creates such. It makes room for a void. In that way, it opens up clearings; it “allows” a certain play within the system of defined places” (De Certeau 106). Of course, and as De Certeau would agree, calculative practices in everydayness do not deny the existence of everyday practices. Predictive and recommending services of all sorts, even more so, limit this ‘room to maneuver,’ and in doing so, limit the space for alternative interpretations, as I would like to suggest. A sense of place is denominated by its absence, lack of representational meaning rather than the lack of ‘real’ meaning. ‘Invisible’ numerous tactics and moving layers are “the very definition of a place, in fact, that is composed by these series of displacements and effects among the fragmented strata that form it and that it plays on these moving layers” (108). In this sense, we may see how the attempts of analytical and recommending platforms to capture, visualize and explain the invisible tactics only make them vulnerable, as in so doing, they also compromise the essential ‘void,’ the space for alternative interpretations.

Similar to De Certeau’s ‘void,’ an absence of imposed structure and formed meaning, Lefebvre argues for necessity space for dysfunctions and failures, which are embedded into his principle of *autogestion*: “The “dysfunctions” stimulate functions and functionaries alike—which either fails or improves” (Lefebvre *Critique* 65). Social failure represents various positive qualities, such as independent thinking, critical intelligence and even

rebellion. The failure to both maintain control and conform to the mainstream framing serves as a sort of ‘test bed’ and opens up new potential. Therefore, the everyday should be a balance between the controlled and uncontrolled sectors, a space with room left for potential failure and dysfunction: “The everyday protests; it rebels in the name of innumerable particular cases and unforeseen situations” (64). As ‘failures’ emerge precisely in the ‘weak points’ of existing society, by failing to meet the expectations of the system, they point to potential problems in the imposed system and bring to the surface all the issues of the social life excluded and bypassed by the system. As such, these practices are, without a doubt, within the areas where the system control has ‘failed’ in one way or another and should be altogether outside of the calculated domain. In contrast, the above-discussed principle of *autogestion* makes social failures possible, as it resides within the spontaneity and unformed segments of every day life:

If it is the nature of a spontaneous movement that it cannot be completely foreseen, cannot be fit into a fixed framework, cannot be “structured,” that one cannot say in advance where it begins and where it ends, in such a way that it always contains an element of the unforeseen, it is no less true that where there is no spontaneity, nothing happens. (Lefebvre “Theoretical Problems” 141)

Lefebvre’s *autogestion* is therefore a social phenomenon that bears traits such as spontaneity and unpredictability and leaves space for desirable ‘failure,’ as such, providing a test-bed and the valuable critique for the system on power: “Thus, in so far as it is both unformed and a content, the everyday ‘contains’ an ongoing critique of bureaucratic form and its effectiveness”

(*Critique* 65). Everyday practices, led by the principle of *autogestion* and with qualities such as unpredictableness and incalculability, let ‘things happen.’ Not only things that are not yet experienced and not yet even imagined; such space of unpredictability can be understood as a probing and testing ground for an imposed social organization. Even more importantly, such spaces allow issues not included by the dominant order to surface. It is also the exposure to a multiplicity and variety of interdependent but often unconscious spatial relations that enable re-thinking and negotiating spatiality. Nonetheless, the unpredictable, as unformed and not calculated, is a crucial ‘condition’ argued by both authors that leaves enough room for interpretation and further negotiation of imposed spatiality.

In this section, I discussed the theoretical foundation for the spatial negotiating potential; in particular, pertaining to the various calculative and predictive technologies in everyday life. Even though both Lefebvre and De Certeau discuss appropriation in terms of analytical and critical power of city dwellers to negotiate spatiality, I would like to point out that this includes appropriating everyday technologies through everyday practices. It is therefore important to note that De Certeau’s interpretations and Lefebvre’s *autogestion* are not the same as ‘getting used to’ or disappearing and blending-in technologies, or even simply playfulness, if we understand it as a means unto itself. In their terms, appropriation and ‘playfulness,’ whether conscious or spontaneous, presumes analytical and critical engagement, and an understanding of the underlying processes and technological systems as the means of attaining a critical approach. What we may also glimpse is the current strategy of system on power, encroaching the space of everydayness

precisely for its power to contest and rebel, and attempts to absorb it through the ‘personalized’ efficiency and risk-management discourse and, of course, predictive and recommending services.

Given Lefebvre’s and De Certeau’s resistance to the overpowering calculative control in everydayness, it remains to be explored in this thesis if the current technological complex, tied to increased personal monitoring, calculations and predictions, at all allow the presumed regenerative capacity of everyday life, and in what form exactly? Do calculative and predictive location-based technologies leave ‘room to maneuver’ and allow principle of *autogestion*, or do these only reside outside of this technological complex and through its denial? In the following sections I expose several other points which may be useful when discussing possible avenues outside of the domain of the controlled; namely, the fantasy of total visibility, calculability and predictability in relation to the analytical and critical capacities of urban dwellers.

2.2. Disappearing Technologies and Reversed Visibility in Relation to the Analytical Capacities

Similar to Lefebvre and De Certeau, Paul Virilio elaborates the relationship between interpretive and analytical powers or, to be more precise, the connection between the disappearing technologies and mediated perception that affect our interpretive capacities and, with that, our analytical powers. Similarly, I dare to claim, Virilio argues against technologies that attempt to frame and represent reality, yet his main problem is not only the

‘room to maneuver,’ space for interpretations, but more importantly, it is the mediated perception, a technological agency, that skews our vision and our interpretative capacities. Technological agency in place of human agency is, for Virilio, problematic because of the extent of control and understanding we have, as observers, over what, and how, we observe, and with what depth. In his works, mainly *The Aesthetics of Disappearance* and *The Lost Dimension*, both of which were republished in 1991, Virilio argues that the contemporary technologies of ‘vision,’ in attempts to outsource sensing and thinking capacities, distance observers from the ‘observed’ in terms of essence and substance and more, in shaping our vision, particularly by the means of dominant system of measurements, and the ‘tyranny’ of *immediacy and interactivity*. With mediated perception, therefore, we lose control over perception, because not only does it represent what is to see, but also *how* to understand what we see; in other words, it frames our perception, which increases ‘errors’ in interpretation. Technological ‘vision’ not only distances the observer but also offers the interpretation. For Virilio, this, in effect, decreases our analytical capacities to “dissect” observed reality and the very process of observation, a process that prompts inertia and passive observing, ultimately leading to the overall trend of de-politicization, which I continue to investigate in Chapter 4, where I explore more fantasies of urban efficiency. In this section, I investigate in greater detail Virilio’s arguments on technological agency in relation to analytical powers.

Today, as it seems, everything measures itself according to the acclaimed state-of-the-art technologies. Virilio maintains that the nature of technologies that mediate our perception and experiences define the system of

measurement and change the way we perceive the world, thus changing everything we do, from everyday activities, to war. Hence, he questions the terms under which humans are subjected to technological perceptual domination, from mediated vision by tele-observation, to technological sensors and computerized calculations, pointing to the tendency of “ the strategic positioning of productive interruptions” (Armitage “Beyond Postmodernism” 4), of the new technological complex to displace modes of representation that “splinter into countless number of visual interpretations” (4) and, as such, affect perception. Virilio critically investigates the ‘disappearance’ of human agency and terms of control over experiences, arguing that it will eventually impoverish the creative and analytical functions of humans. Of course, this occurs at a same time when technologies “disappear,” in the sense that they become miniaturized and de-materialized, along with the perceived disappearance of the ‘power structure’ that supports this technological system. On the one hand, our technological system of measurement endeavors to ‘visualize’ reality, represent it more precisely and more realistically, while, on the other hand, hide and conceal, or render irrelevant, the true substance and the ‘invisible’ system. This reversed visibility is one of the effects of mediated perception and effect of technological agency, as endeavors for ‘perfect vision’ put emphasis on form on account of substance, subsequently shaping perception and interpretation in its own way³.

Looking into the history of the science of measurement, referents and successive standards allow, or more truly strive towards, increasingly precise

³ Heidegger makes similar claims for calculative practices, which I will elaborate in the following section.

evaluations of space and time. However, any measuring system not only ‘measures’; it constantly re-defines perceived and lived space; as such contributing to the “increasingly rigorous determination of the image of the sensible world” (Virilio *The Lost Dimension* 36-37). Virilio notes that the history of measurement is reflected in the dematerialization of the referents from physical bodies, over precious metals to light itself, and parallels the ‘dematerialization’ of the perception from direct to indirect observation: “Where before microscopes, telescopes and other means of improved observation allows us to see that which we could not really see, the newer advanced technologies of investigation now have given body and corporeality to that which before had none” (*The Lost Dimension* 112). Hence, what is contested today is the meaning of all figuration, a whole set of representations once visual and today “mediatic” (Virilio *As Far As* 119), caught in instantaneous telecommunication of real-time presentation of facts. Technologies based on speed of transmission, instantaneity and immediacy are at the heart of everything we do, affecting our perception of the world around us. Contemporary systems of measurement, with its various instruments of measurement, transfer standards and machine transfer, tend to replace and evict direct observation, claiming to be more accurate and precise measurement of ‘reality’ with advancements of immediate transfer and ‘real time’ broadcasting, and more recently ‘real time’ interactivity: “We are directly or indirectly witnessing a co-production of sensible reality, in which direct and mediated perceptions merge into an instantaneous representation of space and the surrounding environment” (Virilio *The Lost Dimension* 30-31). Nonetheless, increased availability of previously not seen imagery, for

instance, affects the order of sensations and the capacity to have or not to have these sensations and, as such, do not have a common link to our faculties of appreciation and our perception of reality, thus increasing the ambiguity of interpretation, leading towards the “danger of a generalized delirium of interpretation” (52).

The lack of a ‘common link,’ therefore, refers to the lack of depth, or rather, the evident distance observers today, with mediated perception, have with observed issues, which leads to the skewed capacity to understand these issues in the first place, eventually leading to this ‘delirium of interpretation.’ With the perception that was once based on physical appearances, and closeness to perceptive reality, we had the analytical powers to dissect and dismount perceptive reality, and to actually critically evaluate perception itself, at least in terms, whether it is mediated or not. Today, according to Virilio, with the contemporary inclination towards speed and acceleration, this power is compromised. In other words, contemporary systems of measurement claim to achieve a more accurate and more ‘real’ representation of reality, while same immediacy and real-time effect displaces and detaches our perspective from its immediate environment. Virilio defines this trend as a new ‘aesthetics of disappearance,’ a condition that spills from the domain of scientific pursuit of a digital abstraction, dematerialization and disintegration to physical materiality of everydayness. The “lost dimension” (Virilio *Lost Dimension*), however, does not refer to the disintegration of the material world in its literal sense; rather, Virilio points to the dominance of the ‘logic’ of screen surface with its “lack of field and depth” in which performance replaces substance, and the humans are becoming a man/machine interface.

Our point of view then becomes televised instantaneity of a prospective observation knowing “that all representation involves reduction” (70). As our attention has been deported from immediate perception, to looking beyond the horizon, and our body of observable objects and events enlarge, our perception actually disperses and loses depth, thus decreasing the capacity for interpretation (increasing errors in interpretation), which further indicates the loss of critical assessment. Yet, or in fact precisely for that reason, the more we become out-of-touch with the observed issues, the more these ‘helpful’ technologies emerge to explain it, with attempts to clarify our increasing ambiguities of reality, by offering to interpret for us:

The imbalance between the direct and indirect information of our senses and the mediated information of the advanced technologies is so great that we have ended up transferring our value judgments and our measure of things from the object to its figure, from the form to its image. From reading episodes of our history to noting their statistical tendencies. (Virilio, *The Lost Dimension* 52)

This, of course, remarkably resembles the analyze-your-location call with myriads of helpful applications to analyze the surroundings for us. It also recalls the Quantified Self movement (*QuantifiedSelf.com*), “a self knowledge through numbers,” as they advertise themselves, with attempts to ‘quantify’ everyday practices and our own bodies in order to understand it better. However, as much as it is easier and more efficient, apparently, to operate with numbers, as much as such endeavors reduce the perception of our everydayness to numbers and operations available with numbers.

Constructed space then, is more than simply the concrete and material substance of constructed structures, the permanence of elements and the architectonics of urbanistic details. It also exists as the sudden proliferation and the *incessant multiplication of special effects* which, along with consciousness of time and of distances, affect the perception of environment. (Virilio *The Lost Dimension* 21, emphasis added)

On the one hand, with all kinds of ‘special effects,’ we see beyond the horizon, measure, materialize and objectify what is unperceived and immeasurable; on the other hand, however, we are not being able to see what is ‘in front of our noses.’ In Virilio’s terms, this implies that the present is discredited by the immediacy of that which is absent: “With ‘teleobjectivity,’ our eyes are thus not shut by the cathode screen alone; more than anything else, we no longer seek to see, to look around us, not even in front of us, but exclusively beyond the horizon of objective appearances” (Virilio *As Far As* 5). In the same way, the analyze-your-location call does not prompt the actual analysis and physical perception of one’s surroundings. The urban environment mediated by digital, information and communication technologies, is becoming too complex to understand, but also requires that city dwellers to be ‘actively’ engaged with it; McQuire elaborates on this in his work *The Media City*, as I discussed earlier in Chapter 1 of this thesis. Hence, the immensity of information at our disposal requires active participation in our efforts to interpret urban space and come up with the most ‘meaningful’ decision, which further necessitate automatic sensing, mediated

analysis of available information, software-based calculations and recommendations, and others.

As the pursuit of the imperceptible—which, in the above example, is the reality represented in information databases—relies heavily on the technological system of measurement and instantaneity of telecommunication; the intermediary in our observation turns the extroverted perspective of real space into today's introverted perspective of real-time, this new perspective that “instead of operating in the space of a constructed social fabric [...] now occurs in the sequences of an imperceptible organization of time” (Virilio *The Lost Dimension* 13-14). In that sense, chronological time gives way to instantaneously ‘exposed time’: “spatial dimensions have become inseparable from [their] rate of transmission” (14). As such, ‘real-time’ shapes our understanding of time today as an exposure, or in other words, the real is what is exposed to us by mediated perception, in contrast to the previously understood concept of time in relation to its succession. Hence, Virilio adds, what used to be “before, during and after” today becomes “underexposed, exposed and overexposed.” It is the time of exposure that shapes our understanding of the reality; or, to be more precise, the reality of facts depends on the exposure the observed fact gets: “A *real-time image* no longer offering concrete (explicit) information but discrete (implicit) information, a sort of illumination of the reality of the facts” (Virilio *Open Sky* 26). It becomes clear that what is underexposed becomes less real, less present or even invisible, in our reality, in comparison to what is overexposed. This, on the one hand implies either marginalization, for instance, the issue of current databases and the content that they actually carry along, and how well or not the information

represents the reality; on the other, the purposeful ‘invisibility’ of power structure gives way to the *seeming empowerment* of individual.

Yet, power is still very present. Represented data denotes what appears to be real, and is further manipulated and tweaked through ‘interactive’ platforms of all sorts, such as search engines and analytical platforms. Simply put, information that is not present in such processes of the interaction does not exist. Moreover, immediacy and instantaneity of such interactive systems prompt and require the immediate real-time processing of information, feedback, action on distance, constant update, constant response to the extensive data and information overflow. Interactive feedback forms, and all kinds of interactive platforms, in fact, guide the respondent through the designed format of interaction, to reply to, and choose between, carefully designed options; as such, displacing and reducing reality to what is bound by the format of interaction. Real-time interactivity even more requires prompt and immediate response, leaving less or no time to think about the decision. Recently, automatic ‘sensing’ software collects and operates with information in accordance with pre-designed variables for the process of interactivity. This contemporary “tyranny of interactivity,” in Virilio’s words, increases the danger of interpretive errors leading towards eventual diminish of analytical powers of observer and intellectual inertia today already visible in conformism of consumerism: “Obligatory interactive confinement as a kind of inertia of human population” (*The Lost Dimension* 120). Hence, such interactivity is not about engaging users as much as it is fostering inertia. This growing inertia does not relate to inertia in terms of mobility, since interactivity indeed supports ‘mobility’ in terms that ‘mobilizes’ users for action; however, this

action is bound by real-time feedback and interaction as explained earlier in the text. In the same way, active participation in space encourages ‘activity’; however, this activity is what Virilio terms interactive inertia. Inertia in terms of outsourcing sensorial, cognitive and perceptual for the automatic and instantaneous feedback, tends to limit the time for reflection and users are more and more becoming ‘sedentary,’ passive observers (*Open Sky*). As such, interactive feedback, automatic sensing and real-time streaming of (spatial) data will prompt active participation in terms of supplying information for the system to function, but will also prompt passive observance and analytical inertia.

The observation machine does not displace observers, but an image. In other words, mediated communication and observation do not displace users from their immediate environment; nevertheless, these “systems of instantaneous deportation” (Virilio *The Lost Dimension* 12) shift “from displacing the users to *detaching* them from their immediate environment” (*The Lost Dimension* 67, emphasis added). This detachment thus refers to the level of understanding⁴; depth versus superficial acknowledgment, of how, for instance, the technological apparatus and the power system operate; and other issues in question. It is the reality that is displaced and mediated, power system concealed and physical reality reduced and, as such, becomes susceptible to greater errors in interpretation: “From the aesthetics of the appearance of a *stable* image [...] to the aesthetics of the disappearance of an *unstable* image [...] we have witnessed the transmutation of representation” (Virilio *The Aesthetics* 25). The dematerialization of the perceived is reflected

⁴ Corresponding to Borgmann’s level of engagement, elaborated later on in the thesis.

in ‘factualization’ of objective and the uncertainty of what was once measurable; in other words, the meaning of both direct and indirect reality is ‘measured’ through represented (available) reality and the ‘reading’ of the same: “Today, perception of facts has given way to unprecedented facts of perception” (Virilio *Aesthetics* 116). The window as an epitome of direct observation was replaced by the screen (tele-presence) of indirect observation, which, in turn, has been replaced by ‘the gateway’ of virtual navigation through virtual space. Put in the language of predictable analytics, instead of leaving interpretation of represented reality ‘to our own devices,’ recommendations and predictions go one step further by offering a translation (of what should appear as ‘meaningful’) of an already reduced reality. Information is thus the third dimension of tangible reality “a *virtual reality* that offers every one of us considerable advantage of being both more ‘real’ than imagination and more easily controlled than concrete reality” (Virilio *Open Sky* 66). Until now, he says, we had universally recognized the capacity to describe and inscribe reality, and the crisis of representation was the question of construction and the ‘grand narrative.’ Now, with excessive amounts of mediated information, in place of ‘grand narratives,’ we have micro narratives of practical opportunity, popularly presented as ‘personalized’ services. The contemporary crisis of the representation is, therefore, no longer the crisis of the construction, but of joining and editing the information available through our channels of communication, or more recently through data analytics platforms of all sorts.

With the growing imbalance between direct and indirect information that comes of the development of various means of communication,

and its tendency to privilege information mediated to the detriment of meaning, it seems that the *reality effect* replaces immediate reality.

(Virilio *The Lost Dimension* 24)

The problem, among others, is the loss of alternatives; we have lost the ability to see ‘real-time’ representation of reality just as another view, another reduction, with the danger to assume that reality-effect is as real as we can get. In other words we need to acknowledge that what seems to be our reality, is only a segment, a partial view of reality. Awareness of such reduction is the first step; and what we may add to Lefebvre’s and De Certeau’s insights, we need not only space for interpretations; we also need to be more engaged, and to stay ‘in-touch’ with, the observed reality, to have a thorough understanding of the processes that attempt to construct it, including technologies and the system on power. In Chapter 4, on Urban Efficiency, I return again to Virilio and extend his points on reverse visibility and analytical inertia to include and discuss the contemporary state of urban ‘de-politicization.’ For now, it is important to show that there is an obvious difference between immediate and mediated perception of our surroundings. The point to note from Virilio is that mediated analysis reduces our understanding and engagement with reality, which further dilutes the potential analytical powers. The next section extends his points; in particular, his remarks on the “tyranny of interactivity,” discussing Heidegger’s thoughts on *enframing* and the nature of calculative practices and the ways in which calculation itself, let alone prediction, conceals and reduces reality to its own image.

2.3. Rethinking Calculative Technological Apparatus: *Enframing* and Openings

Only because numbers can be infinitely multiplied, irrespective of whether this occurs in the direction of the large or small, can the consuming essence of calculation hide behind its products and lend to calculative thinking the semblance of productivity—whereas already in its anticipatory grasping, and not primarily in its subsequent results, such thinking lets all beings count only in the form of what can be set at our disposal and consumed. (Heidegger *Pathmarks* 235)

With this quote from Martin Heidegger’s essay, “Postscript to ‘What is Metaphysics?’” I hope to unfold the discussion on calculations to support my argument on ambiguity of active participation in urban space with predictable and calculative technologies. As discussed in this section, with insights of Heidegger on technologies, calculative technologies are both reducing and concealing, or what he terms *enframing*. Calculation, let alone prediction, is therefore reducing our reality to whatever is possible to represent and operate with and within the domain of calculations. Not only is analytic software pre-designed and therefore *enframing*; Heidegger reminds us of the tendency firstly, to ‘objectify’ reality, materialize it and describe it in numbers, which analyze-your-location trend suggests and, for instance, the Quantified Self movement illustrates⁵; and, secondly, not to forget that ‘objectified’ reality is, after all, just the reality that is revealed to us, while still-un-objectified reality remains unveiled. He alerts us, most of all, to the dangers of the *enframing* and

⁵ The example was briefly presented in the previous section

consuming nature of calculations, and the instrumental approach to dealing with technologies, which will eventually turn everything and everyone into a ‘standing reserve,’ an energy source to be exploited. Yet, as Heidegger himself posits, technology contains potential *saving-power*; which, amidst enframing, holds the potential to bring-forth openings towards revealing of truth. This potential, for Heidegger lays in the humanity’s non-instrumental orientation to technology, and as I argue further towards the end of this section—in the ‘active,’ or what Heidegger calls *poetic* approach to technologies. My goal is to bring forward Heidegger’s observations to my subsequent analysis of possible appropriation of predictive and recommending services in everyday life, later in Chapter 5.

The “information potential” discourse, to which I dedicate Chapter 4, illustrates *information* as a “standing reserve,” with its operational value and productivity potential, among others. However, as I try to show in this thesis, supported by Heidegger’s arguments, this information potential, with data analytics, personalized predictions and recommendations, and many others, turns urban space and everyday practices of city dwellers into consumables, at the same time consuming and reducing city dwellers’ analytical and critical powers. In this section, I elaborate on the nature of calculation in general, while in Chapter 5 I explain in more detail the software based ‘personalization’ that is behind predictive analytics. The bottom line is that predictive analytics operates on the same principle as any calculation: it measures and describes the surroundings in a way that can be operated upon. Similarly, both the Quantified Self or analyze-your-location movement, call for collecting quantified data, such as how many times you walk that path; and

also call for translating descriptive (non-quantifiable) data into one that software can compute, such as ranking visited locations from the most liked to least liked, and so on. In any case, available information has to be reduced to the one software that can compute the information; in other words, it looks for patterns and draws conclusions (compute recommendations) from the detected patterns. While such reduction of information is arguably a part of everyday decision process anyways, my argument is that automatic reduction of data for computation not only reduces the range of possibilities and factors valuable for decision making, but that automatic decision making eventually compromises critical and analytical powers, which are, as I have argued so far, crucial elements for true *active* participation in urban space.

One of the main goals of the systems of control and efficient apparatuses, which seems kind of ‘natural,’ is to obtain a ‘secure’ environment, predictable and calculable, over which we can have control. In that sense, the contemporary information potential discourse claims to support sustainability and stability of urban environment. More and more information, especially real-time streaming, will presumably form an extensive database of our surroundings, represent and visualize ‘reality,’ sometimes even more realistic, in such a way as to render statistical tendencies and predictable outcomes and therefore to have control over it. On the other hand, as Heidegger warns us, this human drive to obtain a quantifiable and controllable knowledge of the world does not secure it, nor make it more controllable; instead, it leads towards the supreme danger and self-destruction (Heidegger “The Age”). Accordingly, he asserts, our current orientation to technology, which is instrumental and anthropological, “sends” humanity on the way to an

orientation to that views the world as a set of raw materials, as “standing-reserve.” It is precisely this instrumental orientation to technology, or rather, the culmination of modern technology’s instrumental orientation to the world, that transforms the world and, eventually, humanity into a standing-reserve. This standing-reserve is associated to instrumentality, Heidegger argues, since technology understood as a tool for accomplishing specific and pre-set goals, eventually turns everything into a possible source of energy to exploit and exhaust. Similarly, space within the discourse of efficiency is being transformed into an informational potential, urban space transformed into potentially exploitable information, into a standing-reserve. Quite the opposite; Heidegger believes poetic orientation to technology aids in revealing self-concealed openings of ‘hidden’ reality and truth.

Even the city dwellers are becoming a standing-reserve, as our everyday practices are streamed in real-time, and turned into a productive feedback. In order to provide ‘meaningful’ spatiality, as I described in the opening chapter, one needs to be involved more and to ‘actively participate’ in providing feedback. Personalized calculative technologies operate such that the more feedback users provide, the more ‘accurate’ the predictions, and the more ‘personal’ the recommendations. The more information we have, the better our ‘understanding’ and the greater the ‘knowledge’ about our environment and ourselves will be, so the promoters of such services say.

Moreover, as all mechanization and technological systems depend on calculation, this calculative thinking becomes a particular way of grasping the world; an attitude that grasps everything according to plan and calculation: “[modern science] sets nature up to exhibit itself as a coherence of forces

calculable in advance” (Heidegger 16-17). What he means is that calculation turns whatever it can into operational variables, and in doing so, is *reducing* the same variables to aspects and characteristics that can be calculated with, or translated into, calculation. Therefore, Heidegger concludes, the essence of modern technology, and the essence of calculative practices, is *Enframing*:

Enframing means the gathering together of that setting-upon which sets upon man, i.e., challenges him forth, to reveal the real, in the mode of ordering, as standing-reserve. Enframing means that way of revealing which holds sway in the essence of modern technology and which is itself nothing technological. (20)

As he further explains, *Enframing* is a particular human orientation to the world, an attitude that involves a human impulse to box in, order and demand our experiences into understandable categories that we could supposedly control: “Man is the organism with the gift of reason. Therefore, man can demand that everything in the world happen ‘logically’ ” (from *Basic Concepts* 91, cited in Elden 116). From this, we may conclude that man can shape reality such that appears to be ‘logical’ and, at the same time, ‘illogical’ reality is then either transformed to logical, or it simply ceases to be. It is the process of bringing things into line and subordinating all things to a common measure or common denominator; ordering reality in a way of seeing things as calculable, mathematical, and potentially controllable: “Calculative thinking compels itself into a compulsion to master everything on the basis of the consequential correctness of its procedure” (Heidegger *Pathmarks* 235). *Enframing* is then a reduction of the world to formulaic calculation, an attitude that attempts to grasp everything according to the plan and calculation. Such

enframing essence of number and calculation is dangerous because consumes and subordinates all to itself; the danger is that all understanding of the world will be reduced and rendered singularly through calculation and the modern orientation to technology:

The calculative process of resolving beings into what has been counted counts as the explanation of their being. Calculation uses all beings in advance as that which is countable, and uses up what is counted for the purpose of counting. (235)

Similarly, software-based ‘personalization’ processes users’ histories and preferences collects specific information, detects trends and patterns related to that data, before it finally selects and recommends, based on that same data. The process of detecting patterns itself involves extracting and reducing unnecessary information from collected data, by detecting standardized characteristics and recurrences among a multiplicity of data. In addition, the innate ability to sort, group and cluster data is essential to calculative operations. The procedure is to first determine a pattern, then recognize the people or activities that belong within the vast data and, finally, to channel “desirable” information while leaving out the “undesirable” (Crang and Graham).

Hence, such activities are both preventive and productive in the sense that the calculation “anticipates the event, yet also seeks to prevent from occurring” (Crandall 72). Calculation thus channels and shapes recommendations and, in doing so, has the ability to obscure or prevent some,

while encouraging others.⁶ Consequently, patterns, a calculative process which recognizes patterns, and the whole set of offering choices, are subjected to certain systems against which they are validated: “algorithms are developed to look for patterns in the swathes of captured data, identify or profile behaviors or characteristics deemed to be ‘unusual’ or ‘abnormal’” (Crang and Graham). This, of course, also implies discriminations of all sorts, starting from evaluating ‘performance’ against obscured systems that marginalizes all who ‘underperform’ according to that system.

I will return to these issues in the following chapters where I discuss different views on normalization, optimization and standardization. For now I wish to underline that the organizational and standardizing practices of calculative processes are constantly working in the background to instinctively cultivate an ‘optimized environment,’ based on a user’s continuously reconstructed experience, i.e., real-time feedback. The programming behind such analytics follows an algorithmic procedure that has “structural inclinations” for continuity, consistency and regularity (Crandall 85).

In that sense, human intervention is significant, given that the formula needs to be pre-programmed (82) so that the computer is able to continue with ‘learning on its own.’ In order to maintain the stability of its own system, calculative operations need to assure probability and reliability of its results through formula, which is inherently rational, favoring consistency and effectiveness (74). Hence, while the provided feedback may change over time, and the applied ‘formula’ is flexible to accept changeable variables, the

⁶ I will discuss these points further in Chapter 3, especially through Beck’s ‘risk society,’ where the concept of ‘risk’ is used as both a preventive and productive measure.

essence of pattern-spotting computation is always the same—based on reduction, subordination and discrimination.

Efforts of information analysis platforms that claim to define ‘reality’ and the ‘real’ is parallel to efforts of scientific knowledge to do the same through securing ‘objectness,’ as Heidegger cleverly sums up in his remark, “Science is the theory of the real” (“The Age” 157). Science needs to secure ‘objectness’ as the only constant in scientific knowledge that will be fundamental to all sciences in an endeavor to grasp ‘reality’: “the decision over what may pass in science [...] for assured knowledge rests with the measurability supplied in the objectness of nature and, in keeping with that measurability, in the possibilities inherent in the measuring procedure” (169). This is where calculation and numbers come in ‘handy,’ as they are, in fact, fundamental to ‘taking a measure’ of the (measurable) world. Objectness then, in Heidegger’s words, is a framework through which, and by which, the world is observed; a framework through which objectness of observable things is *ordered* so it can be objectively observed.

However, as Heidegger reminds us, ‘objectness’ of reality is a part of revealed nature, the one that is ‘materialized’ in one way or another: it is measurable and available for sensory perceptions (directly or through instruments), or has an objective coherence, i.e., a statistical character. Therefore, scientific reality is “only *one* kind of presencing” (176, original emphasis) as “the objectness of nature is, antecedently, only *one* way in which nature exhibits itself” (174, original emphasis). And yet, this is the only kind of ‘presencing,’ one that is allowed by calculation.

In actuality, everything in nature has an essence that is concealed to humans, explains Heidegger, and the movement from concealed to unconcealed is the process of revealing the true nature of things. Bringing-forth, disclosing, revealing and challenging, in Heidegger's terms, are all modes to attain the truth. Bringing-forth, in fact, challenges the appeared 'unconcealment,' appeared reality and 'objectness' of things. However, while *enframing* is indeed bringing-forth, it is a bringing-forth with ordering, in Heidegger's words and, as such is the sort of 'denial' and the "injurious neglect of the thing" (45). Enframing denies an "*insight into that which is*" (46, original emphasis); therefore, it denies the truth to be revealed and disclosed, which is a supreme danger, according to him.

The ordering belonging to Enframing sets itself above the thing, leaves it, as thing, unsafeguarded, truthless. In this way Enframing disguises the nearness of world that nears in the thing. Enframing disguises even this, its disguising... (46)

In this concept of *disguising*, we also recognize Virilio's *reality-effect* in which the seeming reality of outsourced perception turns out to replace reality, as explained in the previous section. Yet, Heidegger does not necessarily condemn number and calculation, modern science and technology. Heidegger's preoccupation, most notably in his essay "Question Concerning Technology," is to challenge our contemporary *orientation to technology*, to reveal blind spots in our understanding of our relationship with technology, as much as to discuss the essence of technology itself. He attempts to break with the common assumption that number and calculation define truth and 'reality.'

The danger is in obscuring the truth, and obscuring the process of bringing-into-being that, by challenging ‘objectness’ of reality, paves the way for the truth to be revealed. Similarly, in his work *One Dimensional Man*, Marcuse argues for the reality of both actualities and also the unexpected, unthought-of potentialities, which I elaborate on in the following section.

Calculation, for Heidegger, is one of the three concealments of modern science and technology, the other two being acceleration and massiveness, reflected in an extent in numbers and quantity, that cause us to forget Being and to ‘steer’ our attention from attaining the truth (Elden). This is analogous to Virilio’s thoughts on mediated perception in “Aesthetics of Disappearance,” and the effect it has on analytical capacities. The sense of calculation, in particular, because of its *enframing* orientation, requires all things to be adjusted in its light: “all calculation lets what is countable be resolved into something counted that can then be used for subsequent counting. Calculation refuses to let anything appear except what is countable” (Heidegger *Pathmarks* 235). The *enframing* nature of calculations, as such, obstructs the pursuit of truth, and with that, limits and endangers critical and analytical approach to reality, technologies and technological processes, which is a serious impairment to freedom of thought and freedom of being. The fallacy of modern technology, therefore lays within the rule of *Enframing* that is denying the truth to come to presence, because the calculative thinking alone “is unable to foresee that everything calculable by calculation [...] is already a whole, a whole whose unity indeed belongs to the incalculable” (Heidegger *Pathmarks* 235).

Furthermore, in his essay “The End of Philosophy and the Task of Thinking,” Heidegger reminds us that only that which is granted to us as present and visible, unconcealed and revealed, is what we can experience and think of as such. However, while the particular *opening* of presence that is experienced is a form of un-concealment, it is not yet truth in itself. In other words, the opening is not revealing of the correctness and definite truth, something which predictable and calculative scientific knowledge attempts to do; it is an opening in terms of what is granted to us as present, what came into light in the first place.

Whether or not what is present is experienced, comprehended or presented, presence as lingering in openness always remains dependent upon the prevalent opening. What is absent, too, cannot be as such unless it presences in the free space of the opening. (Heidegger *The end* 386)

Heidegger further posits that “it is necessary for thinking to be explicitly aware of the matter [here] called opening,” and to furthermore “put the light” on such concealed openings in which future (and present) posits itself. In fact, un-concealment of this concealment, of seeming absence, should be *the task of thinking*, to use Heidegger words. The task that, he says, “remains unassuming” (378) and prepares us for all the possibilities and uncertainties that remain obscure and concealed: “This means the phenomenon itself, in the present case the opening, sets us the task of learning from it while questioning it, that is, of letting it say something to us.” (Heidegger *The End* 385) Therefore, the task of thinking should not be to predict the future and as such ‘secure’ it, as the only security is in the enduring

the uncertainty and the inevitable sequence of changes (378-379). And while we may rightfully consider the available geo-spatial data as openings that grants us with its presencing, it is important to acknowledge its uncertainty and be receptive of other un-concealed openings. In other words, the acknowledgment that what is seen in spatial databases as present is what is currently unconcealed, but not the final truth, further implying the necessity to be receptive and open towards all other self-concealed openings. This, in turn, enables us to endure through the future uncertainties as well.

Similarly, Heidegger argues that the fact that we have been neglecting the non-objectness of the thing does not mean non-objectness is not within the nature of things and, therefore, the truth. While attempting to 'secure' the 'reality' with calculative technologies, we have, in fact, been 'denied' truth in a much greater extent. This further implies that total prediction and calculation of outcomes will never be fully possible. In fact, this false image of truth gives us false security over the future and that, in turn, endangers a true 'preparedness' for the unexpected. Similar to Virilio's points discussed in the pervious section, in which he explains how the reality-effect has replaced reality and, as such, endangers the overview over the alternatives; the false security over the future, in effect, generates the lack of resilience, flexibility and elasticity of the system to critically and analytically restore itself, and is what lifts unexpected events to the level of catastrophic accidents, to situate in Virilio's terms. Predictability and risk-calculating systems of all sorts are, therefore, a *deception* and a *dangerous impression of reality*, as they claim to 'secure' the unpredictable future.

In summary, Heidegger's position is that humanity blinds itself to the ways in which the world reveals itself. It is crucial, he states, to understand that the natural world reveals itself to humans on its own terms and that the true essence of technology lies in *revealing*, and not in instrumentality. Hence, paradoxically, as Heidegger himself notes, within the supreme danger lays the potential of a rescue from the same danger. If we follow Heidegger more closely, the rescue ultimately lays in humanity's orientation to technology, which is the crucial argument I want to carry on into the discussion on possible appropriation of 'personalized' recommendation services.

Heidegger views the difference between two conceptions of technology, one based in *techné*, and the other, in modern orientation that exploits and exhausts. Technology as a *techné*, as a kind of *poiesis*, a way of bringing-forth and unveiling the truth involves the act of giving and showing (the act of revealing) and not the act of ordering and setting-upon. He believes that once we are aware of our own wrong orientation to the world, in which the essence of technology is enframing, we have two options: we can continue enframing and structuring life according to the rules and values of this orientation and can come closer to becoming standing-reserve, a supreme danger of self-destruction; or we can realize that humanity, too, is on its way to arrival, and that only by reorienting itself to the way in which nature reveals itself, can humanity establish a relationship with world that is not ultimately self-destructive (Heidegger "The Age").

Precisely in the continuous process of disclosing the truth, the endless revealing of un-objectness and self-revealing of openings, is the opportunity to see the self as a part of the coming-into-being. Through revealing and the

granting of the world, like an artist—or, in Heidegger’s terms, a poet—to take the world as it is, as it reveals itself, and not as a standing-reserve. We can guard ourselves using this artistic orientation from dangers of *Enframing* and enter into a free, constantly critical and questioning relationship with technology. Automatic software, easy-to-use devices and applications serve as tools for obtaining the ultimate efficiency, as I claim in this thesis. This instrumental orientation and the ‘supreme danger’ of becoming a standing-reserve will be further investigated through analysis of current discourses, in Chapters 3 and 4. I will come back to the Heidegger’s poetic orientation in Chapter 5 where I discuss different ways of engaging with such technologies and the possibilities that could potentially unleash its saving-power.

2.4. Incalculable and Unpredictable as Potentiality and Enabling Ground

As I have demonstrated in this dissertation at various points thus far, personalized location-based services now aspire towards generating pre-desired and suited-for-your-needs possibilities. Efficiency as a premise seems to be the underlying theme in promoting channels for the placement of new technological systems and devices in cities, either through sustainable systems for overall benefit, or usefulness on a personal level, which I will illustrate further in Chapters 3 and 4. Such technological systems depend on the collection of data from which software will limit the range of possible recommendations in order to generate prediction. The system then ‘naturally’ selects the most desirable option(s); it clears the range of options from ‘undesirable’ data, which would increase the failure of such system and the

failure to ‘predict.’ Even what would be seen as failure to ‘accurately’ predict, such prediction would still be derived within range of previously collected data.

Parallel to what Herbert Marcuse terms one-dimensional thinking in his *One-dimensional Man*, calculative predictions favor the realm of actualities, and the very concept of prediction; recommendation is, in fact, an anticipation that longs to diminish, if not eventually eliminate, unexpected and random encounters as unfamiliar and, therefore, potentially ‘risky’ for the stability of the predictive system. Based on repetition, previous encounters and familiarity, such practices are significantly reducing the range of possibilities for not-yet-even-imagined events; in Marcuse’s terms, “potentialities.”

On the whole, my intention in this chapter is to re-examine the role and the possible value of incalculable and unformed in everyday urban life, in respect to the regenerative power of everyday life to negotiate the imposed spatiality. I also indicated, towards the end of the opening section, that this chapter would, to some degree, be a ‘defense’ of the incalculable and unpredictable in shaping of spatiality. The argument is that the incalculable and unformed serves as an opening and enabling ground for analytical and critical engagement in urban space and that, in turn, enables true active participation and negotiation of spatiality, and ultimately, ‘user-generated’ cities.

In the previous section, I have analyzed the implications of ‘personalizing,’ predictive and recommending, technologies using Heidegger’s concept of *enframing*, in an attempt to underline the limitations of calculative operations on city dwellers’ analytical and negotiating powers. In

this segment, I extend this debate to characteristics of predictive and recommending calculations that operate within the field of ‘actualities,’ which, in doing so, clear the range of options from ‘potentialities.’ This, I claim, conflicts with the ‘negotiating’ premises of everyday practices. In this section, I round up my argument with Marcuse’s insights on potentialities that not only represent the incalculable and unpredictable aspects of reality, but are also as much an inevitable part of it. I argue that the current efficiency oriented potential (information potential) is in contrast to the idea of potentiality in Marcuse’s work, for it embraces unpredictable and incalculable, while information potential attempts to clear from it.

The investigation of predictable vs. unpredictable is further assessed through Marcuse’s points on ‘dialectical thought,’ which he argued against the prevalent contemporary ‘one-dimensionality’ and ‘rationalization’ of thought. Reminded by Marcuse, each concept, each idea, no matter how abstract or not, is a sum of its actualities and potentialities; this is similar to Heidegger’s revealed and concealed truth, discussed in the previous section. Even if the actuality of a concept is a sum of all its sensible and imagined parts, in each, there is a “yet not sensed nor imagined” that could or ought to be (Marcuse). This potentiality goes beyond the predictable (calculable) and imagined; it is a chance for the yet not discovered, for better or for worse. In the same way, ‘personalized’ spatial experiences are heavily supported by predictive calculations and the principle of ‘narrowcasting’⁷ or ‘actualities,’ which limit the scope of possible choices or ‘potentialities.’ Drawing an analogy between Marcuse’s points on potentiality and actuality, in spatial terms, actuality is

⁷ Software that ‘personalizes’ information operates on the principle of ‘narrowcasting.’ The range of choices is further narrowed from the pool of available information stored in databases. I will explain this concept in greater depth in Chapter 5.

parallel to the expected and predictable (Heidegger's *objectness*) and potentiality to alternative spatiality.

Marcuse elaborates this further. This aspiration to clean thought from contradictions of dialectical thought between 'essence' and 'appearance,' he says, originated in Aristotle's formal logic and was later assimilated by scientific thought. For the sake of universal understanding, explanation and the need for control over reality, objects of logic are abstracted from their 'substance' and subjected to the same general laws of organization and calculation: the construction of a universally valid order of thought, neutral with respect to material content; and abstract generalization (Marcuse *One-Dimensional* 137-138). In dialectical thought, meaning is not to be found in behavioral reaction; but to remain unfulfilled "except in thought, where it may give rise to other thoughts" (179); the empirical world becomes an object of 'positive' thinking and there occurs the elimination of the 'negative' that existed in dialectic thought. Marcuse thus calls for embracing and including of ambiguities and obscurities—similar to Lefebvre's calls for 'space for social failures'—as a potential ground to test and re-negotiate whatever imposed reality of meaning.

More specifically, Marcuse refers to the 'demystifying' role of scientific thought that desires to clarify ambiguities and obscurities, nonetheless in the comfort of an already accepted system of validation. But, according to Marcuse, the problem of the main 'mystifying' character is not in the concepts, but precisely in their behavioral translation, that deceives and obscures. It is the translation that is deceptive, because "it translates into modes of behavior, propensities and dispositions and in doing so takes

organized appearances for the reality” (203); this is a point, as I showed in the previous section, Heidegger argues as well. Likewise, generated solutions translate spatiality from the existing databases of registered experiences attempting to capture and define surroundings.

However, within the translation process, the concept itself is reduced: intentionally through, for instance, the program, so as to reduce ‘unnecessary’ or cluttered information; but also, by the process in which non-quantitative data is translated, to quantitative, as noted in previous sections. Again, as Virilio points out, this translation process denotes the *reality-effect* in which a “space” as represented by quantitative data and existing databases and where an image of (one of many possible) space(s), becomes, for us, *the* reality. As Marcuse and Heidegger also remind us, the whole is never the simple sum of all comprehensible parts, which means that every concept is not just a sum of all actual, revealed and imaginable experiences, but also of all concealed, not-yet-experienced potentialities. In other words, the range of actualities corresponds to the discursive practices of technological efficiency which, as much as the nature of calculative practices, determines and limits our choices, ways of comprehending, organizing and transforming reality:

The prevailing forms of social control are technological [...] the technological control appears to be the very embodiment of reason for the benefit of all social groups and interests—to such an extent that all contradictions seem irrational and all counteraction impossible.

(Marcuse 9)

Prevailing technological rationality leaves limited space for the unpredictable or incomprehensible; in fact, the effort is to nullify it: “the initial

choice defines the range of possibilities open on this way, and precludes alternative possibilities incompatible with it” (Marcuse 219). The effort of such a technological system is to nullify the unpredictable, and even the slight chance for any ‘unexpected’ event to occur, which various calculative and predictive practices in urban space also attempt under the pretence of ‘control.’ Yet again, perfect predictability is just a deception, an illusion of control:

Rather than being restored to its status as enabling ground, movement [in urban space] is rather enhanced through its technological outfitting and calculative structuring, which intoxicate us [users] with the illusion of control, the ability to catalyze events and shape outcomes. (Crandall 72)

The perfect control system epitomizes the very idea of perfect rationality and reason and is, in fact, ‘irrational’ and, thus, deceptive. We can only attempt to control the system; however, the system itself is never fully controllable. We will never be able to predict and calculate the future in its totality, because we base our calculations on truth about the reality as it is revealed to us. Further supported by Heidegger’s insights on *revealed and concealed* truth, from the essay “The Question Concerning Technology,” we may conclude that there is no such thing as a perfectly predictable system, precisely due to the incalculable (concealed) truth that is left out of the ‘equations.’ And reality is never fully revealed to us, because the truth comprises both the revealed and the concealed, in which concealed reveals itself only through openings and constant challenging of revealed truth. However, our false impression that we can, or should, control the reality, the

change and, therefore, the future, puts us in danger of depending on such presumable calculative systems. In actuality, such systems are not being able to predict the true unexpected occurrence of events, and even less so, to respond to it. As Marcuse and Virilio remind us, even the very effort to ultimately eliminate chance and unpredictability as unknown and ‘risky,’ in fact, generates the very same risk and accident which it attempts to clear; I elaborate further on this in Chapter 3 along with my discussion on Beck’s arguments on risk society.

The heavy reliance on such systems, which aspire to nullify the unexpected, generates the overall un-readiness for the system and those who are reliant on such systems, to take the inevitable yet unexpected chances and accidents, since the system is not ‘programmed’ to resolve unexpected ‘un-expectance.’ As Virilio states, this heavy dependence on the calculative systems not only causes accidents; it also escalates an accident, once it occurs, into dramatic failure and catastrophe, precisely because of this tendency to reduce the ability to overcome the failure outside of the system itself.

Similar to Heidegger, Marcuse and Borgmann, who also critique the instrumentalist orientation to technology, and which I elaborate on in Chapter 3 and 4, Virilio explains two possible orientations toward the scientific, experimental inquiry. One is an effort to master a substance as a subject of that inquiry, and that eventually leads towards the accident of substance, one that happens in the discovery of a substance, an invention; and the second possibility is an effort to master a substance as an object, as a means to achieve certain goals leading to an accident of performance, one that happens in excesses of all kinds. This also resonates with Heidegger’s discussion on

instrumental versus poetic orientation to technology, extreme danger versus saving power. Virilio notes that, once in progress, emphasis is on the means, performance and practical opportunity, rather than on the ends; and progress is measured through purely quantitative excess which, in effect, nurtures competitive sporting performance, or what he describes as the “extreme sports of technoscientific progress” (*As Far As* 44). The quest for a record at any cost hence leads towards modern technological catastrophes brought about by the failure of the technological systems of control; as a result of progress and of excesses, such as that which led to the sinking of the Titanic, as Virilio reminds us: “The fatal accident of the shipwreck was thus not so much that of supposedly “unsinkable” ship as an accident in a competitive performance” (40). Attempts to limit unpredictability, or to claim to ‘predict’ the unpredictable, puts us in danger of actually not being able to react to ‘unpredictability,’ precisely as a result of ‘unpreparedness’ in the face of unpredictability and its incalculability. The system could not ever totalize itself, neither the one of perfect predictability; in reality, such unpredictability cannot be predicted. Therefore, what is truly unpredictable is not the expected uncertainty, but precisely the fact that uncertainty is not expected—and, as such, completely concealed and out of the reach of the calculative system. The only ‘control’ possible is being aware that absolute control in terms of clearing from uncertainties is impossible, so as to allow the flexibility, elasticity and endurance under the change. Similarly, whatever the next urban utility network, especially the one that claims to support active participation in urban space, and engage city dwellers in negotiation of spatiality, is the system that

is flexible and elastic under the inevitable change and unpredictable future; the system that both acknowledges and includes incalculable and uncertain.

My intention in this chapter was to unfold the discussion on the role of incalculable and unstructured, or what Lefebvre describes as ‘non-instrumental play’ in urban space. Thus, I began this chapter with an investigation into the dual conception of unformed and invisibility in everyday life, which Lefebvre and De Certeau discuss as socially desirable failure and absence of meaning (void). What is more commonly seen as undesirable or risky, in everyday life, nonetheless, is seen as potentiality; even more importantly, as an *enabling ground* for negotiating existing and for potentially alternative spatiality to shape. My intention was to connect Lefebvre and De Certeau’s insights on incalculable and unformed for ‘negotiating’ urban space with several overlapping perspectives that discuss incalculability and unformed in relation to analytical powers: Virilio’s mediated perception and technological agency, followed by Heidegger’s notions of *enframing* and reductive nature of calculations and instrumental orientation to technology, Marcuse’s ‘actualities’ and ‘potentialities.’ My argument thus is that extensive calculations and predictable solutions for individual spatial risk-management are antithetical to the value that unpredictability and chance add to the critical and analytical capacities of the city dwellers, and to the true active engagement in cities.

Calculative practices are, by nature reductive, as Heidegger points out, but even more so in their attempt to diminish the risk and unpredictable; to generate personalized recommendations by not revealing the undesired but also unexpected choices; in effect, this means ‘cleared’ opportunities: “increasingly, subjects do not encounter finished, pre-existing objects but rather ‘clearings’ that disclose opportunities to intervene in the flow” (Thrift “Movement-Space” 593). Of course, phenomena such as rationalization, efficiency or optimization in spatial terms are, certainly, not historically new. Indeed, Lefebvres’ “spiral of production” as techniques for rationalization is associated with both production and spatial production: “The fact that Lefebvre refers to [this] spiral of production as a “strategy” suggests its association with techniques for the rationalization of production (and of production of space)” (Andrejevic “Monitored Mobility” 133). This also implies that even the most random of all daily activities shapes our environment in a most ‘effective’ way to accommodate mixing of all differences. On the other hand, sorting software generates ‘perfectly-matching’ clusters; such matching implies clusters multiple in numbers but, nonetheless, loosely connected between each other and homogenized within its ‘limits.’ This further signifies the preserving and deepening of differences and inequalities and the dilution of resistance, quite contrary to the empowering promises of alleged active participation and *performativity* with ‘personalized’ technologies.

The scenario of perfect efficiency by excluding failure and uncertainty in urban system, does not seem desirable or, to use the language of promoters, ‘effective’ for negotiating urbanity, and even less for empowerment and social

mobility. Hence, as the mainstream ‘management ideology’ penetrates the everydayness in often unquestioned speed and rate, it is crucial to discuss implications of implementing such systems based on extensive (and often automatic) calculation and prediction in urban everydayness, having in mind that attempts to clear options from risks and uncertainties, ‘potentiality’ in Marcuse’s terms, therefore jeopardize the grounds for negotiating and re-imagining spatiality. With this chapter I also hope to open the discussion on the extent to which structured and calculative operations are consuming negotiating and analytical capacities of potential users, precisely now when personalized analysis is becoming an ordinary, everyday activity willingly embraced and practiced by city dwellers. Now, more than ever, we need to (re)define the terms under which calculative and predictable technological systems and devices are, and should be, placed in everyday use for the fear of diminishing the negotiating potentiality of not-yet-to-be cities.

Marcuse notes that true “free play” and “liberation” assumes consciousness in both actualities and potentialities, what ‘is’ and what ‘ought to be’; but, more importantly, “consciousness of the discrepancy between the real and the possible, between the apparent and the authentic truth, and the effort to comprehend and to master this discrepancy” (*One-Dimensional* 229). Similarly, Heidegger urges, not necessarily for truth to be defined, but for truth as a process of constant challenging and revealing what is concealed. As technological rationality is the base of predominant technical existence, any suggested qualitative change can only be achieved by the reconstruction of this base, by revising the values of technological rationality with the view of a different end (redefinition of values in technical terms), which follows from

Heidegger's thoughts on non-instrumental orientation and poetic approach towards the technology.

Borgmann, equally, as I present in following chapters, questions the terms under which humans appropriate technology and the ways to 'bridge disengagement and attain harmony with technology,' arguing that fruitful reform must emanate from the device paradigm, not within technological framework: "If we are to challenge *the rule of technology*, we can do so only through *the practice of engagement*" (207). He proposes that *the practice of engagement* may be attained through 'playfulness,' caring for, and maintaining of, things (technologies) so as "to penetrate commodious surface of technology, to reassert our mastery over the machinery of the technology, and so to become full members of the city of technology" (161). However, such proposals for a reform within the technology will ultimately fail, he argues, since all efforts to engage with machinery are ignoring the implications of technology, and the intrinsic property of technology to make things easier, to disburden, and to disengage. Furthermore, the acknowledgment of the device paradigm alone is not sufficient for such reform. Reform of technology must come out of what Borgmann terms "the focal concerns." He refers, namely, to reopening debate on the concept of good life, which is deeply entrenched with technology and, therefore, still measured by standards of living, such as income and material gain (current discourse of efficiency?). If we connect this to the alleged 'empowerment' in terms of efficiency in urban space that mobile technologies allow, clearly the very definition of 'empowerment' needs to be re-examined. What is important, though, is that the questions of good life, efficiency and

empowerment, should be left open: “What remains open is not *whether* but *how* we will answer it” (178). Here, Borgmann’s position resonates with Heidegger’s line of reasoning towards the persistent search for truth, found in the constant process of revealing of openings and concealed truth. As this point, my intention is to introduce Borgmann’s perspective by linking his points closely related to the theme of this chapter, such as those by Heidegger, who similarly calls for a different approach and orientation to technologies.

I will elaborate further on Bergmann’s arguments on the *level of engagement* in Chapter 5; in particular, when discussing possibilities for engaging with, and appropriating, such ‘personalized’ and automatic analytics. For now, it is important to understand that we need to discuss the implementation of predictable location-based systems as the next urban utility network, in view of the space for contestations and negotiations of spatiality, and active participation of urban dwellers. This requires more than a critical orientation towards the issues; it also presumes a critical and non-instrumental orientation towards the tools and supporting processes. On the one hand, this suggests that we have to, in fact, be fully mindful of our actual engagement with technologies, such as to be aware of the ‘translating’ and reducing processes of mediated perception and calculative practices. This also implies that our tools, instead of becoming more straightforward and easy to use, should, in fact, be more complex and prompt, taking on a more engaging approach, both in regards to the space itself and the tools for proposed analysis. In terms of predictability, my position is that it is crucial to understand that the dominant discourses and practices are within just one of many possible perspectives, and that the calculable and predictable

technologies lessen our capacities for unbiased interpretation and analysis, which eventually jeopardize active engagement in space.

In Chapter 3, I proceed with the discussion on personalized services and active participation within prescribed space, analyzing the ‘strategy’ of systems of control dominated by the discourse of technological efficiency. Such strategy implies overwhelming necessity for such personalized services in order to clear risks and obstacles, as such, supporting the system by engaging users/citizens towards the self-regulation. While effective use of one’s time, resources and environment may be beneficial for one’s ‘performance,’ the question is against which, and whose, benchmarks these performances are measured; or, to put in another way: what is the prevailing standardized structure under which ‘good’ performance is defined? It becomes clear that personalized and customized calculation and prediction services absorb active participation in urban space by necessitating self-efficiency and individual risk management, as such ensuring self-optimization, normalization and the stability of the system of control itself.

CHAPTER 3

STRATEGIES OF SYSTEMS OF CONTROL:

ACTIVE PARTICIPATION AND THE DISCOURSE OF PERSONAL RISK-MANAGEMENT

In the following two chapters, I focus on two key ‘selling points’ for personalized location-based analytics and its supposed empowering and participatory notions. I analyze the language of promoting channels in greater detail, in particular the mainstream discourse of personalization and efficiency. In this chapter, I focus on the ‘personalization’ aspect, in other instances interpreted as meaningful, contextual, customized, and more, that has, as its goal, to bring such technologies closer to the user by promising user-control, individuation and, most of all, personalized efficiency. In the following chapter, I look more closely into the discourse of efficiency itself, in particular, the efficiency of the urban-technological complex and the ways personalized efficiency feeds contemporary urban fantasies, such as intelligent cities and user-generated urbanism.

Described in the opening chapter as analyze-your-location call, the necessity for personalized recommendations in urban setting comes from the perceived ‘need’ for ‘meaningful’ and ‘efficient’ personal spatial experiences. Let us just recall some of the lines used to promote such applications:

Citysearch is the essential local guide for *living bigger, better and smarter in your city*”; further on, the same website states that “we keep you connected to the most popular and undiscovered places wherever you are” (City Grid Media, emphasis added).

I look at such ‘urgency’ using Giddens’ and Beck’s definitions of “Risk Society” more specifically through the discourse in which the notion of risk is a “dominant logic of control” (Beck *World Risk Society*) and its significance in individual identity formation in contemporary society. To answer the origins of anticipated personalized efficiency of daily time-space routines, I base my discussion on Foucault’s definitions of *governmentality*, *normalization and self-conduct* elaborated in his 1977-78 series of lectures at the College de France titled “Security, Territory, Population.” Is the advocacy of personalized efficiency a new mode of representing power in cities by predicting and recommending urban movements and uses, and in what way exactly? Following Foucault, my argument is that it is precisely through the notion of ‘personalized’ efficiency that active participation is absorbed by the system on power to maintain the system itself. While promoting channels promise empowerment and possibilities for active participation with personalized efficiency, at the same time, ‘active participation’ is incorporated, in fact demanded, by the mainstream discourses in support of a self-regulating apparatus, the system of control grounded in technological efficiency and risk-management.

This chapter is a critical effort to disclose new forms of strategies of power and systems of control behind such technological apparatuses that attempt to absorb the very same empowering and participatory notions through the mainstream discursive practices in which reliance on such technologies is both a requirement and a solution. Conclusions from this chapter will be brought to the following chapters as the framework to dissect and analyze more closely the discourses and promoting language for

placement of location-based analytics and recommendation services in urban everyday life. By disclosing the new strategies, I nonetheless hope to ground the discussion surrounding new tactics, as De Certeau would say, further down the road in the **Chapter 5** in which I intend to discuss appropriating possibilities.

3.1. The Language of Efficiency and Practicality

In the opening chapter, I presented some promotional material under which location-based recommendations and predictions are advertised, most notably the Intelligent Cities discourse that identifies location-based services as value adding and indispensable utility network for cities. In this section, I focus on the language of practicality and utility of such analyzing platforms that supposedly support the *personalized efficiency* of urban dwellers. The most prominent means of campaigning for location-based services, as I elaborate in this thesis, is certainly an empowering notion of *personalization* of spatial information, which Altman denotes as “meaningful”; and, of course, *helpful* and *easy-to-use* technologies that would make such “meaningful” spatiality possible. Today, a number of commercial and non-commercial location-based applications and supporting platforms is similarly presented to users as an assisting *personalized* guidance for navigation through the variety of content that is “out there.”

However, as I show in this chapter, *personalized* options are another way to impute customized and optimized recommendations, as such re-shaping a personal understanding of spatiality towards a certain utilitarian

‘sentiment.’ The utilitarian reasoning is bounded by rationality and efficiency that, as such, transfers the focus to performance expectations and competitive advantage, which I also discuss in more detail later in this thesis. The usefulness of available calculative operations is recognized and measured against the specific system to which users comply, for instance: faster, safer and cheaper. For instance, San Francisco is adopting a platform “Smart Traveler” to manage traffic, described in a press release as “First-of-a-kind Collaboration to Analyze Real-Time Traffic Patterns and Individual Commuter Travel History to Forecast Faster and Safer Routes” (IBM press release). When we try to analyze the utility of such services further, as the article itself explains, we understand that they may help users *avoid* congestion, save money and fuel, but does not necessarily and specifically aim to solve the problem of congestion. In other words, the available services and applications are not necessarily looking into a possible cause of the problem, and arguably not intending to solve it either, since, in that case, there would be no reason for such an application to exist in the first place. The solution for the perceived “problem” is temporary, and for participants, exclusively; it is for the “smarter traveler,” as the name itself suggests, and intended to address only those that identify themselves as *smarter* than those who do not have such an application. More importantly, the described technology is not managing traffic as much as it is managing the potential users, who are then managing their time and space, in turn rendering participation in such a managing system compulsory in order to benefit.

Such emerging analytical platforms, besides depending on mobile informational and communicational networks and a “mobile lifestyle” trend,

necessitate ubiquitous surveillance technologies, whether we think of embedded sensors and cameras on mobile phones, or attached to architecture. Of course, such platform requires locating, targeting and monitoring, practices often seen as a part of governmental and marketing strategies that attempt to render the environment completely *transparent* and as such urban dwellers *controllable*. Crang and Graham regard this attempt as “urban ubicomp [...] [which] often involves an erotic of knowledge and fantasy of perfect vision [and] clearly has a fetishistic power in appearing to finally offer solutions by rendering place and space utterly transparent” (Crang and Graham 813). Quite understandably then, the most common publicly raised debate with regard to the development and integration of monitoring systems is the issue of privacy intrusion, the seeming inclination for complete transparency, and homogenization of population.

The project, called the Information Platform of Real-time Citizen Movement, aims to watch over more than 20 million people in Beijing 24 hours a day, local media said yesterday. Wherever you are—whether in the bathroom, on the subway or in Tiananmen Square—the government will know.” (Chen, emphasis added)

In order to compensate for the apparent downsides, promoting strategies, as expected, use the rhetoric of beneficial efficiency, as seen in this article, “Beijing to Track All Mobile Users’ Movements”:

Using data provided by mobile service providers, the government would know the population distribution and movement of the city with unprecedented accuracy, Li said. “To some degree, [the project] can effectively *increase citizens' traveling efficiency* and ease traffic jams”

by giving officials information such as which subway line was crowded, which bus line was filled and which road was congested.

(Chen, emphasis added)

In reality, to achieve such efficiency, there is no actual need to render everything and everyone transparent, as commonly discussed, but instead, there is a need for a new model of control management through self-governance, which I elaborate and illustrate further in this chapter. In fact, due to the technical impossibilities, at least for now, the reality of complete transparency is dubious, to the extent that it is regarded as a “myth” where the more probable is “messy infinity of ‘little brothers’ rather than one omniscient ‘big brother’” (Crang and Graham 813). Total transparency in the ideal sense would assume complete surrender to the monitoring systems so as to construct more comprehensive databases of everything and everyone for to allow for further manipulation. Even so, in order to reach full effectiveness of maintaining and controlling such systems, data processing would still have to operate with the *abstracted, sorted and classified* groups of data and the best possible way to utilize the gathered information is precisely *to define and direct users on how to make sense of it and ensure appropriate channels*.

Allow me to explain what precisely I mean by this with an explanation by one of the promoters. The following example explains the concept of a *human sensor network* that represents the novel way of collecting and analyzing data for more efficient and effective decision-making and its possible applications. In his blog post about SenseMaker application, “Human Sensor Networks... the ultimate executive coach,” Michael Cheveldave explains human sensor networks as:

When you engage a significant percentage of employees, customers, or citizens in the continuous process of recording not only observations and experiences, but also the meaning and influences that such observations and experiences have on them, you have in effect created a *human sensor network*. The key is to *provide people with a semi-constrained framework of meaning through which they reflect* on their experience or observation and signify the meaning of each specific observation or experience (emphasis added).

At first glance, this example may have nothing in common with predictive location-based analytics. However, my argument is that the principle used to channel desirable answers in SenseMaker application, together with the discourse on efficiency and practicality, is the same. SenseMaker, as the name itself implies, is the application that aims to make sense of feedback information provided by their employees. Even in the excerpt itself, we can see that the same principle applies across the board to employees, customers or citizens. Recorded observations and experiences are nothing different from the recorded spatial histories and the feedback location media users leave behind. What catches attention and also conveniently explains how urban sensing and recommendations work, is what, even for the promoter, seems to be the “key” predicament: the “semi-constrained framework of meaning” comparable to the discourse of “meaningful” information that promoters of recommending services have in mind.

The above process of engaging a large sample of employees and externals yields the power of diversity of perspective but *within a*

framework of meaning that allows for fast but effective decision-making. (Cheveldave, emphasis added)

The crucial moment—which, in this case, appears to be the quick and most optimal solution, i.e., the most efficient and productive decision—is to effectively “make sense” of the available data and to put that available data to good use. In this case, available data relate to employee observations and experiences, but may as well be applied to urban experiences users provide over location-based applications. To generate the most relevant information, this process presumes the compiling of available information, comparing it and computing patterns, and then manipulating the data for a certain cause. One of the obvious issues for such analysis is how to translate generally non-quantifiable properties—for instance, descriptive information—to that which is quantifiable, computational and operational, i.e., data that is comparable and measurable, and can produce some patterns. Hence, the need for the “semi-constraint framework” that will effectively channel the responses—the so-called feedback—into operational information. This structure helps in defining issues respondents will answer about; in channeling whatever concerns and issues they may have; and it is also determining the format of information, for instance, quantity, number and frequency of recurrence, evaluation on given scales, and such. Similarly, “semi-constrained” framework is in place during the so-called ‘personalization’ and customization of data. Users’ preferences have to be mutually comparable in order for the system to successfully cluster data and generate patterns. This is why users are prompted to respond to a pre-set range of preferences and choices set to yield computational data. With the SenseMaker example, for instance, it becomes clear that such a framework is

necessary for generating faster and better solutions and strategies based on detected patterns among respondent's answers:

The patterns in these responses then guide the executive team in an evaluation of how to manage this threat and opportunity and a strategy is arrived at all within a month's period of time. (Cheveldave)

It is clear that the software efficiently supports this kind of data analysis; it is a faster and more precise way to differentiate responses based on quantitative discrimination of data. However, this also implies the discrimination of underperforming participants.

The patterns in the responses also helped the company *identify* a group of people within their employee base that *demonstrated attractive patterns* of business and technical acumen with the *desired predisposition* to innovation and action. (Cheveldave, emphasis added)

As we can see, generating patterns serve to *identify* within the base of employees those that *demonstrate attractive and desired predispositions*, which also implies that the same pattern can also help discriminate among employees and potentially, eventually, outcast those deemed undesirable and underperforming. This precisely matches Foucault's description of how the system of new governmental strategy operates, which I elaborate further down in this chapter. The human sensor network is thus the way to *engage* users in this process of production so that the company, and the company's owners, can profit the most. Of course, from the owners' point of view, underperforming employees are undesirable for the company's strategy and generating profit, which is not necessarily beneficial from the employees' point of view. Similarly, the promoters continue to maintain their stand that

such systems increase the efficacy of cities and citizens as their means of justifying the massive surveillance and data gathering being collected on their analytical platforms so that “effective analysis” can be made. Once aware of the actual processes and strategies of such efficiency driven control systems, it becomes clear that the same generating-patterns process can also be used to exercise control and discrimination in the cities. In the same way, smart cities could potentially use the data to detect unusual and undesirable activities in the cities, as Chen describes in “Beijing to track all mobile phone users’ movements”:

Wireless communication experts said the system would be particularly useful not only for following the whereabouts of individuals but also in detecting any unusual gathering of a large number of people. (Chan, emphasis added)

We now return to the location-based utility network that would sustain such a contemporary fantasy of perfect urban efficiency, which I analyze more in Chapter 4 on the Information Potential discourse. Alohar is one example of many online platforms that, in this case, claims to specialize in “Mobile Location Data Analytics”: “Alohar offers a mobile device Location Behavior Platform allowing developers to respond to user behaviors by analyzing location and device sensor data” (Alohar webpage). Once again, the language of efficiency and practicality it emphasizes on its webpage as a rationale that explains the necessity for such systems:

The Alohar Mobile Ambient Analytics Platform enables ambient location apps. In other words, it *efficiently collects* location and other mobile sensor data and *quickly analyzes it to understand* a smartphone

user's behavior [...] The platform uses mobile location, motion, direction, Wi-Fi and timing data, and our patent-pending PlaceRanking system to *learn about the mobile user* in real time and over time.

Therefore it provides *more advanced functionality* than a conventional mobile LBS (location based services) platform. (emphasis added)

This description conveniently summarizes in one place what these platforms will do for its potential users. The technologies in question are described to provide “advanced functionality,” because they more efficiently collect, analyze and understand information, and ‘learn’ about users. Of course, from this we can also presume that efficient means *faster* collecting, *more* information and *quicker* analysis, which is, all together, a better way to understand the mobile user. Advanced functionality of such services further ensures *competitive advantage* of its users in comparison to a “conventional location based services (LBS) platform” (Alohar). This example, between the lines, also gives a hint about the peculiar nature of ‘personalization’ since a similar *learning* process is a characteristic of both, commercial and personal analytical platforms. The principle is the same, whether the company is learning about smartphone users, or the smartphone user is learning about him/herself.

As discussed in this segment, the greatest challenge for owners and developers of informational systems and databases is to make the best use of immense data collected and stored online. At the same time, for potential users, this challenge is presented as a challenge to “make sense” of the vast data at their fingertips. My claim is that this is precisely what is shaping the ‘politics’ of current location-based services development. In terms of geo-

spatial databases, this translates to seductive promises aimed at potential users promoting predictable recommendations for unique and meaningful spatial experiences, to remind our readers of Altman's South by Southwest description of Life Graph: "predictive recommendations with rich local content that matters the most to you here and now." He asserts that such services are presented as revolutionary user-centered tools able to "understand" the context of the users' location, connect the user to the online geo-spatial data sets, and further calculate and recommend the best possible 'customized' choice and as such "revolutionize how individuals interact with the world around them." Such notion of customization, popularly known as 'personalization,' would apparently empower users by rendering their spatial experiences more personal and individually relevant. Yet, these services *interpret* data sets and *deliver* customized interpretations of surroundings to their customers, which puts the very 'personalized' notion in question, further inducing a chain of problematic and important questions behind the discussed trends: the extent to which the users might rely on the supporting software, and, for instance, the implications to analytical powers, which is the main focus of this thesis; who controls the process of customization (narrowcasting), and on what filtering principle this software operates, and many others.

In the following, I look closely first into the personalization concept; later, in Chapter 5, I address the personalization process and so-called narrowcasting that personalizes data so I can investigate whether the supposed personalization, along with its easy-to-use and automatic technologies, are indeed 'helpful' for active participation in space. I will support my arguments

with insights on the customization processes used in commerce and advertising, which, even though presented to increase and inspire the drive for individuality are, in fact, a strategy used to efficiently target and reach their suitable audience, as Andrejevic explains (“Monitored Mobility”). This chapter supports my position that software-based personalization and a low level of engagement with predictive and recommending technologies, while flattering user individuality, in fact dwarf and limit the user’s potential analytical and critical capacities to reflect on technologies and the underlying processes, as such complicating the supposed potentials for negotiation of spatiality and actual user-generated cities.

3.2. Risk As a Dominant Logic of Control and Individualization of Risk

What ‘matters the most here and now,’ the notion of ‘meaningful,’ regardless if it is presented as a content for the user’s enjoyment or as an aid to accomplish a task, emerges within the broader context of media/architecture complex, as McQuire discusses in *The Media City* and, more recently, within so-called Intelligent Cities and information potential discourse, as I outlined in the opening chapter of this thesis. The concept of ‘risk’ that I discuss in this section is indirectly depicted, not as much as the ‘reality of treats’ within urban space, but as an effort to elevate the hectic urban lifestyles and ever increasing necessity for so-called mobile lifestyles. In this chapter, I investigate the underlying ideology and strategies of current location-based services development set in the framework of contemporary *need* to manage one’s current and future activities around the city; in the next chapter, I

present in more detail this contemporary information potential and mobile lifestyles to further illustrate the actual presence of the systems of control behind the emerging predictive services for personal spatial management. In this section, and in the entire chapter, my goal is to focus on the dominant discourses that induce such need, the perceived necessity towards reducing risks and obstacles, and subsequently offered expert techniques “that serve to render risk calculable and knowable, bringing it into being” (Lupton 6). My goal is to examine the nature of strategies behind predictable practices that entice and exploit such ‘feelings’ of risk and uncertainties to direct the action of the individual. It is important to note that, while behavioral change is not a hidden motive, it is often presented arguably as empowering the users, and practical and efficient at both individual and societal levels. Even an application such as SpotRank, which “predicts the density of people in predefined urban square-block areas worldwide at any hour, any day of the week,” is described as “groundbreaking behavioral intelligence” service for developers and advertisers. Such service “serves location-based content and ads in cool new ways never envisioned before” (*Spotrank.com*). Harvesting behavioral information of urban dwellers so as to serve appropriate advertisements is apparently *beneficial* to city dwellers that apparently *need* the right product (service) at the right time.

To put shortly, emerging personalized predictive recommendations are seen as a *practical* support to contemporary requirements to constantly construct’s one’s life narrative as explained by Anthony Giddens in his *Modernity and Self-Identity*. Similarly, Ulrich Beck, in his work *World Risk Society*, introduces “calculus of risk” as a “predictable security in the face of

an open future” and explains ways in which calculative predictions and risk prevention in actuality support the management and maintenance of the system of power. In the context in which the future is bound with uncertainties, the same unknown ‘risky’ future becomes a not-yet-event as stimulus to action: “We become active today in order to prevent, alleviate or take precautions against the problems and crisis of tomorrow” (Beck *Risk Society* 34). Both Beck and Giddens then conclude that the presumed threat and subsequent preemptive risk management represent the perfect control system of the present in the name of controlling the future. Yet, in the name of ‘protecting’ future, the system generates the very ‘notion of risk’ that promises to protect from.

The idea of risk is bound up with the aspiration to control and particularly with the idea of controlling the future [...] it is a society increasingly preoccupied with the future (and also with safety), which generates the notion of risk. (Giddens 3)

Predictability as a function of the calculus of risk, therefore, serves as a potential strategy of power to interpret and construct reality: “reproduction of reality-in-itself by *decision, action and work* - risk regime is a function of a new order” (Beck *Work Risk Society* 3). Risk management, as a dominant discourse in spatial organization as well, refers to the extent involved in the processing and analyzing of real-time surveillance data so as to better understand what we can expect in the future and subsequently subdue.

Surveillance is no longer mainly about what happened in the past, or even what is happening now in present, but anticipating what might happen in the future. This underlines one of the key issues influencing

the existence of power in contemporary city [...] The problem is the extent to which ‘risk management’ based on technological surveillance becomes the dominant philosophy for managing public space.

(McQuire “Mobility, Cosmopolitanism” 56)

Thus, what is, on the one hand, presented as empowering and enriching for the user—for instance, annotation of personalized content; software that further sorts and calculates that information—on the other, represents the new model of ‘pre-emptive’ surveillance and control management. Even though the spatial management and organization of our daily routines can hardly be labeled as hazardous risks, in line with the general condition of contemporary times in which “handling fear and insecurity becomes an *essential cultural qualification*” (Beck *Risk Society* 76), planning and accomplishing planned daily activities are becoming the points that should not be left to chance. Hence, the reality of ‘threats’ is not necessarily depicted in their material manifestation. With reference to the SenseCab⁸ application and its signature slogan “the smartest way to find a cab,” which I already mention in Chapter 1, it becomes clear that there is no real danger of not knowing the best place for, or even not catching, a cab in New York. Nonetheless, because of the discursive construction in which a risk denotes a “normative horizon” and an “objectified negative images of utopias” (Beck *Risk; World Risk*), in this case, risk is reflected in an anticipated frustration over the lost time while trying to hail a cab. The reality of risk content, according to Beck (*Risk* 33), is in its “*practical relevance* to preventive actions” (33). This ‘practical relevance’ is at the base of a contemporary

⁸ For an example, see <<https://www.sensenetworks.com/products/macrosense-technology-platform/cabsense/>>

compulsion to accomplish a simple daily activity up to the acceptable standard, followed by insecurities around the possibilities and realities for actually achieving it, for instance, being on time, not ‘wasting’ time, appearing ‘smart,’ and others. Looking at it from the aspect of contemporary daily activities around the city, the ‘task’ is to master time/space management in order to balance one’s work, family, friends and other. This is parallel to what McQuire discusses in *Media City* in regards to ‘relational space,’ where there is an ever increasing need for individuals to ‘actively construct’ the social meaning of space under the pressures of immediacy and mobility.

In light of the above noted insecurities, predicting the best possible—in other words, optimized—outcomes emerges as a preoccupation in securing the future. Predictability, in Beck’s terms the “calculus of risk,” is the process in which future events and catastrophes are being measured on account of predicting risks and calculating the acceptable levels of same predictions (*World Risk*). Therefore, by attempting to make the “incalculable—calculable” (Beck after François Edward), the calculus of risk now “promises the impossible: future events that have not yet occurred become the object of current action—prevention, compensation, or precautionary after-care” (Beck *World* 52). This is the observation that resonates with those of Heidegger, Marcuse and Virilio I discussed in Chapter 2. The future is unpredictable and, as such, cannot be predicted. However, for the system to obtain and attain its own security in the (unpredictable) future *requires a set of actions* today to allegedly secure that same unpredictable future. Such preventive requirements, often procedural in nature, but also imposed on individuals, are what Beck terms “anticipatory care” (*World*), a set of preventive measures that include

“statistical representations, accident probabilities and scenarios, actual calculations, as well as standards and organizations for anticipatory care” (140). Similarly, Giddens notes that this is simply a “precautionary principle” (*Runaway World* 32)

Quite unsurprisingly then, the technological complex based on geo-spatial databases, real-time data streaming, available analytical platforms and recommending applications, rounded all together, open tremendous possibilities for predicting and anticipating future activities around the city. This technological system is also a foundation of the Intelligent Cities fantasy, which would, in the event of its realization, crucially rely on efficient utilization of information potential and data analytics software. Looking from the perspective of Intelligent Cities fantasies, and surrounding urban policies, spatial management may be discussed as a top-down approach; as a tool for urban planning, spatial organization and efficient management of public spaces. However, what becomes apparent, and I will elaborate on this more thoroughly in the following chapter, is that Intelligent Cities and similar fantasies attempt to integrate individual and ‘personalized’ spatial management as a part of their strategy. For instance, instead of regulating traffic by urban planners and other authorities, it is up to the conscious citizens to ‘regulate’ their own movements in accordance to the existing traffic. One should be able to think in advance, calculate and strategize in some way or another daily activities to avoid unnecessary and unpleasant encounters. As such, not only does traffic congestion become a preoccupation of our vibrant lifestyles, but even ordinary everyday practices are turned into a series of issues waiting to be resolved with the help of recommending applications:

good places to eat, affordable places to shop, interesting things to see, and others. This is what both Giddens and Beck recognize as an “individualization of risk” and transfer of responsibilities of risk calculations from representative systems, to the individuals themselves:

In a world where one can no longer simply rely on tradition to establish what to do in a given range of contexts, people have to take a more active and risk-infused orientation to their relationship and involvements” (Giddens *Risk* 4)

However, this also implies a completely new weight on the question of responsibility, since arising problems and malfunctions of our systems are “lessened politically and transformed into personal failure” (Beck *Risk* 89), which further induces an adoption of the “precautionary principle” by the individuals themselves in the form of “obligations, reliability and decisions” (Giddens *Risk* 8-9). In the age of modernity, as both Giddens and Beck explain, self-identity is not a pre-given nor a constant, but a continuous process of reflexive inscription of one’s life ‘narrative’ that assumes active mobilization in decision-making by the actor itself in order to maintain a unique ‘narrative’ of persons’ biography: “A person’s identity is not to be found in behavior, nor—important thought this is—in the reactions of others, but in the capacity *to keep a particular narrative going.*” (Giddens *Modernity* 54). This is evident in an ever-greater reliance on preventive measures by each individual and an adoption of predictive technologies as handy and useful tools, since “one has to choose and change one’s social identity as well to take the risk in doing so” (Beck *Risk* 88). Failure to take a risk, or to fail in taking

risks, is accordingly perceived as failure of the (non)user, and not of the system.

In spite of the fact that individuals are engaged in a “reflexive project of the self” (Giddens *Modernity*); by building a reflexive narrative of their life and identity, the actual role of expert’s knowledge in self-identity should not be diminished. As Giddens explains, the role of the expert is based on *trust* between modern institutions of expert knowledge and individuals, where reflexive culture is achieved through a mix of expert opinion and audience participation. In the case of predictive analytics and recommendations applications, the trust between the appealing technological system and the potential users is gained and secured with several points by which they are promoted: strong computational capacities; enormous ‘knowledge’ stored in geo-location databases; real-time information streaming; and of course personal and contextual character. All together, these technologies promise more power and precision for individual calculus of risk, in which personalization aspect should not be underestimated. Personalization itself plays crucial role in suggesting an *individual* empowerment under the strain of contemporary urban life, to each and every user; adding a ‘personal touch,’ contributes to the notions of custom-made and user-generated cities.

Still, Giddens maintains a belief in the strength of individuals’ self-identities and the impact self-identity has on a constant re-creation of abstract systems of representation. In the final chapter, I discuss the insights and assertions of Thrift and others on appropriation of such technologies. What is certainly attractive about personalized media, among others, are feelings of greater individual control over technology and supposed broader choice that it

gives to a user. On the other hand, even Giddens himself recognizes a paradox in which expansion of choice is highly supported by technological development while, at the same time, decisions are brought “in context of conflicting, changeable scientific and technological information” with the problem that “we do not currently possess institutions which allow us to monitor technological change” (Giddens *Risk* 5-6). This implies that supposed choice is limited to a range of prescribed options, often arbitrary and superficial issues, while crucial questions in regards to development and implementation are out of the reach of end-users. In Chapter 5, I return to the question of choice, where I discuss Borgmann’s level of engagement and device paradigm. For now, it is important to understand the origins of the necessity for predictive analytics, and the role of supposed ‘personalization’ in constructing such necessity. The implementation of personalized data analytics as an individualized risk-management technological apparatus is nonetheless presented as an empowering system through which citizens can actively participate in urban management. In Chapter 4 on informational mobilization discourse, I debate the possibilities further; for now, I would like to illustrate my point in which the supposedly empowered individual becomes a focal agent in city management. In his article “Digital Cities: Sensible urban design,” Carlo Ratti of MIT’s SENSEable Cities Lab, explains the advances of citizen participation as intelligent actuators in urban real-time control system:

Unlike other *real-time control systems*, cities have a special feature: citizens. By receiving real-time information, appropriately visualized and disseminated, *citizens themselves can become distributed intelligent actuators*, who pursue their individual interests in co-

operation and competition with others, and thus become prime actors on the urban scene. Processing urban information captured in real time and making it publicly accessible can *enable people to make better decisions about the use of urban resources, mobility and social interaction.* (emphasis added)

As we can see, this is the advanced *real-time control system*, in which citizens themselves become the *prime actors* in urban space, yet with ambiguous *better decisions*. Better decisions, as I have explained, come with various reference points, whether as a simple and ‘innocent’ chart of average performances, or more advanced personalized recommendations. The ultimate goal is to maintain smooth operation of the city, but not necessarily to address issues in regards to the existing system under which that city operates. In the following section, I disclose the strategy of the system of power, based on Foucault’s observations on governance and self-conduct. The role of institutional power did not disappear or in any sense become reduced by increased individual responsibility in everyday decision-making; this role is now only shifted and reshaped, which I expand on in the text that follows. Similarly, as discussed in Chapter 2 in regards to the reversed visibility, the system’s attempt on power is to absorb reaction and active participation through personalized management, in other words self-conduct and self-governance, towards the normalization, optimization and stability of the system itself. What is more, technological efficiency and “unintended consequences that dominate modernity” (Beck *World Risk 140*); in other words, the side-effects of technological progress are, in fact, the product of the same ideology that claims to have power to ‘solve’ it. I explore this topic in

the following chapter, Chapter 4, with insights from Marcuse, Borgmann, Virilio, and others.

3.3. Self-Regulation, Calculative Normalization and Optimization as a New Strategy of Systems of Control

Technological calculus and predictability is itself a complex process, with rules and benchmarks set at multiple levels. For instance, this widely accepted ideology underlines and directs not only the development and research sector, such as implementation and policies, but also sets the discourse over the importance of efficiency, which implies creating a need and necessity for the calculus of risk and possible outcomes, leading to an ever increasing dependence and trust in technological assistance and mediation.

Other inputs include those who conceptualize and create such platforms and applications; the engineers and designers who create software and manage databases; or even the agency of technology itself, designed to filter and sort; and, as I alluded to in Chapter 2, and as Heidegger argues, ‘by nature,’ to reduce calculative operation. Hence, even in the case of user-generated content, voluntarily inscribed content by random users, we should think through the ways in which inscribed information is being further manipulated and processed, organized, compared, to name a few. The actual power to determine the parameters of selection, and which of the layers are excluded or included in an array of recommendations, to decide which information will be stored and which will be rendered ‘non-existent,’ are arguably present on all involved levels. Additionally, for all those who are *not*

involved, either voluntarily or involuntarily, the missing data determines the final calculated option that is then drawn from the available pool of data. Nonetheless, regardless of the layer, each input is susceptible to the mainstream discursive constructions, such as those of efficiency and personalized risk-management. As discussed in the previous segment, personalized predictive analytics and recommendation services are the means to release some of the burden induced by mobile hectic lifestyles, a perceived need to manage daily life by increasing efficiency and productivity and reducing potential risks. However, such rendering of ‘personalized’ and ‘contextual’ as instruments of predominant logic of efficient use of one’s surrounding, is putting the empowering notion and active participation in question.

In this segment, therefore, my intention is to recognize personalized and predictive location-based services, this personal spatial management, as a mainstream strategy for spatial (urban) organization and the city management, assessed through Foucault’s concept of *governmentality*. In line with Foucault’s thoughts, the analysis is based on a connection between this necessary dependence on personalized predictive calculations and recommendations, and strategies of systems of security that push towards self-regulation for an overall spatial efficiency. It is exactly through the notions of personalized, custom-based predictability that the “art of government,” as Foucault would say, employs its tactics for a self-regulating system of well-behaved citizens rather than setting laws in arranging things to a “suitable end” (Foucault *Security*). The question then is: what kind of suitable end, and for whom? Predictive analytics and recommendation applications system seem

to be the perfect way to regulate and manage urban space and generate efficient and reliable cities. Ensuring ‘meaningful’ as efficient use of space as promoted by the dominant ideology also implies a reliance on the supporting technologies that would serve for even more enforcement to that ideology of efficiency. The system therefore necessitates active involvement of self-regulating citizens to secure the predictability and stability of the system and, in doing so, absorbs potential active participation. Predictability, in the name of customized and personal efficiency of space use, as seen in a constructed compulsion to sort one’s own lifestyle and everyday activities, is a subtle way of implementing the ideology of “conducting the conduct,” as Foucault would say (*Security*).

Looking through Foucault’s concept of system of security and its ‘pastoral power,’ in other words guidance, the ‘norms’ of how to ‘best’ use one’s environment are not imposed and indoctrinated, as they would be in his system of discipline. System of security by means of *prescribing* norms are then left to a self-regulating individual to process and make decisions based on calculus and probabilities. The sense of uncertainty, unopened questions over *what* kind of urban activities and, or *how* should they manifest, is a framework for accomplishing prescribed and constructed lifestyles, for this uncertainty prompts towards the calculus of risk. So, risk is once again described as a way of *ordering reality*, as Dean describes:

Set of different ways of ordering reality, of rendering it into a calculable form [...] is a component of diverse forms of calculative rationality for governing the conduct of individuals, collectivities and populations. (131)

In systems of security, norms do not denominate idealized models of behavior, but the range of the acceptable or, to use Foucault's words, the "distribution of normality." Therefore the process of 'normalization' is to fit the most deviant characters and behaviors in line with 'normal' general curve for the same characters and behaviors (Foucault *Security* 62) Giving a 'safe' range in reference to future risks, and mediated through personal technologies, individuals themselves would strive towards the 'normal' range so as to reach and maintain an acceptable quality of life and a positive future.

If organized regimes typically operate through surveillance and discipline, neo-liberal regimes typically operate through the provision of information and expert advice which responsible individuals will take into account in making 'lifestyle' choices. (Crook 171)

This also explains why we still feel that 'personalization' is empowering, even though the choice is within the limited range of optimal solutions custom-crafted for the particular 'profile' of user. At the same time, the concept of *normalization* is also a convenient framework for absorbing resistance and alternative choices, as the process of normalization absorbs abnormalities by distributing them somewhere on the curve. Incorporating resistance as statistical tendency and feedback is necessary so as to classify, differentiate and finally distribute information, as the statistical tendency turns into optimizing norm.

The trust in expert knowledge, in this case, analytical platforms and predictable applications, was thus regained through the trust in powerful new technologies and the discourse of personal and customized efficiency to assist in recognizing and underlying "performance benchmarks" for users of their

services: “all means for linking the moral and political requirements of the shaping of conduct into the optimization of performances” (Dean 148).

Regardless of the fact that science no longer remains in its traditional position to define truth individuals are all the same dependant on its “*institutionalization and standardization of ways of life*” (Beck *Risk* 90). The role of science remained in making decisions, calculating risks and estimations, from politics and business, over mass media, to everyday life: “everything is changeable except scientific rationality itself” (165). Even if, in fact, the choice is limited: by the number of imputed realities into the database; and by the role of the software, which limits the users choice by delivering only those that are most meaningful ‘here and now’; predictions are based on the scanning and surveillance of the users, their ‘context’ and preferences. The point of reassurance is the promise to bring to users what is relevant to them, where technologies and expertise may have failed before by generalizing to the larger groups. Another pleasing attribute of these and similar applications overtaking the market is the ability to choose among vast amounts of data in regard to some location or event. Presenting the choice in the hand of users, personalization based on user’s preferences and past choices, and the fact that the user could refuse to follow the offered recommendations, these technologies then have the seeming role of “new governmental technologies of empowerment and self-management,” which supposedly:

Engage us as active and free citizens, as consumers of services, as members of self-managing communities and organizations, as actors in

democratizing social movements and as agents capable of taking control of our own risks. (Dean 147)

For Giddens this was a paradox, mentioned in the previous section, between liberal, open market and taking-risk ideology, on the one side, and precautionary principle in everyday life decision-making, on the other side (after Giddens *Risk* 9). Yet, for Foucault, this clearly represents “the game of liberalism” with its seeming “not inferring, allowing free movement, letting things form their course” (*Security* 48). Such “free will” and apparent choice, he says, are based on calculations of the “average as optimal with bandwidth of acceptable limits” (6). Security systems develop preventive measures with predictive statistics and calculations and set up acceptable social and economical limits: average rates that would be considered optimal for a given social functionality (4-6). Governing does not necessarily presume regulating, ruling, commanding and laying down the law; by Foucault’s standards, new *governmentality* involves managing and organizing multiplicities and circulations by ‘letting things happen’ and working within the reality of acceptable fluctuations. This, in other words, is the process of *normalization*, a set of practices that presume screening and noting statistical tendencies, forming the curve and then subduing and distributing subjects to fit the curve. Heidegger claims such process is the inevitable reflection of the enframing nature of number and calculations, as I explained in Chapter 2. One way or another, this sounds very much the same as how the recommendation system operates: location-based and other information is collected, often streamed in real-time, software then sorts and organizes information, generates patterns

based on statistical tendencies, to finally draw recommendations that fit that same pattern.

The insertion of freedom within *governmentality* where, of course, specific limits to this freedom become imperative, relates to the manifestation of security system's mechanisms is a "set of processes to be managed [...] on the basis what is *natural* in these processes" (Foucault *Security* 70, emphasis added). Government tactics, in Foucault's terms, uses the principle of "naturalness" of the population it governs, but they are merely statistical tendencies that "stimulate and encourage self-esteem [and] desire, so that it can produce its necessary beneficial effects" (73). This beneficial effect, which he also calls "suitable end," is the new governmental rationality of "preservation of relation of forces" (298), where the dynamics of processes, and not the processes themselves, are preserved, maintained and developed. Regardless of the notions of freedom in principle of *naturalness*, the extent of control of governmental practices is outlined in its treatment of uncertainty. New political rationality, brought by individualization and privatization of risk, as shown in the previous section, shifts its political programs from welfare state to liberal society of "prudential individuals and communities:"

The individualization of risk [...] is linked to a form of governing that seeks to govern not through society but through the responsible and prudential choices and actions of individuals on behalf of themselves" (Dean 133).

Dean further outlines a structure of new governmental technologies that are characteristic of the neo-liberal governments. In summary, the top-down approach of neo-liberal strategies is the maintenance of indirect control

within and by ‘technologies of performances’ that serve as a point of reference. In other words, this technological apparatus is to ensure the optimization of individual performances through setting performance indicators. In the case of calculable recommendations in urban space, top-down governmental technology is evident in promoting discourses of efficient as desirable lifestyles and relationships that call for efficient management of everyday decisions; and in the reliability of technological apparatus, as presented on one of the promotional websites: “we combine in-the-know editorial recommendations, candid user comments and expert advice from local businesses” (*Citysearch.com*). Dean’s new governmental technologies that regulate from below, “technologies of agency,” disperse the risk and responsibilities to multiple agencies, such as to the private sector, or to individuals through technologies of empowerment and self-management, a point discussed in the previous section with Beck’s and Giddens’ insights on individualization of risk. Thus, while ensuring the need for daily efficient decisions, analysis and evaluation of surroundings, technological support, personalized and customized recommendations further ensure ‘the best’ results, supposedly in the name of the users themselves. As such, MapQuest Vibe claims to help its users “cut through the ratings clutter by providing actual rankings based on key criteria within a richer neighborhood context,” as MapQuest’s VP of product, Vijay Bangaru, blogs on the brand’s webpage. Yet, he also notes:

Presenting neighborhood data in a structure that’s enhanced by geographic context is *critical to accelerating exploration of what’s around you*. We believe we have a unique platform to give people

contextually relevant information that *helps them make decisions*.

(Bangaru, emphasis added)

As seen in this example, such recommendations mobilize users towards a more thorough exploration of their surroundings but through the platform that ensures that decisions are made. Of course, for such technology of ‘agency,’ the appeal to freedom is necessary in order to re-gain trust and support their decisions so the presented tool would supposedly help users with their own decisions. Nonetheless, decisions are based on technological assistance critical for the maintenance of control:

Today the appeal to freedom is made because security depends on the constitution of individuals, professionals, communities, organizations and institutions [...] that can be indirectly regulated by technologies of performance [...] freedom, agency and choice become artifacts of particular governmental practices. (Dean 154)

To further understand who may benefit from the ‘efficient’ use of space in the cities and anticipated ‘efficiency’ of daily time-space routines, we have to think about the nature of anticipated movements and acquaintances and about the ‘beneficial’ outcomes from that same logic of predictability. Foucault particularly stresses the significance of security systems employed in town management since the town (city) is: “open onto a future that is not exactly controllable, not precisely measured or measurable, and a good town plan takes into account precisely what might happen” (*Security 20*). Clearly, then, the urban utility system based on spatial predictability will aid in even more efficient city management. Similarly, for the organizational system of the factory supporting managerial technologies of telegraph and later the

telephone, both represented and facilitated the modernization process for the overall efficiency. However, as I posit in the following sections, it is highly disputable whether the benefit is equal for all parties involved, owners, workers, state, etc., and if the ‘problems’ of pre-modernization is ever going to be solved. What is clear, though, is the everlasting necessity to solve ‘problems’ as well as its never-ending reliance on technological solutions.

Similarly, the high dependence on the predictable application of various kinds, whether to avoid traffic congestion or to decide where, and how, to spend a night, does not diminish the existence of the issues but, as long as one can continue using same and similar services, provides temporal relief for users (alone). Beck notes that not everyone has the same ability or access for appropriate risk management, which will give rise to a new inequality determined by unequal dealing with insecurity and reflexivity “inequalities are still there [...] redefined in terms of an *individualization of social risks*” (Beck *Risk* 97). Even those who initially chose to embrace new technologies of predictability might soon find to *depend* on them (Sheller and Urry *Mobile*). Consequently, high dependency and the requirement for such technologies is further putting pressure on those that are not able to, or who choose not to use them, since they are, or will be, excluded and marginalized from the mainstream beneficial domain. The self-regulating system of constructed necessity to maintain vibrancy of mobile lifestyles automatically rejects those who do not stand-up to a certain performance levels: “those who can not be incorporated into the system which excludes for poor performances” (Crook 180-181). In the same way, the more we participate (such as annotate and rank within the platform) and even just use

recommending services, the more diverse information it will provide, while the possible range of choices reduces after the underperforming utilization of such services. Of course, ‘performance’ also relates to the hierarchy of optimization, where each user will receive a set of choices that fit their profile, which is based on preferences, but also based on class, gender, race, locality, or whatever is the software’s designed point of classification and discrimination. Even though there is a strong advocacy of freedom and self-control, this supposed freedom to choose is not meant for all. Hence, we may conclude, the system of pastoral control, after all, preserves the existing hierarchy of relationships, statuses and inequalities. If one does not have access to the resources, information, analytical tools, applications, and others, if one does not share the same set of goals and values, one will soon be rejected by the system itself.

The recommended choices would not be that much of an issue, as the user could always choose to disregard, or search for other options. Even if these standards are set up for ‘overall good’ (Intelligent Cities, for instance) the implementation of the *need to calculate* the most appropriate solution so as to accomplish—to perform up to certain expected standards with assisting technologies—and the *high dependence* on such systems, are indeed problematic. Popularly promoted as technologies that facilitate users’ lifestyles, location-based services are in fact generating the same ‘hectic’ lifestyles, sometimes cleverly disguised in ‘a variety of lifestyles’ from which to choose, but sometimes even openly presented as *the* lifestyle to which one should strive. The issue is not so much about surveillance under the guise of control, or dictating what exactly should be done, as it is about the “conduct of

one's self-conduction," to paraphrase Foucault (*Security*). It is not as much to anticipate exact future movements and uses in urban space, as it is to generate self-regulating individuals that would limit their own personal unpredictability for overall (spatial) efficiency.

Hence, to ensure efficiency, normalization and optimization of city dwellers and their daily activities, to ensure acceptable and desirable behavior while reducing and limiting dissidence and reaction, the strategy of the system of control is to necessitate individual risk-taking and risk-managing practices. At the same time, it necessitates the technological apparatus that will ensure this efficiency, normalization and optimization. Even the concepts of personalization and customization are a necessity and not a choice, as its developers proclaim, since this software-sorted personalization will ensure optimization and normalization of subjects. Personalized efficiency therefore necessitates active involvement of subjects in terms of self-regulation and individual risk-management with supposedly empowering predictive analytics platforms and recommendations applications technologies. However, such involvement is bound for *normalization* and *optimization*, as Foucault has put forth, in which predictable software and provided recommendations play a role as 'reference point' for desirable and acceptable lifestyle. As active participation becomes yet another necessity and requirement from the system as part of the achieving the anticipated 'personalized efficiency' of daily time-space routines, the question is if such supposed active participation indeed allows analytical and negotiating powers of its citizens, which remains to be further discussed in the sections that follow.

3.4. Personalization As Customization and Optimization of Spatial Experiences

In this section, I explain more closely how the concept of ‘personalization’ becomes a part of the new modes of surveillance and new monitoring strategy that aims to guide its population towards the appropriate conduct, as Foucault would say, and explained here with Andrejevic’s insights on customization through individualization. According to Andrejevic, and similar to what I explained in the first section of this chapter, the current strategy of commerce is not to render everyone and everything visible, as fears of centralized control and homogenization would project, but to utilize the apparent individuation through customization as an optimizing strategy. Customization is conveniently presented as empowering individuation and outside of the domain of supposed attempt of power system towards homogenization and centralized control. On the other hand, it becomes more apparent that the overwhelming calculation in space, informed mobilization, attempts to predict and, more importantly, to anticipate future spatial movements and encounters in cities in order to guide city dwellers towards the desirable conduct, as Foucault would say, while excluding and marginalizing those who fail to do so. This is the new model of surveillance and control management that employs optimizing and risk-reducing strategies through prediction and anticipation.

As I discussed in previous sections, ‘personalization’ conveniently ‘flatters’ users’ individuality by means of customized spatial content and some space for ‘free’ (yet efficient) decisions. In addition, allowing the inscription

of ‘personalized’ content, capabilities to store memories, record lives, contributes to the illusion that such technologies are personalized and individualized. In actuality, personal information is crucial for software to generate results, since isolated information has no ‘practical’ value unless it is connected to the rest of the information in the system (Andrejevic “Monitored Mobility”139). Hence, successful monitoring, apart from locating and tracking, demands significant amount of personal information. What is more, users’ participation is imperative for such services to exist, as I explained in the previous chapter. Massive participation and involvement is furthermore ‘justified,’ and even presented as necessary, with arguments such as ‘the more users are involved the more ‘accurate’ recommendations are, further requiring users to constantly update their profiles. In reality, the pervasiveness of calculative services subordinates all everyday activities to the ‘labor’ of consumption in which consumption becomes a production through the feedback generated by consumers (Andrejevic “Mobility” 133). It is, therefore, necessary to render such a system attractive, which is successfully done mainly through notions of personalized and customized services that will also conveniently overcome the downsides of feared complete transparency.

The customization strategies of mobile commerce, or ‘m-commerce,’ emerged within this context to overcome the fear of ‘homogenization’; at least, in a way, this fear manifests itself in the mass media era. The one-to-many principle of disseminating information, soon after the advent of the Internet, was deemed as un-democratic and of centralized control attempting to indoctrinate each and every citizen with the same ideology. Where mass media was rendered as a product of mass production and consequently labeled

as centralized and unifying: “By contrast, customization is offered as means of counteracting the undemocratic, hierarchical, and homogenizing character of mass society” (Andrejevic “Mobility” 144). As a result, *individuation is represented as an escape* from mass media homogeneity. Andrejevic believes this strategy was already historically present in 20th century industrialism, and not only now. He reminds us that the promise of individualization is not a revolutionary break from mass media tradition, but the continuation of tradition that preserves existing power system (“Critical” 36). The rationalization of production and emergence of mass society were, at the same time, relieved with promises for individuation reflected in specialization of work and in terms of spatiality—differentiation and suburbanization. However, as I will present in the following chapter in greater detail, along the lines of Marcuse and Virilio, both specialization of work and suburbanization suggest atomization of citizens and urban dwellers, and disengagement with the overall production and political processes. Today, according to the author: “new, interactive, media represents not a radical departure from this strategy but an extension of its logic” (“Mobility” 133).

Individuation and customization are now part of new media *personalization* strategies, penetrating not only commerce, but also every aspect of spatial experience, flattering users’ desires for individuality and empowerment. However, while seemingly satisfying users’ creative and individualistic endeavors, personalized spatiality in fact supports the system of power, customizing urban space for more efficient consumption:

This is offered up as a subservient form of convenience: an attempt to cater to individual desires and thereby a form of individualized

recognition. Spatial customization thereby serves as an incitement to the consumption of space as a form of productive subjectification.

(Andrejevic “Mobility” 134)

Customization, therefore, and even more, so its advanced version—*personalization*—surpasses homogenization concerns brought up in the previous era of mass media domination. Yet, both refer to a general aspiration towards efficiency and risk management, attempting to ultimately achieve the same goal—increase productivity (mobility) and efficiency—while maintaining control over production (movements and actions). Both strategies state that its avowed goal is to guide ‘users,’ but where mass media had the prefix of uniformity and prescription, personalized media is attempting the same on the premises of individuation and self-management based, supposedly, on users’ own needs and preferences. This, however, has a similar effect as specialization did in mass production. Since both specialization and personalization narrow down the attention to a very specific ‘relevant’ area, it has effects on segregation and differentiation of citizens, or city-dwellers, and minimizing their engagement with the overarching processes. Therefore, Andrejevic concludes:

The *elusive point of capitalist rationalization* is not the mass homogenization and standardization associated with the stereotypical version of Fordism but an *infinitely articulated individuation* in which each consumer is perfectly (infinitely) specified. [...] What emerges is spiralling logic of strategy: Specification both stimulates and thwarts the drive for individuation by offering a solution that exacerbates the problem it ostensibly solved. (“Mobility” 140-141, emphasis added)

I already discussed, at the opening of this chapter, that complete transparency is more likely a myth, for it is simply impossible to ‘keep an eye’ on everyone and everything all the time, and also because ‘total’ visibility obscures the apparatus of vision and creates the ‘reality effect,’ as Virilio would say (“The Information Bomb”). What eventually becomes evident, by looking at the nature of software and principle of narrowcasting, is the goal to spot trends and patterns that will furthermore yield ‘desirable’ outcomes on account of ‘undesirable’ activities and, at the end, discriminate towards ‘abnormalities’ (e.g., deny access, marginalization, and others). Hence, even though predictable calculations call for individual locating and tracking, gathered information is seldom singled out; it operates as a part of the large collection of data and not to detect the whereabouts of that individual user, but to detect general trends in movements around a city. A single person is not significant enough, unless he/she is somehow detected to be ‘outstanding’ based on predictive trends and ‘common’ whereabouts, a practice termed “categorical suspicion” by Andrejevic (“Mobility” 136): “Monitoring is not limited to particular suspects but is universalized to figure out who the suspects might be” (136). In doing so, the system is looking for ‘abnormalities’ that are sticking out of the curve of normal distribution, the rest are ‘safe’ as long as they blend in and act ‘normally.’ Similarly, the final goal of these systems is not to detect and equalize its subjects, people or different layers of spatiality, but to adequately label and sort them for easier management. The aspiration is not the production of totalitarian, homogeneous, coherent (social) space; quite to the contrary, the ambition is

the production and maintenance of spatial boundaries (in Crandall) and ‘adequate’ punishment in the form of exclusion and marginalization for those who fail to ‘normalize.’

Therefore, customized solutions are derived against generalized tendencies and patterns, sometimes of an average but, more commonly, of ‘alike’ users. The process of customization is supported by calculative operations based on narrowcasting that, as I have explained, has a ‘natural’ tendency towards rationalization and optimization through abstraction, certain forms of standardizations and quantification of data. Customization of spatially relevant databases is precisely the same—reducing the multitude of information to the one, or a range of optimal choices. Moreover, customization serves as a defining reference—more precisely, as ‘practical’ justification for ubiquitous calculative and monitoring services—while, on a greater scale, it supports the overall efficiency of the system:

Individuation and customization facilitate efficiency, just as the freedom of data packets on the Internet to take the multitude of different routes represents an efficient solution to the problem of data transfer. Independence of movements does not necessarily undermine centralized control but can help facilitate it. Similarly, specialization is not a postindustrial development but is characteristic of centralized planning itself, which sought to profit by differentiating tasks as to ensure that skilled workers were not performing tasks that could be done more cheaply by others. (Andrejevic “Mobility” 145)

In spite of promises for users’ shared control over production processes, the ‘freedom’ to customize and choose their own preferences, there

is no control in the substantive sense: users have no control over the rules of interaction (Andrejevic “Mobility”141) and the interaction itself is (mis)leading, as Virilio explains, as the “tyranny” of real-time interaction that leaves no time for critical reflection (“Information Bomb”). In fact, as much as in a risk-threatening society, the responsibility and accountability to reduce and calculate risk transfers from the control system to the individual, as Beck and Giddens explain, as the individualization of risk, the less users are aware of the overarching processes, whether it is control system, production or urbanization. The problem lies in the common belief that the imposed power structure does not exist, even more so that the power is in the hands of users: “Once consumers and producers are equated, the power relations that structure their interaction fade into the background” (Andrejevic “Mobility” 138). Yet, choosing whether to opt-in or opt-out within the option of features certainly does not imply user-control over the rules of interaction; instead, it confirms the lack of it.

Important for this thesis, though, is to underline the force of optimization in both: conceptual premises of calculative practices, and the form in which they operate: customization (personalization). Such a parallel connection will support my standpoint that calculative practices only support efficiency of the system of power and not individual empowerment, which has further effects on the negotiating powers of city dwellers. In this chapter, in particular, my intention is to focus on strategies of the contemporary system of power that promote and rely on the efficiency of the technological apparatus, carrying out a general *feeling* or *way of thinking* in which technological efficiency mobilizes the population towards an appropriate individual *conduct*

(Foucault) and *risk-management* (Beck)—which, in this research, is the highly desirable *mobile lifestyle* and *informed use of space*. While it would not be just to attribute such empowering and liberating feelings solely to the ‘clever’ strategies of promoters that advertise their products as individualistic and empowering, mobile lifestyle and the reliance on mobile information networks represent the perfect contemporary technological apparatus, as Foucault, Marcuse and Beck would argue. Self-governance in terms of efficiency compliance and individual risk-management are the outcome of technological advancements and are, at the same time, driving the very same advancements. Therefore, systems of control encourage ‘individuality’ and the personal, not just to seduce potential users, but to *ensure* efficiency compliance, which Andrejevic, with his analysis of customization principle, supports. Hence, while “keeping users happy and engaged,” as many advertisements would say⁹, individuals themselves maintain the system and its prevalent necessity towards efficiency compliance and risk management, points that I discuss greatly in Chapter 3, and further, in Chapter 4.

Thus, it comes as no surprise that the mobile phone, or smartphone, to be precise, is fast turning into our “alter ego” (Schmidt) with all those ‘more’s mentioned in Schmidt’s speech, among which the most impressive certainly is the ability for such technologies to think and sense for us. ‘Active reconstruction’ of space, therefore, both necessitates and, at the same time, takes advantage of mobile technologies and analytical apparatus, and, as such, both shapes and supports this governing discourse of risk-management, individual efficiency and rationalization. Such a necessity is promoted as

⁹ BeThere Mobile advertisement, quoted earlier in the previous section
<http://www.betheremobile.com/publishers_summary.html>

desirable and in line with modern mobile and informed lifestyles, which presumes the ‘more accurate’ sensing, outsourced analysis, and customized recommendations, as described briefly in the opening chapter. In the case of ‘active reconstruction’ in contemporary urban space, concepts such as *personalization* and being *informed* are, therefore, a part of a system against which to measure performance and effectiveness in space; the performance benchmark in Foucault’s terms.

As I will elaborate further, such active involvement in space turns being active into efficiency compliance, this constructed need to ‘catch up,’ and not to the ‘active participation’ that Lefebvre, De Certeau and Heidegger had in mind when discussing active critical engagement in urban space or with technologies, as I presented in Chapter 2. There is no space for Lefebvre’s *autogestion* or De Certeau’s *room to maneuver*; once those city dwellers take on the role of the customers, they are involved in a production through the interactive feedback and utility discourse. Interactivity itself, as Virilio argues, necessitates and shapes participation, reducing participation to a set of predesigned and required feedback. Additionally, as I discuss at length in this thesis, the *enframing* nature of calculations that ‘personalize’ and the compulsory efficiency compliance hardly leave any space for critical reflection and *autogestion*, or space for interpretation and room to maneuver. As both Lefebvre and De Certeau argue, these are the vital aspects for taking a critical and active role in producing social meaning of space and negotiating spatiality. Personalized spatial content, in turn, becomes customized commodity, as was elaborated in this section, delivered to city dwellers for their own *convenience* and *enjoyment*. The transaction of reshaping space into

a commodity further shapes city dwellers into *users* of space, who, at the same time, become both the customers, of potentially exploitable spatial commodities, but also (cheaper) producers of the same commodities.

In this section, my attempt was to connect the process of customization in commerce, grounded in empowering individuation, to the contemporary empowering notion of personalized spatiality. The supposed personalization is nothing more than a contemporary term for the customization process, which refashions spatiality to a set of commodities for city dwellers, turned to spatial customers. Spatial customization, similarly to a specialization of production (and suburbanization), narrows spatial concerns to (personal) efficiency and utility, while diverting from the overarching processes and issues, which eventually affects analytical and negotiating capacities of city dwellers. In the following two chapters, I will discuss more about the level of engagement with such technologies. While efficiently personalized predictive and recommending services are, as its providers promise, effortless and easy to use technologies, offering even to replace analytical capacities with automatic sensing and computer-generated analytics, may not be as helpful after all. According to Borgmann, the less we are engaged with a technology or a device, the less we understand the principle under which this technology operates. This diminishes our understanding and engagement with the underlying principles of its production, dissemination, regulation and other crucial issues. Replacing analytical and critical thinking with automated processes, and technological processes over which we do not have any understanding and control, in effect, jeopardizes the very same critical and negotiating capacities and the active participation of urban-dwellers in cities.

So far, I have attempted to show my readers the extent to which discursive practices and employed technologies necessitate personal engagement, but of a different sense than Lefebvre, De Certeau, Borgmann, and others had in mind. Personalization through narrowcasting reduces engagement with the process, as it computerizes the process and whittles the level of interaction points with such system; interactivity itself is reduced to the designed format under which it operates. Personalized predictions and recommendations are *reducing* our set of options (potentialities) to what is countable and quantified, and attempt to further clear (reduce) those options to the set of desirable ones (actualities). If customization in commerce taught us anything, the goal indeed is to ‘engage’ users, but such engagement is towards more consumption and not actual spatial analysis, as the analyze-your-location call might suggest to some.

In this chapter, I investigated two of the most prominent concepts that shape the development and implementation of predictive analytics and recommending services, namely supposed efficiency and personalization. These two concepts also contribute to perceived empowerment and potential active participation in urban space, as often advocated. The concept of ‘personalization’ comes along with notions of supposed user-control over such technologies, which supposedly allow for greater freedom of choice and decision-making. However, the opposite is true, as I showed in this chapter. Personalization is not only required by the system of power, which jeopardizes

the supposed freedom to choose, but is also shaped by the dominant discourse of efficiency that includes risk-management, optimization, and normalization. Seeming personalization and customization, therefore, serves to support the strategy of the system of power to channel and control appropriate behavior, first by setting up necessities, this contemporary need to calculate; and second, by providing performance benchmarks, for instance, generating ‘meaningful’ recommendations; in other words, optimized solutions for certain profiles of users based on patterns of use and statistical tendencies.

Mobile lifestyle, therefore, as presented in Schmidt’s speech¹⁰ with its promises for *individual efficiency improvements*, represents a risk-management mechanism within the discourse of Beck’s risk-society. Emphasized *personalization*, furthermore, reflects the attempt to transfer risk-managing responsibilities from the dominant system on power to an individual, as elaborated by Beck and Giddens in this chapter. Such personalization, in terms of a ‘responsibility’ to be actively involved, is even prominent in projects based on so called ‘participatory urban sensing,’ in which supposed each individual citizen’s active participation will contribute to a greater social change. MobileActive.org, for instance, is described as “A global network of people using mobile technology for social impact.” They advocate urban sensing practices for tracking and documenting noise pollution in cities: “in this way participants can use their phones and noise sensors to automatically share information about their city with other members of the community” (*MobileActive.org*). A couple of mobile phone applications are presented on their webpage, illustrating how easy it is to detect and map noise

¹⁰ Presented in Chapter 1 of this thesis.

pollution, with additional advancements such as tagging, adding notes about noise source, time of the day, ease of communicating with other users in the network. It is not clear, though, in this case, if tagging will actually provide the sufficient information to explain the context of the detected ‘noise,’ how, and who, generates acceptable vs. unacceptable noise levels and, most important of all, what is later done with collected data to make social change, as promised on the webpage? Are the citizens actually invited to inspect and report unusual behaviors of their fellow urban dwellers? Such questions and issues certainly contribute to the ambiguity of such active participation.

As I explained, such *personalization* also illustrates an imposed self-regulation by the dominant system on power in order to maintain the control over its subjects. Mobile technologies, mobile network and ‘value added services’ such as predictive and recommending applications, serve as performance benchmarks towards the normalization and optimization of everyday urban practices. Mobile lifestyle and information potential mobilize users of mobile networks towards more mobility and activity around the city, but such active participation is in terms of individual risk-management, self-regulation, optimization and ‘normalization.’ The question of interest for this study is: what happens to city dwellers’ analytical and negotiating practices when caught up in this net of necessary participation and efficiency compliance? Negotiating and critical participation in space, as discussed in Chapter 2, require a certain distance from the control system, integrity and space outside of the domain of the calculable and ordered by the system of power, precisely so as to understand the process of imposed order and to maintain the space to re-think the same order. Supposed participation with

calculative practices is channeled through efficiency compliance, and necessary feedback that is later looped back into a system, as statistical tendency forms a curve under which the optimal, normalized behavior should fit. I have already mentioned the extent to which active participants in such systems are free to choose whether or not to participate; the outcome is presented by the curve itself—one is either in, or out. However, in-or-out is not an option for true active and critical participation in space, as I hope to convince my readers with this thesis. Therefore, the basis of actual active participation in terms of critical and analytical approach to spatiality *within* the imposed *curve of normalization* remains to be further investigated.

The highlight from this chapter, which I intend to bring forward to my further analysis, is the argument that active participation is being incorporated into the system, in fact, rendered necessary so as to fit in, as a form of individualized risk-management and self-regulation. Yet, while requiring ‘active participation’ from its users, software generated ‘personalization’ defines ‘meaningful’ for its users and in turns expects no actual engagement with the technology and supporting software in question. Such compulsory active participation therefore mitigates critical thinking, as users are excluded from crucial aspects such as planning, development and implementation of such services. As discussed in Chapter 2, calculative and predictive technologies dilute analytical and critical capacities with such attempts of calculative and predictive practices to clear the space from uncertainties, and in doing so, reduce the potential for the alternative spatiality to form. Predictive analytics and recommendation services, regardless of the fact that they ‘invite’ further analysis, mobility and even active participation, as I

showed in this thesis so far, do not increase a city dweller's awareness of the process that defines their spatiality, nor do these tools increase the capacities for discussing and negotiating spatiality.

In the following chapter, Chapter 4, I dwell more closely within the concept of efficiency and technological rationality. By investigating efficiency driven urban utopias and the recurring problem-solution account of such visions, I discuss the extent to which absorbed *active participation* is, in fact, active in such efficiency driven discourses, with points made by Borgmann, Virilio and Marcuse. I will therefore discuss the level of involvement with the conceptualization and development of such technologies, and underlying narratives of efficiency and technological progress. In Chapter 5, I continue to investigate into this process that generates recommendations, so called narrowcasting, before I continue with a more detailed investigation of possible appropriation within the domain of imposed calculations and predictions towards the end of this thesis.

CHAPTER 4

INFORMATION POTENTIAL AND THE EFFICIENT SPATIALITY

In this chapter, I analyze in more depth the discourse of the Intelligent City, outlined in the opening chapter of this thesis. More specifically, I will dwell upon the supporting discourse of informational potential, pay attention to the position that mobile networks and location-based services have within it, and investigate in greater detail the urban efficiency context under which location-based analytics are promoted and integrated. I begin this chapter by investigating the concepts of informational mobilization and efficiency of mobile lifestyles. I discuss mobile lifestyles and the concept of more recent informed and calculative mobility, and the contribution of informational analytical platforms and various location-based services, including those of prediction and recommendation.

In the subsequent sections, I will discuss the ways in which efficiency compliance, ensuring competitive advantage, as well as the low level of engagement with recommending devices, reinforce my argument in relation to the actual presence of seemingly invisible power and its strength. Starting from the origins in technological rationality and progress, and the mass-individualism that accompanies technological efficiency, as Herbert Marcuse discusses; followed by a discussion on efficiency in relation to Albert Borgmann's *device paradigm* and the level of engagement with modern tools; to finally discussing the historical recurrence of such efficiency-driven urban utopias. It becomes clear that such promising technological systems are, at the same time, both a cause and a convenient solution for urban issues, which only

alerts to the fact that such ‘utopian’ concepts eventually preserve social order and not overcome inequalities as originally predicted, as Stephen Graham and others have pointed out.

In the final two sections, I take a look-back to the role of information and communication networks, followed by the role of mobility in shaping of the contemporary urban everydayness. I suggest that the concept of informed mobility, reflected in an idea of Intelligent City, a current urban-technological fantasy, is a continuation of the two separate lines of urban/technological complex traditions, one of information potential that emerged in the wake of modern information and communication technologies, and the other of mobility that came along with modern transportation technologies. These two traditions are certainly interconnected, but it is only with the spread of mobile informational networks and proliferation of portable information and communicational devices that the idea of a smart (intelligent) city finally shapes up. Urban/technological complex that surfaced is an implication of both mobility and informational potential, or what I term in this thesis informed mobility and, in some instances, info-mobilization. The mobile informational network is essential for the smooth and efficient organization of the contemporary urban system and *informed mobility* is, therefore, both a precondition and a life-supporting system of such smart cities.

My intention is to situate location-based services within their broader discourse of urban efficiency, supported by different imaginaries of efficient urban/technological systems, and to show the past attempts of ideological apparatus to acquire such systems as a daily necessity and how, in doing so, these endeavors transformed the spatiality of urban everyday life. I point to

several recurring problems from previous urban/technological complexes, and discuss current implementation tendencies, to illustrate my stand that such systems tend to maintain its own stability, supported with insights from Marcuse, Virilio and others, particularly in relation to the valuable space for city-dwellers to negotiate their own position.

4.1. Informed/Calculative Mobility

The analysis in this section is situated around two intertwined aspects through which location-based calculative technologies are promoted as desirable. A mobile lifestyle, embedded within the context of extended mobility and ubiquity of mobile technologies, presupposes taking advantage of the information potential and also presents a solution for managing informational clutter and coping with information overload. Information potential, in turn, relates to the concept of maximizing the utilization of available information and what I have referred to in other instances as the “analyze-your-location call.” A mobile lifestyle, therefore, more precisely reflects this contemporary demand to ‘make sense’ of available information, to make use of information potential, under the pressure of ‘active’ real-time production of social space in the contemporary media/architecture complex (McQuire “Mobility”). Yet, if not for the ubiquitous and pervasive mobile technologies, mainly cell phones and, more recently, smartphones, and many other screening and surveying technologies in urban space, there may not be sufficient information and the potential to somehow utilize it. My concern, as discussed in the previous chapter, is that the availability and presence of

advanced predictive analytics and recommendation services has turned them into powerful ideological tools. In the wake of Intelligent City, a mobile lifestyle is therefore the lifestyle that responsible citizens strive towards, supposedly for the good of individuals and society, as I elaborated on in Chapter 3, based on insights from Foucault, Beck, and others. *How* this information is further utilized has become one of the focal concerns used to support the efficiency of the system of power, a point I make throughout.

Calculability and mobility will enable informative decisions, which will supposedly enrich urban experiences. As already widely discussed, mobile-architecture complex (McQuire, *The Media City*) not only encourages intensification of movement—these movements, activities and encounters have to ‘be meaningful,’ and their efficiency needs to be ensured through calculations and predictions with different location-based applications. Calculations in urban space reinforce mobility with supposed notions of everywhere and on-the-go interpretative powers. At the same time, mobility is the drive for calculability, in which the real power of such technologies comes to light. Hence, as much as the *informed* mobility would not be possible without the aid of calculative technologies, as much as such advanced calculations would make no use without the extensive mobility, it remains valuable mainly for providing data for calculations.

Designed and pre-calculated mobility may seem a novelty today, but urban mobility was, and still is, determined, for instance, by the means of roads and railways that take certain designated directions; transportation technologies with their, for instance, speed and capacity; spatial distribution of work and residential neighborhoods; and many others. The efforts to

determine and by that sense to control mobility therefore is, without a doubt, present, even without today's advanced personal calculative technologies. The novelty of today's calculated mobility relates to the presumed benefits of *informed* and *personalized* mobility, as described in the previous section, that supposedly liberates users from those strings of control that attempt to pre-designed it. However, such "liberation," supposed personalized spatiality, comes with an advent of new services that offer more precise and reliable way to calculate the most 'meaningful' and the most efficient solution.

In this case, as I will show further down in this chapter, 'informed' mobility stands for efficiency compliance that supports the very same system of control attempting to free off. As the desirable mobile lifestyles presume extensive mobility, productivity and efficiency, advanced calculative technologies and devices are becoming indispensable, creating as such a disadvantageous reliance on the technological system. Regardless of the seeming invisibility of power, hidden behind notions such as personalization and efficiency, such efforts to supposedly empower urban dwellers with calculative and predictable operations in fact show the ever-growing system of control. In fact, and as I hope to present in this chapter, it is important to render such informed mobility as *active participation* in space, precisely so the power structure could apparently fade away, appear subdued and, in some instances, seen even as non-existent. In this section, therefore, I intend to show that the power resides precisely in the discourse of information potential and its 'value added services,' in which calculative operations came to represent a normalization strategy of contemporary system of power, which supports Foucault's arguments on governmentality. I will, therefore, reveal the extent to

which calculative operations are, in fact, the driving force in today's power structure which, I argue, is precisely due to its seeming invisibility, the nature of calculative operations that translate and, as such, reducing the world to a range of countable and quantified characteristics to operate with, all of which lends support to Heidegger's arguments on the *enframing* nature of calculations.

Accordingly, we see location-based applications evolving from the 'simple' search-and-locate to the recent predict-and-recommend type of applications. In Chapter 5, I describe the typical software that supports such applications. I would like to point now to several crucial characteristics of calculation practices in general, so as to support my arguments. At the core of the *learning* process, which seems like a euphemism, and essential for the predicting, is the logic of surveillance—constant monitoring and massive collection and storage of information about users and users' interests. Starting with the locating and tracking of each user over numerous streaming devices, voluntarily disclosed spatial information of each user is collected; data is gathered and stored in online platforms for (often immediate) retrieval. Analytical platforms are supposedly able to *learn* more about users by computing gathered information about users' whereabouts and 'spatial' habits, as well as pre-set users' preferences; and to *understand* the context, for instance their surroundings at the moment of computation. What is more, as already mentioned, location-based services' developers continually push themselves one step further, proposing even more convenient and effective *sensing* applications that will limit or exclude search altogether, and facilitate automatic 'matching' service between space and users. This means that the

collected information is further automatically processed in a certain manner towards *detecting trends and patterns* so that, finally, such programs can *sense* the future spatial activities in which a particular user may find him/herself and accordingly, *naturally* predict best solutions for its users.

However, this presents several issues, starting with the fact that collected information is such information that is countable, as in, for instance, the number of occurrences; or, if it is not, it is ‘translated’ into quantifiable and countable, such as assigning a numerical value on the scale from “1” to “5” to describe emotions. Then of course, delivering contextually-relevant information customizes the surroundings by targeting and tracking certain points of interest, making some visible (in fact, extremely amplified) and others not. Finally, the very process of customization, so-called narrowcasting, generates what users of such services see as available by limiting the array of options. Further down the road, this undeniably influences the user’s palette of choices and therefore, to an extent, user’s future behavior within the space. So it seems, after all, that users of such calculative services are ‘free’ to chose, albeit from the selection of choices made available by software that are within the range of the acceptable solutions. Some of the actual interface options will be shown in the following chapter; here, I want to stress that even though such options are presented limitless, for instance MapQuest Local, is “featuring over 50,000 neighborhoods in 27,000 cities, with 50,000 local hotspots” (*Mapquest.zendesk.com*), we see that actual options are limited to the provided rankings, as the software “cuts through the clutter by providing city content, hotel deals, best restaurants, top shopping spots, services and more in each neighborhood.” However, this process of ‘cutting through’ is nothing other

than software that calculates and further narrows the range of possible options to the one that is ‘personalized’ or localized.

This emerging calculative spatiality, or what Thrift terms “qualculation,” (“Movement-Space” 584) indeed reflects the qualitative characteristics of a number and of practices that essentially operate with numbers. The described logic, which Heidegger also elaborates on, exposes several characteristics: mathematical *abstraction* and a tendency towards “controlled” results; *generalization* of object of study as in statistics (for instance using generalized population in place of an concrete individual); *standardization* for compatibility and comparability (such as standardization of time and space); *filing and indexing* in response to an increasing need to organize information; and an increased focus on *effectively managing* goods worldwide (Thrift 589). Of course, this fact, that everything and everyone can be quantified, without addressing the issue of translating non-quantifiable information to the quantified, is amplified with speed, instantaneity and the pervasiveness of calculation processes. This new environment, which reflects the emergence of Thrift’s “qualculation,” which he also terms new fluid space qualities, is grounded in the *magnitude of continuous calculation* underlying almost every encounter:

This style of calculation arises out of the generality of the numbered fields against which and with which so much activity now takes place, the increasing amount of calculation done via machinic prostheses—often to the point where ‘human’ intervention is distant or even non-existent for long periods of time—and an increasing tendency to frame number as quality, in the sense that calculations are so numerous and

so pervasive that they show up as *forces rather than discrete operations*. (“Movement-Space” 594, emphasis added)

The significance of numbers is not only in ensuring numerical *flow* and calculations as central to all activities; calculation is a force that *constructs* those same activities. Calculative practices in space, Thrift says, generate new cultural conventions, techniques, forms, genres—even “a new sensorium based on calculations—which assumes a world of movement” (594). It is important to realize this overwhelming presence of calculative practices in space that, according to Thrift now creates new spatial *ontologies*, what he further terms a “movement-space:”

These developments have [...] produced new figured ontologies by decomposing and recomposing the world in their own image [...] defining not so much what is to be done in any situation but how the situation turns up in the first place (587)

We can understand the described ‘numerical and calculative’ qualities, as the process of transferring uncountable to countable information, also as the ways in which data is further examined and manipulated, in which case of the extraction of predictions and recommendations is to look for trends and recognize patterns. But is not the pattern, at bottom, a representation of merely repeating and recurring elements? A pattern, therefore, shows a reduction to already repeated elements that, in the form of recommendations and predictions, becomes a suggestion of another repetition and recurrence of the same elements; becomes the reduction to what “might suggest a continuity, a propensity, a taste what is to come” (Crandall 74).

In that sense, even tracking is “ultimately an anticipatory practice” and even the real-time traffic information is “performative and declarative.” Foucault explains this through the normalization process in contemporary governmental systems of control. Statistical patterns form the curve of population *distribution*; everyone is then measured and compared against this normalizing curve to determine whether it is within what appears to be a *normal* or *abnormal distribution*. This normalizing curve becomes the mobilizing tool, by the simple fact that one can optimize self to fit the normal distribution. Similarly, predicting software not only describes probabilities; it anticipates future spatial movements and encounters in cities, thus described more accurately as “calculative mobilization” (Crandall):

Movement is subjected to tracking: translated into measurable for that can be durably reproduced, in ways that standardize this movement, optimize it and infuse it with the potential to be predicted (72)

Set within the risk-management discourse, Beck notes, these recommendations and predictions then become very powerful tools to shape our unpredictable future. Personalized predictability, described in this thesis as a relatively new concept that adds to the contextualizing strategies, is even more anticipating and further directing the activities of urban dwellers. Users’ whereabouts are becoming productive in terms of the informational potential of that very same movement, which is looped back into a ‘system’ as a real-time feedback: “With the introduction of mobile phones, however, communications becomes fundamentally different—and like in real-time systems there is a continuous monitoring of environmental variables and returning feedback to the system” (Townsend “Life” 14).

In other words, the city is already a system operating on urban feedback, in which citizens are being mobilized for necessary ‘active’ participation in order to maintain and perfect even more this complex *interactive* machinery. As we can see, what starts ‘innocently’ as finding directions and navigation points through space has, in due course, a profound effect on how we experience that space. Simple directions by an application on a mobile phone can, in turn, affect which routes are used by who, which eventually has an effect on who is interacting with whom, or at least have a possibility to interact. In this sense, mobile phones are ideal tools for mobilizing populations towards the desirable conduct.

The desirable conduct, as I concluded in Chapter 3, is to mobilize population towards efficiency and rationality that, ultimately, as I will elaborate even more in this chapter, serve to preserve the system of power. Promised ‘emancipation’ might make a difference for some, but most likely only for those who have the financial means to implement this technological apparatus, set the rules and direct consequent use. In a scenario in which each user strictly executes the prescribed route, such calculations and predictions then obviously have potential to direct mobility: where to go, what to do, what to look for. Such mobilization also directs *who* interacts with whom, where and how; thus facilitating and not suppressing, as often assumed, segregation and stratification of both space and population.

However, ‘calculative mobilization’ does not simply refer to directing movements around the city; such a scenario is still regarded as material for a science fiction movie. Predictions and recommendations support informed and personalized mobility, which may as well intensify mobility and ‘activity’ of

urban dwellers around the city. Yet, such ‘active participation’ plays a role of efficiency compliance, risk-management and self-optimization, further down contributing to the efforts of new governmental strategies towards normalization of population and efficiency optimization by the means of self-regulation. Personalized predictions and recommendations, in turn, reduce our understanding of surroundings to the world of countable qualities and clears the unpredictable (uncountable) potentialities on account of predictable (calculable) actualities. (Discussed as the dynamics of potentiality and actuality in Chapter 2.)

The implications of the *Enframing* nature of calculations, as Heidegger points out and as I presented in Chapter 2, and on analytical and critical capacities, remain to be investigated in Chapter 5, bearing in mind the process of *naturalization* of technologies and further possibilities for appropriation. For now, I want to emphasize the extent to which new spatial conceptualizations reflect the magnitude of calculations. Calculative mobility and calculative spatiality not only ensure flow (of people and information) and translate the environment to numbers, but also engender metaphors such as *flow, fluid, movement-space*. Such metaphors of movement and liquidity give an impression of spaces that are not firmly shaped, determined, and represented, that are furthermore flexible, open for change and unformed. But, as I already discussed, the seeming disappearance of structuring forces and power is a dangerous deception. As Thrift reminds us, calculations are so pervasive that they “show up as forces rather than discrete operations” (Thrift “Movement-Space” 594). Even if the form is not strictly represented, the calculative force shapes our understanding of space. The meaning of space is

not left to our own devices, everyday life and practices; rather, I argue, the force of the calculative framework extorts it. As such, invisible calculative framework determines spatiality with greater certainty, with more constraints than the previous attempts by systems of power to secure the meaning through securing the space of representations (Lefebvre, *The Production of Space*)¹¹ As a result, we again come to the same conclusion: that calculative and ‘informed’ environment, our so-called “Intelligent cities,” not only ‘support’ widespread mobility and mobile lifestyles, but, in fact, necessitate it. The underlying premise of systems on power is to ‘mobilize’ users towards the calculative practices, which are themselves mobilizing in nature, consuming, reducing and *enframing* us, as Heidegger would argue.

4.2. Efficiency of the Technological Apparatus and Efficiency Compliance

Being “informed” today represents not only the availability of certain information, itself anticipating further action; it presumes efficient interpretation of data. It is not just data itself that matters—but how these data will be utilized. In other words, in the analyze-your-location call, presented in the opening chapter, the quest is to evaluate one’s surroundings in which the *discourse of efficiency* determines this evaluation. Such a trend is noticeable, with location-based (GPS) navigation tools becoming even more advanced compared with the ‘old-fashioned’ map printed on paper. A paper-map is viewed to be less productive and even less exciting than any location-based

¹¹ Lefebvre, in his 1991 work *Production of Space*, describes production of spatiality, meaning of space, through the interrelationship of: representational space (discourses, theories, visions), space of representations (maps, plans and designs) and practices (daily routines of urban dwellers).

navigation tool; it is not interactive, it requires significantly more time and effort from the user, often involving additional background research on the same surroundings that the map represents. On the other hand, location-based services and navigational tools are glorified and regarded as being a more advanced, and a more personal, interactive, efficient and reliable way by which to analyze one's surroundings. GPS navigation is also a more 'accurate' and faster way to obtain directions by limiting undesirable options that stand in the way between users and efficient and enjoyable urban experience. Therefore, I dedicate this chapter to investigating this praised *efficiency* premise, mainly with Herbert Marcuse's insights on technological rationality and *efficiency compliance*, and Albert Borgmann's *device paradigm* and the level of engagement with devices. Both authors comment on the critical thinking and involvement with technological system within the dominance of efficiency discourse, Marcuse connecting efficiency compliance with diminishing critical rationality, while Borgmann discusses the level of engagement with easy-to-use, helpful technologies. As I discussed also in the previous chapter, Marcuse points to the perceived loss in the breath of perspective, incapability to comprehend, and even less so, the impact the apparatus has as a whole, while Borgmann focuses on the loss of the depth of engagement with technological devices. Towards the end of this section, I discuss their insights on critical rationality and involvement, which parallel Paul Virilio's analysis of "critical passivity."

Efficiency, as it is understood today, according to the Oxford online dictionary, assumes "working in a well-organized and competent way," where even an individual's efficiency becomes the equivalent of how the efficiency

of a machine/technological system is defined: “achieving maximum productivity with minimum wasted effort or expense.” Further down, effective stands for “successful in producing a desired or intended result” (Oxford online dictionary). However, if we were to return briefly to the Latin origins and the meaning of efficiency to accomplish something¹², we notice that within this definition, the ‘validating system’ that determines this accomplishment is not specified. Even if we have to assume that some validating system must exist, it is debatable as to whether this is validated by the individual itself or by the immediate community or any other ‘system.’ Hence, we can assume that our accomplishment may be as arbitrary as feeling content about walking down the street on a nice sunny day. Everyday spatiality is indeed marked by the contingency of day-to-day decision making over often small and arbitrary issues that, nevertheless produces the multitude of strategies through which social meaning of space is negotiated among city inhabitants. Then again, it is becoming apparent that the contemporary notion of efficiency ‘desires’ a single validating system under which even the efficiency of people and individual accomplishments will be measured and valued. Even more so, it becomes apparent that this validating system is the technological efficiency and technology itself.

‘Technics,’ in itself, could promote authoritarianism as well as liberty, as noted by Marcuse (“Some Social”), which we may understand as a relative neutral stance of a tool. However, the laws of technological rationality, the prevalent ‘technological truth’ in Marcuse’s terms, shape prevalent competitive and collusive behavior and widespread implementation of

¹² From the Latin *efficientia*, *efficere* means “to accomplish.” Oxford online dictionary, <http://oxforddictionaries.com/definition/english/efficiency?q=efficiency>

business methods: principles of effective organization and control, fair play, instrumental use of science and technological achievements:

It is a rational apparatus, combining utmost expediency with utmost convenience, saving time and energy, removing waste, adapting all means to the end, anticipating consequences, sustaining calculability and security. (66)

Altogether, the technological rationality and bureaucracy appear objective and impersonal, 'guaranteeing' rational course and order, and so justifying the necessity of maintaining and expanding this apparatus.

Overwhelmingly, accepted standards of technological rationality and technological efficiency thus shape and transform social reality as "a mode of organizing and perpetuating (or changing) social relationships, a manifestation of prevalent thought and behavior patterns, an instrument of control and domination" (Marcuse 63). He specifically points to the implications of technological rationality on perception of individuality within this transformed social 'climate.' The principle of technological rationality, as he explains, is imposed over men in a sense that individual performance is measured in terms of competitive efficiency and individual achievement is absorbed by efficiency and interest of the market:

The efficient individuality is the one whose performance is an action only insofar as it is proper reaction to the objective requirement of the apparatus, and his liberty is confined to the selection of the most adequate means for reaching a goal which he did not set. (65)

Therefore, efficiency and technological rationality are essential for 'free choice' of the liberal market, as observed by both Foucault and Giddens

in the previous section, in which such freedom is confined to performance benchmarks of technological efficiency. Borgmann also reminds us that technology is essential for the realization of liberal democracy and its “liberal program of freedom, equality, and self-realization” (*Technology and the Character* 34). The very intrinsic promises of technological progress, according to him, are those of *liberation from burdens of every day life*, enrichment, and the control of nature (146). Even more so, the promises of technological progress are based on “the principled, e.g., forceful and reliable approach that is based on scientific insight” (35). Similarly, Virilio notes, the main objective of the (technological) progress is “to conquer at any cost the reserve of resistance to advancement” (*Virilio As Far As* 46). Marcuse (“Some Social”) predicts that the technological apparatus appears so rational that any protests appear, not just as hopeless, but as irrational. Since this is the technological pattern, Borgmann’s “device paradigm” provides “the conceptual framework,” appearing as commonsensical and obvious way of dealing with advancement and growth:

Thus the device paradigm provides the conceptual framework that makes it possible to deal technologically with the physical limits to growth, and it provides the rhetoric to make the technological solutions widely understandable and acceptable. (147)

Technological solutions are widely accepted, precisely because of the apparent ‘objectivity’ and ‘impersonality’ of technological rationality, as mentioned earlier in this section. Still, the growth of the industrial apparatus, along with its technological rationality, eventually exposes its all-embracing control over all aspects of life with self-control and self-discipline, self-

adjusting to the rule of safety and order: “All men act equally rationally [...] according to standards which insure the functioning of the apparatus and thereby the maintenance of their own life” (Marcuse “Some Social” 69). Thus, people still follow their own reasoning, but they “put their reason to profitable use” (69); there is a choice, but within the given range of efficiency-bound options. The individual is a rational being employing rational thinking that *used to be* and should be, Marcuse reiterates, a “search for the truth” in freedom of thought and critical thinking; further implying that individuals ought to question the realization that the imposed system places upon them: “Men had to break through the whole system of ideas and values imposed upon them, and to find and seize the ideas and values that conformed their rational interest” (64). I should add that it is only through the autonomy and integrity of thought that individuality leads towards independent decisions, and active participation. However, Marcuse notes, we are becoming shaped by technological apparatus: “Autonomy of reason loses its meaning in the same measure as the thoughts, feelings and actions of men are shaped by the technical requirements of the apparatus they have themselves created” (68) in that we conform, to a greater extent, to technological rationality and efficiency.

Hence, technological rationality imposed over men surpasses and transforms this critical rationality of individualism into self-preservation; similar to Foucault’s ‘normalization’ and optimization through self-conduct, turning it into Marcuse’s “mass individualism.” Mass individualism is the consequence of efficiency compliance, according to Marcuse, the process in which “individual achievement has been transformed into standardized

efficiency” (65). Efficiency compliance, therefore, reflects Foucault’s ‘normalizing process,’ in which optimization is guided by prescribed performance benchmarks. For Marcuse, this standardized efficiency is reflected, for instance, in the form of job descriptions and training, where even the highly differentiate professional requirements promote standardization “specialized vocational training implies fitting a man into a particular job or particular line of jobs, thus directing his “personality,” spontaneity and experience to the special situations he may meet in filling the job” (71). Even though ‘personal’ is encouraged, fostered and rewarded, the notion of ‘personality’ serves as “a means for attaining ends which perpetuate man’s existence as an instrumentality” (71). This kind of personalization resonates with the contemporary assumed ‘personalization’ of applications and platforms, which also attempts to further narrow and limit personal preferences and characteristics to fit the available choices for recommendations. Such mass-individuality seemingly allows for ‘free’ individual performance; however, that performance is determined by the demands of efficient compliance of technological rationality in which “men introspects and discharges, within a general pattern, certain duties allocated to him” (71). For Marcuse, the main problem with efficient compliance is that it absorbs the liberating efforts of thought that, I claim, extends to an active participation in space as well. Principles of technological standardization, we may conclude, shape the standardized ways of thinking, thus affecting critical truth values, leading towards a “social impotence of critical thought” in which “society becomes indifferent and insusceptible to the impact of critical thought” (69). As such, standardized thinking and efficiency compliance dilute

the analytical powers of city-dwellers, with obvious implications on the possibilities for active participation and negotiation of spatiality.

I argue that, while for Marcuse, the primary focus is on breadth in terms of efficiency and technological rationality taking over the general perspective and the way of thinking; Borgmann alerts us towards the ‘loss’ of depth in our engagement with technologies on a daily basis. Borgmann notes that technological reliability and productivity, on the one hand, ‘liberated’ us from human unreliability, such as bad moods, health and errors; and even increased human productivity and reliability through division of work and specialization. On the other hand, he further argues, it also degrades work into mere labor, precisely for the lack of engagement with technologies and with the processes. Moreover, he points to the shift in technological promises that was originally meant to liberate people from starvation, but in today’s context, is promising to liberate from any effort, such as reading, running, or even thinking. Such liberation, he argues, eventually leads to a lack of engagement and skills: “It is clear that the further technological liberation from the duress of daily life is only leading to more disengagement from skilled and bodily commerce with reality” (151). Borgmann’s critique of ‘liberation’ is defined in terms of disengagement that clearly comes out of implications with the *device paradigm*, and its *technological pattern*, a term that closely relates to technological rationality and efficiency. The device paradigm reflects problems with the actual involvement with all kinds of available devices, in which we merely consume the commodity that appears in the foreground, according to Borgmann, and do not deal with the machinery that stays concealed in the background. Similarly, the technological pattern permits

political engagement that is *beyond* care, maintenance and radical intervention. Device paradigm and technological pattern do not permit engagement with crucial dimensions, as Borgmann claims. Therefore, today we notice the trend in which disengagement replaces liberation, and “scattering of our attention and the atrophy of our capacities” (151) replace promised enrichment. His concern is: how far should we go? If technology promises relief from cognitive and sensorial burdens, such as in the case of predictable location-based analytics, we ought then to ask ourselves whether such liberation is desirable, and for whom exactly?

Borgmann sees the origins of such a shift in liberation in the promises of the technological pattern as applied to work. While specialization, on the one hand, is seen to imply distribution of work and, as such, to a certain extent, a distribution of power, Borgmann also argues that the specialization and division of work only increased the gap between skilled expertise and unskilled labor. What is more, skilled expertise shrank significantly and unskilled labor in turn expanded. This again implies that technological rationality, or the technological pattern, to use Borgmann’s terms, does not bridge the gap, as often promised, but instead preserves it and even increases it. Furthermore, the distribution of work and specialization also implies fragmentation, which, for Marcuse, has consequences on ‘atomization’ for individuals within the society. As such, mass-individualism becomes a “private rather than a public affair, an element of retreat rather than aggression” (“Some Social” 75). So, even if the political problem of risk society, as Beck and Giddens have debated, and as I have discussed in the previous chapter, transfers the responsibility of risk-management from the

system to an individual through individuation of risk, the problem is in the crisis of critical thinking due to the breath and depth of engagement with technological apparatus and devices.

Similarly, for Virilio, mass individuality is based on ‘survivalism’ and the management of fear that produce urgent necessities, such as immediacy, interactivity and high mobility. Virilio connects this ‘organized regression’ to the loss of agency and reversed phenomenology of perception of a view of the world in which, thanks to teleobjectivity, “transparency has long supplanted appearances” (Virilio *The Lost* 25), and people no longer seek to see, but to be seen. The replacement of direct observation of visible phenomena with tele-observation and, furthermore, with calculative technologies, without immediate contact with observed reality, is causing a disturbing imbalance between the sensible and intelligible which, for Virilio, can only result in errors of interpretation. Calculative technologies then emerge within this immanent imbalance of the intelligible and sensorial, as “the gap between the sensible and the intelligible continues to deepen,” and under the “explosion” of data and required information technology (Virilio *The Information*). With the latest trend of calculative technologies that not only sense for us, but also perform the ‘analytical’ part on our behalf, the “image of an object is to give way to a calculated trajectory” (Virilio *As Far As* 63). Numerous smartphone applications apparently offer not only the more ‘realistic’ presentation of surroundings but also the ‘more accurate’ interpretation and evaluation of surroundings for ‘efficient and proper’ use of space. As presented by promoters and the mainstream discourse, technological sensing apparently delivers a better, and more accurate, notion of surroundings; or, in Virilio’s

words, an “optically correct” view of the world with its misleading notion that such a view is the only, or only ‘correct’ view. However, such a view of the world is just one perspective, shaped by the technological complex in question, optical or calculative, and the discursive construct. What is omitted from promoting strategies is that the ‘easier and faster’ technologically mediated decision-making also facilitates critical passivity, as Virilio argues. As discussed in the previous chapter, the reality-effect gives a false impression of reality, limiting the range of perceivable options and alternatives. We do not have the overview and holistic understanding of the supporting processes that define technological rationality and prevalent concept of efficiency. And the problem is not only that the presented reality is limited by the capacities of available technologies and availability of actual information, but that the same aspects guide or reduce our capacities of interpretation. This ‘inertia,’ in Virilio’s terms, leads to a lack of human analytical powers and decision-making, and detachment from the ‘analyzed’ issue in the first place:

The immediacy of terrestrial transport modifying the relation to space, annihilates the relation to lived time and it’s in this urgency that its dynamic exaltation consists. Paradoxically, it’s the extreme mobility that which creates the inertia of the moment, instantaneity which would create an instant. (Virilio *The Aesthetics* 108)

As discussed in this section, because of Marcuse’s and Borgmann’s concepts of efficient specialization, efficiency compliance and technological pattern, our level of engagement with technologies is reduced to superficial and arbitrary issues, while the development and implementation of efficient systems is out of the reach for end users. All the while, predictive calculations

are to reduce cognitive and analytical efforts and replace mental mapping processes so as to ensure ‘correct’ interpretation and the trajectory of further action.

Even though urban dwellers have adopted, and continue to employ, a number of personally ‘efficient’ strategies on a day-to-day basis or, at least, what they perceive to be the most efficient way at any given moment; spatial mobilization with location-based services ensures the ‘practical’ manipulation of available information and, at the same time, shapes everyday spatial experiences. In other words, actual personal spatial ‘strategies’ are becoming increasingly preoccupied with the informational potential, personal performance and efficiency. Therefore, this *efficient compliance*, to use Marcuse’s terminology, is an invisible precondition to the requirements of the system, and “imply the subordination of thought to pre-given external standards” (“Some Social” 68). Technological rationality and the notion of efficiency “must guide the thoughts and actions of all those who wish to survive” (66). The system supports and encourages competitive self-preservation, to the point that even ‘getting along’ is, in fact, adjusting to the requirements of the very same apparatus, in which “the coordinated masses do not crave a new order but a larger share in the prevailing one” (71). In conclusion, one of the crucial points I make in this chapter is the extent to which technological rationality and efficiency absorbs possibilities for active participation, as efficiency compliance and a technological pattern deny critical thinking and induce ‘atomization’ and analytical passivity. As there is no real protest to the rationality of the technological systems and its progress in general, let alone escape from this apparatus, technological rationality “has

become one of the most profitable means for streamlined autocracy” (Marcuse 68).

Hence, even if the promise for overall efficiency with predictive analytics and mobile applications will supposedly benefit all (e.g., Intelligent City discourse elaborated in the opening chapter), it is important to underline both, reoccurrence of such promises and, of course, the persistence of issues promised to be solved within the broader discourse of technological progress. The technological rationality and efficiency systems function to preserve social order and not to substantially change it, as Marcuse, Borgmann and Virilio have argued. I will bring forward their positions to the following section, where I discuss the efficiency-driven urban/technological utopias in which the technological apparatus, with its efficiency and rationality, repeatedly plays a crucial role as a the avowed solution to the current (urban) problems that are, conversely, induced by the same technological efficiency and rationalization. In doing so, my goal is to underline the efforts of the contemporary systems on power to embrace ‘active participation’ but in the form of compulsory participation and efficiency compliance, which will, as I argue, actually reduce potential reaction and critical engagement in urban space. Urban promises and efficiency fantasies call for the ‘active participation’ of urban sustainability and, as such, to mobilize the audience and potential users toward efficiency compliance as much as a risk-society inflates the need for ‘active’ risk-management, or normalization begetting self-regulating optimization, as I make a case for in the following section. The same promises, it turns out, soon become a burden, introducing new problems to be solved, with yet even more efficient solutions.

4.3. Technological Efficiency as a Cause and a Solution

I would like to begin this section with an excerpt from promotional material found on ForumTel's¹³ webpage that, among many others, announces new trends with power of smart phones and portable tablets:

The advent and proliferation of smart phones and portable tablets has opened up a whole *new world of opportunities in today's tech-savvy marketplace*. Mobile applications in particular *are changing the way* individuals and companies do business—for the better. (ForumTel webpage, emphasis added)

Even though it does not directly involve location-based services or predictive analytics platforms, it is important to note that this *new world of opportunities* can also be read as an outcome of, or a response to, today's *tech-savvy marketplace*. In other words, smartphones and portable tablets are presented as both a source of changes in the ways businesses now operate, but also present a solution to those changes brought about with new technologies. The advent of such technologies has opened up new opportunities, but such opportunities are only seen as opportunities within the context of tech-savvy marketplace, which would not be tech-savvy if not for the advent of mobile technologies in the first place. This, in short, illustrates the vicious solution-to-a-problem circle of technology, which technology itself creates. Examples proliferate; most of the material used to illustrate promoting material deals with some sort of 'problems' that promoted technologies will supposedly solve. As such, personalized applications and supporting analytical platforms,

¹³ ForumTel webpage <<http://www.forumtel.com/services.php?i=5>>

intended not only for business purposes, but also for anyone else (who can afford it), promise to relieve the burden of decision-making, brought about by technological ‘overdose,’ however, with an even greater technological dependence.

The very same notions surrounding promotion strategies, such as those of business opportunity, practicality, growth and stimulants, soon after turn into the less desirable; problems and issues emerge that need to be addressed with yet even more technological advancements. In this section, I continue my investigation into the processes and strategies that attempt to absorb active participation, connecting attempts to necessitate and create dependence on efficient systems with the consequence of diluting negotiating capacities of city dwellers. In the introductory chapter, I present more recent and current urban fantasies, such as those of intelligent and mobile cities. In this chapter, I introduce the problems of such utopian visions, bound to technological progress and the persistency of the scenario in which the efficiency with technological promises soon turns into problems that necessitate even more efficiency and technologies to solve them. In order to investigate the origin and the reasoning behind that persistence, I will look into changes that come with the new social order, which more likely bring new differences and inequalities than simply bridge existing ones, as often speculated.

As discussed in the previous section, with insights from Marcuse, Borgmann, and Virilio, over the years and centuries, changes in the overall inequality, as promised by technological progress, have been slow and minimal. Often, such changes tend to be in the form of a slight ascent in social mobility, but not in terms of overall inequality. Borgmann explains that one of

the obvious reasons for the persistence of inequality is to maintain aspiration as a driving force of liberalism and progress. As he reminds us, (class) inequalities persist, even with an overall increase in wealth; in other words, as soon as those from lower class almost reach the wealth and status level from those from a higher social class, those at the higher level move even further up the ranks. Thus, technological progress and advancements are important, to keep inequality seemingly moving and slowly disappearing, but are, in actuality, keeping it present. In fact, as I mentioned, the same advancements introduce new spatial and social differences, and do not simply dissolve the existing. The whole concept, based on recurring problems and emerging solutions, then functions rather as an impetus of technological progress, as a dominant system on power, that will preserve and sustain social ordering.

Looking back in history, we learn that new technologies indeed emerge within the current social context at the time, not only as a logical outcome of existing social relations, but as their reinforcement as well. Surrounding visions and future projections promise to break free from tradition and bring positive changes to social stratification, among others, but in fact, even if it erases the previous, it helps shape new social stratifications. Writing about the emergence of factories, as spatial and social organizational systems, Hetherington, for instance, explains how the technological advancement of factories served as a utopian vision of society in whole at the time: “The factory, never a model utopia itself, came to express instead the idea of utopia through a notion of a modernizing process that would help create better future, capitalist or socialist, for society” (51). Going further, he states that even though it represents plausible visions to modernize society as a whole, where

all will eventually benefit with better lifestyles, these utopian visions were, of course, the most advantageous, from the factory owner's point of view, whether the owner is a capitalist, or a state, whose ideal was to maximize production within minimized time and power. The factory was, therefore, seen as a perfectly efficient organizational model for technological and economical advancements at the time. Soon, this efficiency model stretched to include spatial and social organization. This not only refers to the connection between industrialization and increased urbanization, but to the emergence of different efficiency driven models in urban planning. Eventually, together with development of other technologies to support emergence and smooth operation of previous, emergent spatial and social orders had a broader impact on the discourse of preferable—albeit utopian—visions of society in general. (Stein; Hetherington). In such a manner, Stein further recognizes the importance of telephone and telegraph (technologies of communication), as well as the standardization of time in Canada and the United States in the late 21st century, as a supporting managerial system of railroad networks (dominant transportation technology of that time). Technological and spatial imaginary was, therefore, used to underpin the importance and necessity for implementation of new technologies in a way that certain organizational structures could benefit: “within a society and the social order through which it represents itself, certain new sites, or newly interpreted sites, will emerge that offer an alternative expression of social ordering to that which currently prevails” (Hetherington 51).

In this case, the factory was presented as an ideal organizational model for efficiency, followed by the development of telecommunications to support

such an ideal. Today, new technological advancements promise to reach new efficiency ideals, such as sustainability, supposedly for the benefit of all. The Intelligent City is the most recent example that crucially relies on new information networks, including analytical platforms and location-based services, to reach promised ideals. As such, the presumed efficiency of location-based applications resembles efficiency notions accompanying the emergence of telecommunications in the context of industrial cities, in which these technologies will “help overcome space and distance by minimizing time constraints” (Graham “Imagining” 32), among others. Today, accordingly, information and communication networks are zooming along at an ever fast pace. However, these networks still mainly underline and support the function of the already existing major centers of power and political importance to ensure their competitive advantage (Virilio *Open Sky*) and further strengthen their positions in the new order of “spaces of flows,” a concept Castells first introduced in *The Informational City*. The former centers of power were first to invest their capital into a new technological apparatuses, which then functions as a new energy source. Therefore, we can conclude that information networks and the discourse of information potential, what Virilio terms “infosphere,” are a new energy source:

If *informatics*—with its networks, memory banks and terminal—is actually a kind of *energetics*, an energy form, then transmitted information becomes a mode of formation that affects for now and foreseeable future all the different types of arrangements we have been considering. (Virilio *The Lost Dimension* 95, original emphasis)

This new energy source, he goes on to say, is now slowly “gearing up to rule tomorrow’s biosphere” (*Open Sky* 84). Hence, those that are first to implement it are the ones to determine new ‘rules of the game,’ ensuring the terms of its further development. Further differences are moved by discriminatory practices within the borders, what Virilio calls ‘endo-colonization,’ a process that threatens to abandon “those populations that had become superfluous and unproductive” (Virilio *The Lost Dimension* 124). In that sense, Hetherington’s “alternative expression of social ordering” refers to a newly emerging class of experts and the owners of new technologies and networks, in contrast to low-skilled operators and workers, as Borgmann points out, as an implication of work distribution. The networks themselves are therefore unevenly distributed, between the cities, and within the same city. Graham confronts this uneven distribution in today’s information and communication networks in his “Software-Sorted Geographies,” pointing to new ways of excluding and differentiating social strata, amidst the promises of bridging inequalities.

Access to the new technologies of communication remains starkly uneven both socially and geographically within the city. Even the most ‘high-tech’ of cities [...] demonstrates that many social groups and geographical areas remain disconnected from the ‘liberating’ promise of new technologies for lack of funds, infrastructure, skills, equipment, even electricity. (Amin and Graham 28)

Graham notes three major lines of differentiation surrounding “physical and electronic mobility.” First, and much discussed in literature, is the issue of uneven access that implies the exclusion of certain groups of people, limiting or denying their opportunities and chances for involvement.

Second, is an issue of spatial visibility, or the actual data that Geographic Information System (GIS) comprises, which today represents reality by drawing certain neighborhoods in such a way as to make them ‘visible,’ and others ‘invisible’ (by the simple fact of not being present on the map, or the fact that some city layers and information are accentuated in account of another). The third issue is an outcome of visibility of the subjects (through facial recognition, location, etc.), and differentiation is represented through selective calculative practices that further imply possibilities for population manipulation and control through detection of desirable vs. undesirable practices and citizens.

The first two lines of inequality, described by Graham, more often serve as an impetus for the race to get ‘everyone and everything online’ in which ‘how, why and who’ are most likely left unquestioned. In effect, unequal distribution of existing networks is more commonly raised as an issue, before the concerns over unquestioned development. Those who are deprived of access to these technologies and control over their selective processes are inevitably becoming “mute and invisible” (Crang and Graham 797), even more “unwired humans [...] as singularly unintelligent, nonconversant and incomprehensible” (Andrejevic, qtd. in Crang and Graham 797-8). The disproportion of seeming opportunities and benefits between users and nonusers often serves as an argument for further development of such services and not eventual reconsideration of terms under which some services *operate*. In other words, as discussed in the previous section, Marcuse, Virilio, and Borgmann suggest that, while citizens are called upon to be actively involved—in fact, required to participate—their role is bound and de-

politicized by necessity, to ensure competitive advantage and efficiency compliance, and low level of involvement with devices. In that sense, such a necessity to participate underpins critical and analytical thinking, and involvement in negotiations over implementation and development.

Moreover, in the process of ‘getting everyone online,’ default settings are accepted, along with standards that are first imposed through requirements and enforcement mechanisms; and, finally, adopted ‘voluntarily’ when they become popular among users, business and societies: “designed to accommodate many commands, run as components of many programs, on many systems, in order that they sediment into practices to the point that they become necessary” (Crandall 85). Finally, as technological aids become widely adopted, the terms under which they operate have become a precondition of the activity itself, as the promotional material quoted at the beginning of this section illustrates. Mobile applications are again seen as opportunities within the context of tech-savvy market place.

In the case of location-based services’ “subjection to the interactive surveillance becomes the precondition for orientation” (Andrejevic “Monitored”) and, as such, are willingly adopted by users. Of course, Graham’s third line of differentiation (“Software-Sorted”), which draws on the visibility of subjects, leads towards public debates over the pervasive monitoring and scenarios of complete transparency, as mentioned previously. Nonetheless, users are seemingly “free to evaluate tradeoffs,” in which compulsory submission to the pervasive monitoring is presented as a form of empowerment and a form of security (Andrejevic “Monitored”):

Consumers may be “free” not to interact, but they increasingly find themselves compelled to engage in interactive exchanges (and to go online) by what Lester (2001) described as “the tyranny of convenience.” (qtd. in Andrejevic 139)

Perceived conveniences are presented as options to users; however, as explained by Graham, they are required, often under unfair terms, to weigh possible consequences; at the end of the day, they find it necessary to allow, to a certain extent, surveillance and monitoring so as to enjoy the seeming benefits. As a result, monitored activities now extend to include all aspects and spaces of everyday lives (Andrejevic 137).

Such processes of unbundling can thus allow targeted users to enjoy enhanced mobility, reliability, service quality, quality of life, or (real or perceived) freedom from risk, crime, congestion, or contact with (sometimes demonized and humiliated) Others. (Young, cited in Graham “Software-Sorted” 566)

I stated earlier that users are not categorically obliged to follow these recommendations; nevertheless, it is presented in a way that, to do so, would ‘make sense,’ as the promoters put it. In other words, it means to act responsibly and effectively, apparently for both user and overall benefit. As the discursive practices of development and promoting channels are driven by the dominant concept of efficiency which, in turn, spill over to the everydayness of ordinary urban dwellers, it is important to capture and outline this *efficient production of everyday spatiality*. That increasing *need for* and *dependence on* certain activities and, more importantly, on certain technologies, again have, for their goal, to accommodate and conform users to

the mainstream conceptions of efficiency. The excess of retrieved and available information, as well what Virilio names the ‘tyranny’ of immediacy, instantaneity and interactivity, results in an overall ‘state of urgency,’ a strategy of the government based on deterrence, uncertainty and instability: “Taking uncertainty principle into account [...] it contributes to the introduction, everywhere at once, of preventive action and anticipation of threats...” (Virilio *As Far As* 112). More mildly, this ‘state of urgency,’ or risk-society, as Beck argues, is commonly represented as an unavoidable necessity, *forced* out of the increased complicity of contemporary urbanization processes in combination with communication and information networks, described here by one of the advocates of Intelligent Cities: “Demographic, environmental, economic and social factors are forcing the world to design and implement Intelligent Cities” (Professor Carlo Ratti, Director of MIT’s Senseable Cities Lab, qtd. in the report). Contemporary everydayness, accordingly, is marked by the increased necessity of city dwellers to ‘make sense’ of surroundings and available information, and to make ‘informed’ decisions for ‘meaningful’ spatial experiences. In this context, predictive analytics and recommendation services emerge as a ‘practical’ choice for “active construction of space” (McQuire “Mobility”). This trend also reflects the contemporary individualization of risk, as Beck and Giddens explain, and a new form of governance that transfers responsibility to calculate ‘risk’ (to act responsibly) from the state to the self-regulating citizens. All this implies overcoming a series of ‘obstacles’ and ‘threats’ in urban everydayness, in combination with achieving efficient personal performance. Supplying customized and optimized solutions that supposedly support personal time-

space management, in turn, calls for heavy reliance on calculative technologies. Therefore, what on one hand may seem as a ‘convenient’ tool for management of daily activities and routines around the city, on the other *demands* increased mobility around the city, personal availability at anytime, anywhere premises, on-the-spot ‘smart’ decision-making, and more. In fact, the dependence on technological support is a predicament for such ‘mobile lifestyles,’ consequently pushing for even more technological support. Consequently, mobile lifestyle is less of a personal choice; it is a necessary technological support and yet another requirement from the system of control. Foucault explains this strategy as an attempt by the systems of power to absorb reaction and dissidence by means of ‘normalization’ and optimization, in which self-conducting citizens optimize their performance through performance benchmarks and other techniques, such as today’s personalized analytics and recommendations.

In the following two segments, I continue to show this recurring *solution-to-a-problem* narrative of promising urban/technological systems and implications for urbanity, first within information and communication technologies and, subsequently, within the context of technologies of mobility. I will also show the manner in which such technological systems reshape urban space and how urban dwellers conceptualize spatiality. I connect those insights to the discussion over current fashions in shaping spatiality and new urban relations within the present-day discourse of Intelligent Cities and informed mobility. I also intend to investigate supposed empowering notions that accompany such advancements and present various avenues to appropriate such technologies in relation to negotiating spatiality. Highlights

will be brought forward to Chapter 5, where I argue the possibilities of appropriation of predicable and recommending technologies and spatial negotiation in the context of contemporary imposed ‘active participation’ in space, discussed here as informed mobility.

4.4. Urban-Technological Fantasies: Cities, Technologies and Promises

...In a particular era, one cannot really make sense of those technologies without having an understanding of the ways in which space and place are conceptualized, just as one cannot understand those conceptualizations without having an understanding of the available technologies. (Curry 502)

The relationship between technological and spatial conceptualizations is inevitable, Curry points out, in which the envisioned futures of cities particularly relate to those of technologies. The future of cities has been imagined and promoted through a rich technological imaginary outlining possible future scenarios of both, utopian and dystopian visions, as seen in both popular and scholarly literature. Cities serve as a ground for both the emergence and dissemination of new technological advancement; more importantly, however, technological advancements are promoted as valuable stimulants for city growth. At the same time, the created powerful image of the cities stimulates back the technological development sector by giving an applicable purpose and rationale. Popular narratives and imagination around new technologies are built upon existing concepts while re-casting the same, as these are inserted back through the representational systems (as elaborated

in Lister et. al. 60). With every ‘input’ of newly perceived changes, both understanding and future expectations of time-space concepts are re-modified and looped back into a system as new ‘input’ itself. I therefore dedicate this, and the following sections, to discussing the intricate interrelationship between technologies and cities, and the ways in which technological development refashions urban relationships and cities, and vice versa.

It is, therefore, hard to avoid at least a short discussion on the immensity of the impact Information and Communication Technologies (ICTs) has on the conceptualization of space and futuristic images of the cities. From the middle of the twentieth century onwards, theorists are pointing to noteworthy changes, such as the emergence of ‘deindustrialization’ and the prevalence of ‘information society’ (for example Castells; Hall) along with the emergence of a new spatial and social order. More importantly, notions such as the widespread reach and democratization of the Internet were presented as yet another ‘remedy’ in the long history of urbanization and industrialization processes’ limitations: from relieving detachment and alienation in growing industrialized cities to providing public discussion space (such as virtual agoras). Cyberspace embraces visions starting from empowerment and freedom in virtual space, terms ‘virtual mobility’ decades ago, to democratization in terms of creation, distribution and use of the content, and others. Likewise, today new empowering projections of mobility are grounded in informational and networking potential of mobile ICTs. New technological advancements within data analytics and location-based media are again promoted through plausible visions of the city’s future as being

beneficial for all its inhabitants, valuable for both overall and personal efficiency, as the Intelligent City example shows.

Not surprisingly, then, visions of the Internet and cyber space at the same time signaled alarming transformation of urban space. One of the major concerns at the time was that urban space is losing its vibrancy in contrast to the ‘happening’ cyber space. Internet and virtual world replaced the space for a number of social activities that would otherwise present themselves in physical space, particularly urban centers. Boyer views such visions, including those with positive and negative connotation, as a “categorical mistake,” because they approach the physical and virtual as though these are separate entities, contrasting them for their ‘apparent’ dichotomy. As if:

One side of the equation in CyberCity is immaterial, while the other remains material; one side of the analogy is about the construction of information networks, the other about the construction of space.

(Boyer)

In fact, these two are re-shaping each other. Even the ‘traditional’ city is a complex system that incorporates both physical structures and immaterial social networks and meanings. Therefore, the virtual space of the Internet, as we come to understand today, is much grounded in the materiality of the network of actual cables and actual centers of powers that control it, as much as it is immaterial (Gandy). Castells similarly explains the pervasive Information and Communication Technologies (ICTs) in the context of the city of today. ICTs, as the main characteristic of today’s information society for Castells, exist within the context of the dominant social and spatial organization; which, for him, is this interactive virtual network he terms the

‘space of flows.’ However, to him, the modern city is formed only when the ‘spaces of flows’ and the ‘space of places,’ what he describes as the dominant space of experience and locality, coincide (Castells “Space”). As he further elaborates, ICTs sustain urbanization, and electronic and place-based relations interact and complement one another, but do not eliminate or replace: “Cities do not disappear in the virtual networks. But they are transformed by the interface between electronic communication and physical interaction, by the combination of networks and places” (“Space”). Such coexistence of “spaces of flows” and “spaces of places” is elsewhere described as “hybrid spaces” (de Souza e Silva “From Cyber”) or as “cyborg cities” (Gandy). In “Cyborg Urbanization,” Gandy states: “the cyborg metaphor allows for the simultaneity of concrete and imaginary perceptions of urban infrastructure so that categories of the ‘real’ and ‘virtual’ become interconnected facets of urban experience” (745). He goes on to clarify that in hybrid urban space, information networks are rather *remediating* and not substituting our everyday urban life, and in doing so, reshapes our *understanding* of space and cities in general.

Therefore, we may, on the one side, connect the supposed decentralization and democratization of information revolution provoked, to an extent, by the physical urban restructurings and spatial decentralization. For one, this is reflected in the move towards specialized cities, whether as tourist attractions or information hubs. Likewise, unified city cores disintegrated—or, more precisely, ‘decentralized’—into a number of ‘centers.’ Therefore we have several cities’ centers: administrative and corporate headquarters, business districts and those of cultural and creative industries. (Hall 126),

Further down, we see physical re-developments of cities, designing new, but also redeveloping old, inner city cores and abandoned factory spaces into new hip areas for creative thinkers, and so on.

On the other side, ‘decentralization’ is more than just physical restructuring, which I attempt to highlight in this section. The supposed ‘decentralization’ of information and communication networks translated in a supposed ‘decentralization’ of power and control in the cities. So the logics of decentralization implied possibilities for different organizational patterns and systems of control, giving the way to fantasies of the ‘democratization’ of space. For Virilio, however, the impact of information revolution on urban space has much to do with the logic of the *deregulation* of digital technologies. He explains that, in the same way, as the processes of urban concentration emerged as a result of an industrial age, where the ‘logistic’ of production and distribution dictated urban concentration for easier management and control over city space; future cities, he elaborates, will emerge as a consequence of the advent of a ‘global logistics’ with re-examination of urban concentration with no more territorial strategies (Virilio *Open Sky*). Yet, this certainly does not mean that the power and structure ceased to exist. On the contrary, as I discussed in Chapter 2, with supposed invisibility and ‘virtuality’ of information network, power is conceived as virtual (invisible) as well. More recently, with proliferation and materialization of mobile network and its users, we have witnessed the reversed visibility, also elaborated on in Chapter 2.

For Virilio, this decentralization, and what he also terms *deurbanization* is, in fact, materialized in the prevalent process of

metropolization. In the contemporary urban conglomerates, metropolitan sprawls, the city center and the city itself, at least as we know it, ceases to exist. But *deurbanization* more precisely refers to de-regulation of urban in terms of the power strategies that are now transferred from territorial organizations and control to the automotive management of time and the speed of transferred information: “So, the old industrial and political complex will be superseded by an informational and metropolitical complex, one associated with omnipotence of the absolute speed of the waves conveying the various signals” (Virilio *Open Sky* 83). Hence, when Virilio claims that the real city is giving way to the virtual city, he is referring to the significance of informational strategies and management that nowadays supersedes the importance of territorial strategies: the “de-territorialized **meta-city**, which is hence to become the site of that *metropolitics*, the totalitarian on rather globalitarian character of which will be plain for all to see” (Virilio *The Information* 11, original emphasis). He thus reminds us that, even though the ‘center’ of the city, and thus the center of power, only *seemingly* does not exist, this “meta-political” dimension of power is reflected in the contemporary need to compete at the global (virtual) level, where the so-termed ‘global competitive advantage’ becomes “the virtual hypercentre, of which real cities are only ever a periphery” (*Open Sky* 11-12).

What we can conclude is that the very same information and communication network that supposedly democratizes the space becomes the core of the new power structure in cities. Even more, the perceived invisibility of networks gives way to perceived invisibility of power, and to reversed visibility, as I posited in Chapter 2. This has the tremendous impact on the

actual democratizing processes in cities, especially if we think of active participation and engagement in critical, analytical thinking and negotiation of urbanity. For Virilio, the main problem is the consequential *domestication of public*, as he terms it. He notes passive rebellion and no true resistance to metropolitan redeployment, resulting in less and less organized civil resistance and more and more guerilla warfare, labeled terrorism, with no, or little, practical usefulness in the democratic process: “Current metropolitan redeployment tends to definitely disarm the conjunctive systems of civil society [...] down to the very possibility of any opposition of oppression” (Virilio, *The Lost Dimension* 127). This implies decentralization and dispersion of reaction, in terms of the inability to form a strong and unified reaction. However, if we recall Virilio’s arguments in regards of mediated perception, discussed in Chapter 2, we may also understand that he also refers to the dispersion of perceived reality and detachment from the reality of issues which, he argues, dilutes analytical and critical capacities of observant. Therefore, the *metropolitization* is the urban process that equally reflects dilution of analytical and critical aspects due to the scattered attention and perception of reality.

Sasskia Sassen, in contrast, elaborates on the logic of hypermobility and de-materialization of digital networks and the ways these characteristics refashioned physical places, to what she terms *networked localities*—places that surpass the boundaries of the geographical and form connections based on affiliation and interest with multiple distant entities (Sassen “Reading”). While, on the one hand, this possibility to form an unlimited number of different networks, within one city or on a global scale, makes the

interpretation of urban space much broader than it was previously, implying, among others, the unification of reaction focusing on similar issues that escapes geographical constraints. On the other hand, and what resembles arguments in regards to production specialization within the rational thought depicted in Chapter 3, precisely this narrowed focus and de-contextualization of issues, also detaches the particular problem from the wider context and ‘invisible’ underlying politics.

Further down, such *networked localities* also entail that every market can be instantly accessed from anywhere in the world, further implying, among others, that cities today need to establish new advantages that are not local (Hall 124). In other words, so as to establish political significance, cities today have to be placed on ‘the most livable’ and other comparable global charts; have to compare with other cities and maintain the reality of its existence through competitive advantage. This clearly resonates with Beck’s risk management and Marcuse’s efficiency compliance, elaborated previously. The challenge for cities is to be placed on the global charts, which, in turn, for efficient and successful comparison, needs to compute standardized and optimized categories of measurement such as standard of living, gross national product, and others. This ‘game’ of competitive advantage has been driven by information availability and the speed of its computation and transmission, and ‘the tyranny of interactivity,’ as Virilio would say, since if one wants to be a part of the network, then one needs to play according to the rules of that network.

Currently with single market’s requirement for global competition, comparison has become a *globalitarian* phenomenon, which requires

the full-scale over-exposure not just of places—as with the remote surveillance of roads—but also of persons, their behavior, their actions and innermost reactions. Thus the misleading nature of enforced competition becomes a part of our economic, political and cultural activities” (“The Information” 64, original emphasis)

Thus, the shift from the industrial to the information society clearly does both: it *creates* and, at the same time *demands*, a new ‘image’ for cities and, not to forget, the city dwellers, as well. In fact, the crucial role in place promotion and marketing of cities is precisely the vision of *improved lifestyles* of its citizens, in which “the evolution of human-technological systems is a reflexive process in which the shaping of space begins to reflect modern aspirations for mobility, privacy, salubrity and other characteristic features of the emerging cyborg city” (Gandy 742). As Marcuse, Borgmann, and Virilio have all elaborated on at length, this further implies that urban space and urban politics is being transformed, through the meaning and conceptions of spatiality, which are today becoming increasingly shaped by competitive advantage, efficiency compliance and risk management; and city-dwellers that conform to such mainstream discourses through the imposed lifestyles—i.e., the processes of normalization and optimization—as Foucault claims.

Obvious changes with the proliferation of information and communication networks, on a daily basis of city-dwellers, have re-defined basic concepts, such as those of time and space, in relation to the speed, immediacy and interactivity of information exchange. Due to the perceived temporal compression and acceleration we have contemporary feelings of discomfort, as time constantly seems to ‘slip out of our hands.’ Clearly, new

supporting, or rather, new *survival*, mechanisms emerge. One such mechanism is the prevailing popularity of tranquil tourist destinations promoted as a ‘pause’ in an ever-faster pace of life, as a moment to catch breath (Shaw). Second is the perceived ‘shrinking’ of space, which gives way to the perceived opportunity to reach all corners of the world and the perception that we are apparently becoming closer to distant others. Of course, the restructuring of nature and experience of space and time is far more complex, and even the conception of speed is relative: space both, expands and contracts; time speeds-up and slows down (and even reverses); we go wide and into detail by, for instance, conquering the distance on one side and ‘discovering’ nano scale on the other (May and Thrift). Yet, and once again, the *solution*, the suggested coping mechanism, comes with a new array of technologies, such as smartphones and other mobile technologies.

As I have highlighted several times already, it seems that technologies are again the cause and the solution for the same problems, further contributing to ‘complicity’ surrounding technological progress and the changes it brings. While the feelings of uneasiness certainly emerge in the face of the change, this uneasiness is also present, due to the failing promises and solutions (Borgmann), as I noted in earlier in this chapter. Nonetheless, this complicity with technological progress is contributing to an increasing necessity and dependence on the *coping* mechanisms, such as the one of mobile lifestyle. Such dependence is, of course, further complicating the assumed active participation and negotiation of spatiality, mainly the supposed appropriation of such technologies, which I will elaborate on in more detail in Chapter 5. Here, my attempt was to disclose this implicated relation between

information networks and supposed ‘democratization’ notion in urban space, which apparently gives way to democratizing participation in negotiating spatiality, but also signals a move towards the quite opposite—i.e., necessary participation and dependence on such systems, and further detachment and disintegration of active participation in cities.

In the following section, I continue the discussion on spatial and technological interrelationship, this time in the context of urban mobility implicated with technologies of mobilities, starting from the modern transportation and communication systems, to the more recent mobile devices. By investigating the aspirations surrounding this concept, my intention is to show that extensive mobility itself is the driving force for both, anxiety over overpowering transformations of everydayness, and that hopes to overcome this anxiety has resulted in even more mobile technologies. This section digs deeper into this vicious circle of technological progress, discussing historical trends of empowering visions surrounding technologies of ‘mobility,’ such as notions of ‘freedom’ to move, and the associated issues. This is the concluding sections in this chapter that focuses on the contemporary notion of mobility vitally tied to calculability and calculative applications, which, in this thesis, I term “mobile lifestyle” and “informed mobility.” These new concepts that frame new social relationships in cities came about with the proliferation of mobile phones and mobile computing and the contemporary intoxicating visions of informational-potential of today. Location-based recommending services and predictable analytics, as part of such discursive construction, are the instruments of information-mobilization of city dwellers towards the convenient, appropriate and self-regulating conduct.

4.5. Mastering Spatial and Temporal Dimensions Through Technologies of Mobilities

A city is often defined by its metabolism, the intense flow and the exchange of people, goods and ideas (Amin and Thrift; Castells “Space”); this refers to the levels of afforded mobility both within the city, and outside its ‘borders.’ When we think of metabolism and mobility of cities, we think of density and proximities; of exchange on multiple levels: of daily transitions within the city and regional migrations between cities, or between rural and urban; we also think of promising opportunities and choices emerging in constant daily urban interactions. There is, furthermore, a tight connection between urbanization, mobility and ‘freedom to move,’ as I argue in this section, which is, in turn, closely related to the development of supporting technologies. The technological system, in this case, is technologies of mobility, an important agent in how these three are perceived by urban dwellers. Anticipation of ‘freedom’ in the context of today’s urban mobility stands for, among others, ‘free spirits’ of urban explorers, represented often by intensity of a personal movement within the designated area and connectivity that implies exchange. In Chapter 5, I will give examples of artworks, which suggest exploration and creative alternations in space, among others. Movements that branched out from such visions, such as urban sensing and participatory sensing, also invite greater urban exploration as a new approach to actively change our environment, as seen in the following example:

The Urban Sensing program area envisions a future in which we—as individuals, neighbors, friends, and relatives—can use the technology

around us *to observe, discover, and act* on the patterns that shape our lives. Whether your passion is personal or global, whether your interest is in health or the environment, whether you act alone or in a group, Urban Sensing is a new approach that empowers all of us to illuminate and change the world around us (The Urban Sensing program area envisions a future in which we—as individuals, neighbors, friends, and relatives—can use the technology around us *to observe, discover, and act* on the patterns that shape our lives. Whether your passion is personal or global, whether your interest is in health or the environment, whether you act alone or in a group, Urban Sensing is a new approach that empowers all of us to illuminate and change the world around us (Goldman et al. “Participatory sensing” 2, emphasis added)

Similarly, as I described previously, an analyze-your-location call also invites for more urban mobility so as to accurately analyze and get the ‘best’ out of the surroundings. As such, MapQuest is an online and mobile platform that will supposedly “help people discover and explore where they would like to go, how to get there and what to do along the way and at the destination.” The MapQuest Mobile further offers “free solutions for the mobile web as well as free voice-guided navigation applications to meet the needs of MapQuest users ‘on-the-go’ ” (*MapQuest.com*). In short, entrenched in contemporary mobile lifestyle is this on-the-go premise, depicting this new notion of ‘free’ mobile urban spirits, which I will elaborate on in more detail in this sections. Without a doubt, aspects of portability and ‘invisibility’ of contemporary mobile devices, along with instantaneity and immediate

connection, are the crucial points of surrounding imagery that these technologies might add to the urban mobility, connectivity and spatial experiences to possible users. Yet, the ‘urban explorer’ was not always the epitome of freedom of mobility.

The very idea of mobility in the 20th century was indisputably tied to the conceptions of spatial and temporal dimensions, and conquering these two ‘obstacles’ was crucially dependent upon accelerating speed and reaching immediacy. Hence, as much as acceleration represents a mode of conquering distance and space, immediacy is the mode of conquering time. This of course intensified the pace of the development of respective technologies—most notably in the area of communication and transportation. Such endeavors transformed the way we conceive the space and time, which is visible in theoretical investigations from discussing the changing perceptions and feelings surrounding these dimensions, such as space and time compression (Virilio *Lost Dimension* and *Aesthetics*, May and Thrift *TimeSpace*) to spatial theoretical shifts, such as emergence of time-space theory (May and Thrift) and others. Indeed, throughout history, with an emergence of new technologies and new conceptualizations of time and space concepts, a mixed feeling between hope and uncertainty prevails (Stein 110). The feeling that ‘the world has been shrinking’ by speed of travel and communication is understandably confusing, as on the one side is a promise of instantaneity and accomplishment of speed, but on the other is the disturbing future that one is unable to grasp. As Stein further notes, this has much to do with accompanying changes, such as the demand to successfully manage the railroad network which, in turn, induced the need for both telegraph and

standardized time in Northern America (“Reflections”); the consequent changes, as we can imagine, would definitely have seemed a radical change to everyday life then.

As we can see, in the quest to master dimensions of space and time, emerging technologies of transport and communication have played a significant role. As Graham notes, the relationship between mastering time/space and emerging transport and communication technologies, along with the spatial distribution of the supporting infrastructure, became apparent, along with the shift from industrial to post-industrial age (“Imagining”). As further expected, the transportation system, above all the personal motor vehicle, was a crucial agent of space contraction on the city level, especially after the World War II period with increased number of personally owned cars in the developed world. Acceleration and increase in mobility was solely attributed to the means of transportation, the daily commute from work to home and vice versa, resulting in disintegration of distance where contraction was viewed as the heroic defeat of space. The increased usage of cars, which intensified mobility, was reflected in the decentralization of the urban neighborhoods, segregation of suburbs in contrast to the urban core which, in effect, divided the ‘family life’ from the professional, to name just one.

However, as Virilio reminds us in *The Lost Dimension*, even though urban redeployment and decentralization of urban space are presented as democratizing processes, similar to what was noted with the propagation of information networks, decentralization, in this sense, does not necessarily mean, as we may assume, regional autonomy. Here, autonomy refers to the inertia reflected in the “domestication of public” and mass individuality, as I

showed on several instances already. Similarly, decentralization of ‘neighborhoods’ from central core on one side, and the production of ‘intelligence’ on the other side, does not imply the decentralization of power, neither political nor economic. In fact, the power source stays within the heart of the city, and mobility, the daily flow of people, goods and information, are channeled through the main commuting arteries between the designated points. In addition, it contributed to the deeper class segregation by physically segregating and distancing different social status suburbs. Nevertheless, the personal possession of a car was anticipated as newly gained freedom. This freedom was associated with control over daily movements and trajectories and independence from a centralized network of transporting system. At the same time, trajectories and spatial distribution of urban nodes to be ‘conquered’ by the car are designed by the very same centralized source of power from which the car owner had hoped to escape. Soon enough, with the intensification of traffic, even the personal vehicle became an annoyance, in the sense of traffic congestion, busy streets and time wasted in the commute from home to work, and vice versa. I am not claiming that information technologies came as a solution to the problem of traffic congestion problem; still, with the prospects of the cyber space and the online entertainment, home delivery and so on, the Internet came about as a convenient opportunity to avoid the inconvenience of having to drive and park in busy urban centers, among others. More important is to note *the turn* in our perception of what was deemed a promising solution, and the need to solve emerging problems with even more technological solutions. Whatever the feeling of ‘freedom’

personal vehicles came to represent, in terms of urban mobility and spatial restructuring, soon after turned out to be a false promise.

At the same time, when personal computers, the Internet network, and the concept of *cyber space* first emerged, novel aspirations for time and space manipulation surfaced. We see the emergence of different perceptions of mobility, and orientation to space and time. While during the industrial age, with characteristics such as spatial concentration of services and employment, supporting transport and communication infrastructure overcame time constraints by minimizing the distance towards the desired exchange: “In other words, *space was used intensively to overcome time*” (Graham “Imagining” 32); the post-industrial age context has resulted in just the opposite: to “*overcome space and distance by minimizing time constraints, rather than the other way round*” (32). For him, this was again the reflection of specific characteristics of telecommunications and computer networks:

Because they operate through flows of electrons or photons at or near to the speed of light, they overcome spatial barriers by minimizing—or even eliminating—temporal barriers. (32)

Cyber space was, therefore, and before all, seen as a promise of an *immediate connection and exchange* regardless of distance and time zone. This gave rise to completely new modes of mobility, in which even a perceived attachment to the personal desktop, the so-called ‘window’ to the world, was, in effect, the anticipated freedom to be mobile, without the actual realized mobility; and made available to ‘fly free’ in “endless digital space,” the extension of limited physical space we live in:

Decontaminating the natural and urban landscapes redeeming them, saving them from [...] all the inefficiencies, pollution (chemical and informational), and corruptions attendant to moving information attached to things [...] across, over and under the vast bumpy surface of the earth rather than letting it fly free in the soft hail of electrons that is cyberspace (Benedict, qtd. in Graham *The Cybercities*)

While much of the initial promises of the cyber space era were about ‘not having the reason to go out of your house’—where work, entertainment and intimate life would converge over the Internet; which implied, as I previously mentioned, that cyber space serves to liberate its users from the limited and time-consuming car commute. (This was quite contrary to what, until then, represented freedom for those that owned cars.) According to some, the cyber space proliferation seems to suggest that cyberspace has substituted for physical space, to the extent some fear it is endangering urban vibrancy and physical interaction, which further implies the disintegration of cities, as we know it. Subsequently, at just about the time when urbanity was ‘in crisis,’ mobile phones, with embracing ‘freedom of mobility,’ came around as a perfect solution, (once again), to revive urban spirit and build an image of ‘urban explorers,’ as I stated at the beginning of this section. Interestingly enough, it took more than 30 years, between the initial developmental steps, and the wider commercialization of mobile phones. Apart of the first experiments for the commercial usage of mobile phones as the ‘car phone’ in 1940’s, the development of mobile telephony has been left for the “right moment to come” (Brown, Green and Harper; Townsend “Mobile”). The cold war era ‘dictated’ the scientific focus towards reaching outer space; besides,

the car, as I have discussed, was the representative of personal mobility during that period.

Today, unsurprisingly, the mobile phone is one of the most representative and most widely used of pervasive technologies, quickly accepted as the “new everyday appliance” (Kopomaa “Speaking”). Mobile phones are portable and converge multiple computer applications and require fewer infrastructures as compared with personal desktop computers, Internet cable connection and cars, and, therefore, propose greater capacity for user-control and transference of use. Such qualities place mobile phones as the most popular, more often as an essential way of computing and as communication among urban dwellers in both developed and developing countries. The ownership is already higher than that of a car or a television set; even among the less developed regions, such as the favelas of Sao Paulo, are now seen as an emerging market for mobile telephony (De Souza 2008). Already, due to this intensity of popular use, paired with its miniature size and its immense computing power, smartphones are valued as the most desirable of pervasive and mobile (wireless) computing among urban developers.

Again, contemporary space and time imagery is intertwined with that of technology and developments in the sciences (biology, ICTs, etc), and in that sense, May and Thrift recognized the rediscovery of dynamism, flow and mobility, as well as interactivity and ‘performativity.’ The process of spatial ‘hybridization,’ of physical and cyber space, by means of Internet connection over mobile networks, signaled the possibility to overcome the limitations of ‘virtual mobility’ from the previous desktop computer era. Even though it could not, at the time, replace the powerful data flow achieved by personal

computers and Internet, the mobile telephone still enabled constant connection and communication among users. In addition to the existing modes of transport, the previously gained speed is achieving even greater acceleration and immediacy. In other words, not only are the users always in the flow; they are constantly connected, giving the feeling of ‘being at many places at the same time.’ ‘Staying in touch.’ ‘Wherever and whenever,’ enables multitasking and ‘personalized time-space management,’ the new extended level of ‘freedom’ to manipulate not just the space, but time as well.

Therefore, what was the fear of attachment to the desktop and urban immobility when the Internet began, is now ‘surpassed’ by promises of ‘new mobility,’ popularly perceived as mobile lifestyles. Accordingly, finishing multiple tasks at the same time ‘overcomes’ impossibility for the user to be at different places at the same time. Further down, mobile computing and telephones seem to ‘assist’ users to finally ‘catch up’ with the fast pace of life—and even more so—to ‘save’ time. Yet, this underlying concept of *saving time* has more to do with ‘wasting’ than ‘losing’ time, in which time becomes a precious commodity in direct relation to the “burden of the contemporary life [and] the compulsion to accomplish something” (Loy 277).

Previous technologies of communication and transport also used to play a role in ‘saving’ time. However, with the advent of new mobile technologies and mobile computing, commuting time is rendered as ‘wasted’ time, in which the same technologies again appear as a solution to such ‘wasting.’ For instance, by expanding the array of personal choices for multitasking, mobile computing offers to ‘save’ wasted time (e.g. simple reading on the train) with often more ‘useful’ and effective activities.

Multitasking, as such, supposedly supports personal accomplishment which contributes to the overall image of ‘saving time’ and ‘freedom of mobility’ rather than exploitation. ‘Saved’ time and effort is, in this contemporary sense, closer to the ‘proper’ understanding and ‘meaningful’ experience (use) of space, where one calculates one’s surroundings, with convenience of plentiful of supporting empowering technologies, so as to point to such proper experiences: appropriate commercial, entertaining, educative, and other content. In fact, this ‘proper’ content suggests empowerment that embraces convenience and productivity on an individual and personal level: “Software helps people solve relational problems in a more effective, cost efficient and innovative way” (Dodge and Kitchin *Code/Space* 225). The number of advances that mobile phone and self-tracking in urban environment offer, are best described by the various promoters and developers. Let us for a moment recall the Quantified Self movement, and other similar projects:

Are you interested in self-tracking? Do you use a computer, mobile phone, electronic gadget, or pen and paper to record your work, sleep, exercise, diet, mood, or anything else? Would you like to share your methods and learn from what others are doing? (*QuantifiedSelf.com*)

Without being aware of it, most people are walking around with sensors in their pockets, also known as mobile phones. A handful of research projects worldwide are now using data derived from sensing the presence of mobile phone activity *to learn about patterns of movement and behavior in cities*. (Fields of Activity website, emphasis added)

Analytics just became personal! Can you express your everyday life in numbers? Can you *improve your life* by turning it into a series of *games and experiments*? Follow my personal experiment to find out! (*MeasuredMe.com*, emphasis added)

Like an instant, daily utility bill, PEIR allows you to *monitor, reflect on, and change your behaviors, and to observe their effect on yourself and the environment*. (Goldman et al. “Participatory Sensing” 9, emphasis added)

Yet, the same phenomena points to the emerging instability of once enduring qualities and meanings of urban space and the requirement to generate more and more individual life choices and strategies. The more information that is being collected, the more managerial services is on offer, and that, in effect, begets even more data and even more analytics. Under these circumstances, as I discussed at various points in this thesis, the media—with supporting managerial services—are *again* both the origin of the change, and the promising solution. However, this also puts a huge question mark on the current technological promises of self-empowerment and liberation. The supposed spatial ‘negotiating’ practices that such technologies also supposedly seem to enable (including at times, participatory sensing) are there ultimately for the purpose of maintaining the system itself. As I discussed in Chapter 3, this is successfully accomplished by necessitating self-observation and self-monitoring in order to modify behavior to fit the environment, while presented as a counterpoint to the centralized information system provided by mainstream media channels and government:

PEIR [Personal Environmental Impact Report] provides you with personalized information about your relationship with the environment and serves as a *counterpoint* to the general, summarized environmental information that is typically available in the media or from government agencies. (Goldman et al. “Participatory Sensing” 9, emphasis added)

Such supposedly revolutionary tools, as I highlighted before, support the system of power and, in doing so, preserves the social order, or reestablishes a new social order with new elites. Although mobile telephones with basic applications are still relatively affordable, the penetration rates still vary from region to region, putting the least developed countries far behind. Even within the developed regions affording Internet connection and more powerful phones is still the privilege of an economic elite and minority. Furthermore, the supposed ‘freedom of movement’ enabled by mobile networks, is questionable, taking in consideration that a majority of daily users’ trajectories are still limited and directed by multitude of factors: by actual network coverage; by the actual number of network members; by actual affordability of extra applications (such as mobile Internet connection, and ‘value added services such as location-based recommendations); and even by the fixed nodes of work and home, between which such mobility is mainly channeled.

Clearly, mobile phone and urban tracking present a new way to both experience and understand urban space, and for that reason, researchers and theorists from various disciplines alert our attention to possible crucial changes in new social relationship in cities. With this section, I hope to point to the ways in which new urban/technological systems, based on increased

mobility and utilization of available information, refashion basic spatial concepts, such as time and space, which transform and give shape to contemporary urban social relationships—among which is active participation in space, as I claim in this thesis. I continue to address these changes and associated issues in the Chapter 5. In this chapter, my goal was to highlight the recurring implications of the promising urban/technological complexes, in the context of both information potential and mobility. The point to keep in mind is that whatever technological advancement appeared as empowering, has soon turned into compulsory or forced participation and dependence on that same technology, as such, imposing a burden and a new challenge to be ‘conquered’; whatever new spatial and temporal re-structuring, has generated new elites and new differences.

In the past two chapters, I looked closely at the promises of empowerment and active participation, within the promoting discourse of contemporary mobile lifestyles that embody *personalization*, *efficiency* and *mobility*. I highlighted the actual strategies behind the systems of control, mainly the promoting and development sector, pointing to recurring issues and new promises associated with the contemporary mobile lifestyle, before I continue to discuss, in the next chapter, the possible appropriation, analytical and critical capacities, under such circumstances. Mobile lifestyles and information potential, with presumed personalization, efficiency and informed mobility, give the impression of empowerment and user control. I looked into

the interrelationship between calculative and predictive practices and urban mobility as mobile lifestyles presume reliance on various managerial tools, from data analytics platforms to various recommending and predicting applications. I emphasized that the relationship between data analytics and urban practices has given rise to the contemporary notion of ‘informed mobility,’ both as a promise, and as a premise, for active participation in ‘intelligent’ cities, as I depicted in this chapter. I further investigated the extent to which informed mobility in fact mobilizes users towards appropriate conduct and, as such, turns supposed ‘active participation’ in cities into a perfect control system. Informed mobility, while indeed mobilizing city dwellers for more action, becomes obligatory involvement in space; channeled through the information potential discourse that fashions the way in which data should be utilized.

My hope is to convince my readers that such active participation itself becomes a discursive construct, a part of the strategy by the system of power to absorb and *normalize* active participation. In an effort to achieve efficiency compliance, optimization and manage risk, city dwellers readily embrace easy-to-use calculative tools submitting ‘active participation’ in today’s cities to info-mobilization, as I further underline in this chapter. Instead of submitting the experience of space to the contingency of individual and group decisions, instead of even ‘helping’ city dwellers find and create desired content, software points to the best possible fit. Spatial analysis is rendered *effortless* with assurance for users to lessen, or even to substitute, cognitive and sensorial processes; a ‘perfect fit’ is defined by benchmarks that are, at the same time, defined by other(s) and technology itself; continuity is ensured and

enforced by premises of common sense, necessity, efficiency and utility, be it for personal or collective good. Whether it is the question of traffic congestion or any other aspect of everyday life; the decisions over what is offered as suitable, and for whom, seem to be in hands that are far from the users’.

Conclusions from this chapter are carried forward to discuss the extent to which the necessity and the dependence on such systems, as well as the technologies in question, shape everyday practices and, in doing so, affect and re-shape the concept of active participation in space. As the reliance on supporting technologies in everyday decision-making becomes imminent, the question is whether compulsory active participation and easy-to-use analytical tools engage users at all in analytical and critical processes. The system of control relies precisely on calculations (predictable and recommending services)—those *invisible forces*—which reduce, consume and *enframe* the spectrum of potentialities to what is countable and operational by calculative practices. Let us keep all these in mind when discussing options on possible appropriation of such services, which I will continue investigating in the following chapter. I will discuss several different approaches to such or similar technologies: playful and experimental endeavors by artist and other urban enthusiasts; the process of *naturalization*, in which technologies blend with our environment; and Borgmann’s device paradigm that discusses easy-to-use technologies and a *low level of engagement* with such supposedly helpful technologies.

CHAPTER 5

ACTIVE PARTICIPATION WITH OUTSOURCING SENSORIAL AND ANALYTICAL CAPACITIES

In this chapter, I return to the promoting language of practicality and efficiency that uses concepts such as easy-to-use, relieving burden, and personalization, with the intention to investigate the main issues and paradoxes pertaining to the supposed active participation in space that this language attempts to obscure. Calculative and predictive location-based analytics—even more so, with stressed personalization and efficiency—facilitate individual self-regulation directed towards efficient spatial optimization on account of empowerment and analytical processes. As I explain in the following text, promoted personalized efficiency is based on the process of narrowcasting, with its customizing, predictive and risk-reducing strategies clear the decision-making from presumably undesirable aspects. This becomes particularly apparent with the software's capability to manipulate the visibility, availability and 'suitability' of information that is presented to each user. As such, spatial personalization in the form of customization, presumes, among others, the targeting and tracking of certain points of interest; further subjecting to calculations only those issues that are detected and rendered visible and present. However, 'undesirable aspects' may, at least potentially, steer the decision to a completely different optimizing strategy from the optimizing strategy of the mainstream system of control. Thus, the nature of calculation itself, in as much as the discourse on efficiency, reveals a false user control over such technologies. Such outsourced analytics and mediated calculation also bring to mind Virilio's

“disappearing technologies” (*The Aesthetic*) in relation to the level of interpretive power (De Certeau’s “room to maneuver”) that is so crucial for the anticipated ‘appropriation’ of space. While such services may successfully ‘mobilize’ their users towards more mobility and more ‘action,’ active participation does not require an active understanding of spatiality, or even technology, but rather, ongoing participation in providing the required feedback, which dilute the interpretive and analytical powers of city dwellers, consequently putting into question their actual ‘active’ participation and ‘performative’ agency.

As I argued on several instances throughout this thesis, there is a substantial difference between ‘offering’ analysis, in the form of ready-made applications, as an outsourced and automatic service, and the actual engagement with technologies, context-specific analysis and building systems *in situ*. Corresponding to Borgmann’s “device paradigm,” the difference concerns obviously different levels of engagement. Such easy-to-use technologies and proposed computational analysis essentially removes any understanding on user’s part, beyond simple navigation through the given application. While it is certainly easier to use ‘intuitive’ and effortless applications, to actually understand how the program that runs such applications works—even less, to design a program—has, for the majority of the population, been made too complex, and accessible only to professionals and a handful of enthusiasts, such as citizen scientists, and others. The issue, of course, is not only the level of engagement with the technology, but also with what appears to be the focus of a proposed ‘analysis,’ which is further susceptible to the mainstream discourses. It depends, therefore, on the

framework in which the data are interpreted, which, in the case of commercially available location-based analytics, seems to be the efficient use of space, reinforced by calculative technologies, and recommending and predictive services. Calculations are, of course, bound by the program and limited by the nature of calculations itself, which, for instance, reduces calculation to countable spatial information while denying the spatial context that is non-quantifiable and therefore incalculable.

Towards the second half of this chapter, I turn my discussion towards the dynamics of possible appropriation of such technologies within the context of the ‘naturalization,’ with some examples coming out of the art practice using location-based media and other practices such as urban sensing. Art practice is significant, precisely for experimenting, appropriating and introducing new approaches to location-based technologies. Many of these practices, as I show in this chapter, include ‘hacking’ of some sort, where top-down surveillance, monitoring and calculative technologies would be tweaked and re-designed to suit personal and communal goals outside of the mainstream strategies. Active participation here stands for the Thrift’s new urban ‘reaction,’ if we recall 3R’s of new urbanism from the opening of the thesis. In this chapter, I show that artists’ active engagement and appropriation are precisely enabled, as I claim, by the meaningful engagement with the technology in question, that further engages in insightful, critical and analytical approach in relation to the environment as well.

Finally, taking into account the level of engagement and the tension between, on the one hand, attempts to familiarize urban dwellers with such technologies in everyday life through ‘normalization’ and ‘technicity,’ and on

the other, the discourse of effortless and ‘invisible’ technologies, I then scrutinize software-supported ‘personalized’ efficiency in relation to the analytical powers of city dwellers. Quite contrary to what has been suggested by art practice, the mainstream strings of power, from which such practices promise to break free, promote easy-to-use and automatic calculative technologies for self-monitoring and ‘active participation’ in urban space.

As I already discussed at length in this thesis, the system of power absorbs active participation, as well as the ‘reaction,’ through the overarching personalized efficiency discourse which encourages *instrumental orientation*, to put in Heidegger’s terms, with required ‘active’ and ‘personal’ self-monitoring, risk management and efficiency compliance through ‘meaningful’ use of space and time. The question is: does such personalization, through narrowcasting and effortless use of technologies, in actuality, allow for greater engagement with such technologies so as to appropriate it for alternative spatial analysis and to encourage city dwellers towards analytical and critical engagement in urban space? My position is that the helpful and easy-to-use technological system—automatic sensing and calculative software—discourages actual engagement with both devices and environment. In other words, the compromised level of engagement with such technologies also compromises the potential to appropriate and ‘play’ with the same. Towards the end of this chapter, I intend to underline the main points of such discrepancies, in hope that such could serve as a reminder for the further development and implementation of location-based utility systems.

5.1. Program At Work: Learning, Sensing and Predicting With a Principle of Narrowcasting

In my investigation so far, I suggested how location-based technologies evolved from the ‘simple’ search-and-locate type of applications, over those that quickly picked-up on ‘contextual’ information to point to near-by options and people, to the recent predictable and recommending applications. The supporting software of such recommending and predictable technologies, like any other software, is re-developed over time by programmers who are a part of a very large and complex network, as Dodge and Kitchin notes (*Code/Space*), yet again susceptible to mainstream discursive practices, for e.g., improving on, or building upon, previous versions, with a premise to increase functionality, productivity and efficiency. Without attempting to lessen the role of human decision, even behind computerized calculations, it is important to first outline the interaction between these new calculative practices and the predominant promotion channels shaped by the language of practicality, efficiency and technological rationality, in order to further discuss the ways in which these are, or can be, ‘appropriated’ by users to negotiate spatiality. In this section, I therefore explain and analyze the software that facilitates the generating process for personalized predictions and recommendations, what developers in other instances also call ‘learning’ or “incredibly informed guess”:

Instead of guessing what you should like based on your age and gender, we can make an *incredibly informed guess* about what you will

like based on what you have liked in the past, and also based on what people you know like. (Altman, emphasis added)

Such incredibly informed guessing—and, of course, “meaningful, personal and contextual” spatial information that is guessed—are executed over the predictive learning software. This learning process, based on the so-called principle of *narrowcasting*, detects patterns from the recorded history of users’ experiences and encounters and predicts future actions as a continuation of those patterns. The pattern itself is, as mentioned before, the clearing of a multitude of information to those that recur consistently and regularly. Such a pattern shows what is *usual* and what appears as *normal* for the examined issue, and everything else would be deemed unusual and unlikely to happen. Google Latitude Location Alert¹⁴ feature, for instance, and offered, at the time, to Latitude users to send and receive alerts based on unusual and interesting activities of their friends in their vicinity

Lets you receive and send alert notifications if Google Latitude friends are nearby when you're somewhere interesting or unusual. Alerts use Location History to send notifications only when they're most likely to be interesting to you and your nearby friends.

Such a feature was soon after “retired,” in other words, disconnected¹⁵, which could be due to the peculiar correlation between the unusual and the interesting, or some other reason. For this study, however, it is important to note that such a concept of extracting is *unusual*, based on patterns generated

¹⁴ Google Latitude is a location-based service that operates with Google Maps to enable users to share their physical location with friends within their network, to see which friend is close by, to see their history of check-ins and visited locations and, for a while, offered the option of receiving alerts. <http://googlesystem.blogspot.sg/2009/11/google-latitude-alerts-and-location.html>

¹⁵ <http://techcrunch.com/2010/12/18/google-latitude-location-alerts-dead/>

from the history of *usual* daily routine, locations and timings: “It may take up to a week for us to learn your usual locations and start triggering alerts” (from Google Latitude Location Alert website). Recommendations are extracted as an optimal solution generated by software and technology’s ability to supposedly ‘learn’ personally ‘relevant’ spatial experiences, for instance, the user’s likes and dislikes, usual and unusual habits, and many others from the history of previous encounters and movements; including those of people with similar patterns, to the extent of “sensing the most popular” for the *informed* decision-making in various everyday situations, including even *navigating social life*:

CitySense is an innovative mobile application for real-time nightlife discovery and social navigation [...] The application learns about where each user likes to spend time – and it processes the movements of other users with similar patterns. (from CitySense webpage)

The application *intelligently leverages* the inherent wisdom of crowds without any change in existing user behavior, in order to navigate people to the hottest spots in a city. (CitySense website, emphasis added)

Such ‘personalized’ and predictive recommendations, on our smartphones or desktops, operate in connection to technological systems and platforms broadly summarized as “Spatial Data Infrastructure.” Spatial Data Infrastructure (SDI) comprises various service providers for spatial data analytics and management. In the case of SenseNetworks, personalized and predictive recommendation services work in connection to their own MacroSense Technology Platform. (SenseNetworks webpage) As

SenseNetwork promoters further explain, their system not only “indexes the real-world”—i.e., maps and stores an enormous amount of geographically related data—it also enables and assists in different manipulations of the same data. In essence, such platforms provide the ‘space’ and means for analysis enabled by cloud computing.

MacroSense Platform, therefore, is the connector between an endless amount of information collected and stored in geo-location databases (containing not only spatial information, but also overlapped demographics, users’ daily movements and routines and personal preferences), and final users and possible uses. MacroSense Platform will first analyze the data, note the patterns, and define the categories so as to sort and cluster that information for potential future search and matching services. Some of the categories are presented in the graph. With the capacity to memorize and store an incredibly large amount of past and real-time movements and activities, the program ‘learns’ about the user and makes predictions based on the allegedly ‘suitable’ match between sorted categories and the user’s use pattern. It comes as no surprise that location awareness, learning software and, even more, this *matching* opportunity, was recognized early on by businesses and advertising for their own benefit. Matching potential users to the available goods is just a more efficient way to reach the right audience and sell more goods and services. Advertising material is delivered—or, more precisely, recommended—to the ‘right’ audience by the same principle of *narrowcasting*, which refers precisely to *contextualizing potential customers* in the same principle that personalized analytics offer to contextualize spatiality, by minimizing efforts and resources and maximizing potential

user's attention. The only difference, it seems, is that instead of reaching specific customers to sell goods, that location-based personalized analytics offers to 'sell' specific location or activity for users' enjoyment.

MacroSolve's Custom Mobile Application Development group creates mobile apps for entrepreneurs, organizations and businesses who share the common goal of increasing efficiency, saving time and money, and *effectively reaching a specific audience* using mobile application technology. (from MacroSolve website)

Another such application, BeThere Mobile, promises to deliver "Premium Ad Content That Your Users Will Enjoy: Keep your users *happy* and *engaged* by showing them targeted, relevant, location-based offers" (webpage, emphasis added). *Happy and engaged* is, in summary, exactly what the promoters attempt with personalized analytics; keep your customers, city-dwellers, happy with personalization and individuality and, at the same time, keep them engaged, as active and compulsory participants in such technological systems. Such active participation, as I have discussed elsewhere in this thesis, is, nonetheless compulsory involvement and required in order to benefit from the system and, as such, subjected to efficiency compliance. Location-based recommending and predictive services, therefore, emerge as convenient support, within the system based on self-regulation of individuals within the overall constructed 'feelings' of risks and obstacles, offering personal and customized solutions in space. These services are, in turn, presented as useful, as utility and practicality, at the end, are just deemed commonsensical.

Hence, even narrowcasting, in the context of optimization of spatiality and decision-making, is still presented as a benefit, as targeted and relevant offers are just what *we wanted* after all. It is clear, though, that such a discourse of utility is vulnerable and susceptible to manipulation. Even the prevalent concept of *using* space, in contrast with simply living it, is, of course, itself a manipulative discursive construction. This new surrounding ‘culture,’ in order to mobilize users towards the more ‘efficient’ appreciation of space, shapes our everydayness to whatever can be measured, compared, and ranked.

Therefore, what the promoters today term as ‘meaningful,’ providing recommendations and customization, actually allows facilitating the user’s behavior within the space on several levels, as I would like to present here: first is the level of what appears to be ‘out there,’ which data is exactly collected and stored, and how it is categorized; which is very much connected to the second level, and the fact that computations operate with *computable* data, in other words, information that is ‘recognized’ by software as operational and computable; which further implies the trend to translate non-quantified data to the one that is quantified and countable, mutually comparable and computable by programs. We can also understand this trend by looking at the list of ‘benefits’ for application developers, which, for instance, Alohar Mobile platform presents on its webpage. Alohar Mobile’s Persistent Sensing list includes real-time sensing of data with the help of GPS, Accelerometer, Wi-Fi, Compass, Light and Bluetooth (Alohar Mobile webpage) This list describes the kind of data that is collected with *persistent*

sensing, in real time and over time, so we can at least glimpse what kinds of spatial analysis such data further enable:

Automatically *detect the places* (including the name and category) that the user visits. [...] Get notifications *when* a user arrives at or departs from a place. Automatically get the *number of* times a user visits a place, and *how much* time is spent there per visit. Automatically understand a user's mobile *motion state* (e.g. stationary, walking or driving). (Alohar webpage, emphasis added)

What becomes clear, nonetheless, is that personalized services are not simply crafted according to users' preferences. Such preferences *have to fit* within a range of operational variables first (e.g., how much time do you spend in that location) that will then be brought forward, computed and 'translated' into user's behavioral profiles. The SenseNetworks website includes an illustration¹⁶ of MacroSense Platform's Inputs and Outputs which shows that users' behavioral attributes are generated from "billions of raw location points" and "millions of points of interests." (SenseNetworks webpage)

However, the true problem with such behavioral personal profiles, and quantified data to begin with, is the *computational logic* by which analytical platforms understand their users. Even more problematic, I argue, is the fact that this is increasingly the way we, as users of personalized analytics, try to understand our surroundings and ourselves, which Heidegger's enframing principle reminds us as well. The "Quantified Self" movement, which bills itself as "the self knowledge through numbers" (*QuantifiedSelf.com*), supports

¹⁶ Illustration available at SenseNetworks' webpage
<<https://www.sensenetworks.com/macrosense-transforms-location-into-behavior/>>

and illustrates this tendency, as I mentioned earlier. Mark Moschel for *Technori* (a webpage dedicated to startups) explains this movement, why it matters and how it is personal in his article “The Beginner’s Guide to Quantified Self.” Why this matters is explained through the eyes of potential readers of *Technori*, future starters; it also summarizes the current importance of such a trend in the development sector and the business opportunities that will benefit the most:

Where there are trends, there are opportunities. About 69% of US adults track at least one health metric; however, almost half are still tracking in their heads. This is a problem entrepreneurs are looking to fix and venture capitalists are funding.

More problematic, however, are ‘personalized’ opportunities presented to users that offer to bust productivity and performance: “Are you becoming happier over time? Are your mind and body performing better? Are your days more productive than they were a year ago?,” Moschel asks pointedly, using personalized tracking and analytical tools, described above, by crunching (quantified) data.

In other words, instead of relying on intuition or feelings, you use data. Your company’s growth rate, web traffic, conversions, and even the way users interact with your homepage are all measured and analyzed. If you aren’t measuring key metrics you won’t manage progress and you can’t make the best decisions. *Our daily lives are no different. We want to make the best decisions, yet we lack appropriate data to guide us.* (Moschel, emphasis added)

So, as we can see from the above excerpt, such opportunities are not only presented for business but for everyday decisions as well. Moschel lists the benefits to monitoring one's health, for instance, but it seems that any kind of activity imagined, as numerous examples presented throughout this thesis, may be subjected to such personalized data analysis. It becomes clear, though, that such 'empowering' personalization—embodied in the principle of narrowcasting and quantification—reshape our surroundings and the way we understand it, to the extent to which data analysis allows. If we recall Heidegger's insights on *reductive* and *enframing* nature of calculations, it is clear that this tendency will also reduce our lives and our surroundings to such quantified reduction.

In summary, while personalization and individuation are used as one of the crucial selling points, it is the software that, in fact, *enframes* what should appear as personally 'relevant' content for the user. So, even though personalized location-based services include the option to 'inscribe the personal meaning' to the space by the user; the same technology, by the means of its preferences and employed calculative operations, directs to what is 'meaningful.' Calculative, predictive and risk-reducing strategies of the program behind the technology in question clear the decision-making from the presumably undesirable aspects—'meaningless' information. However, such 'meaningless' information might, at least potentially, steer the optimizing strategy of a user, and therefore, a user's decision as well, to a completely different one from the one offered by software and the mainstream discourse. The individual's contingent arguments and decisions are, indeed, to an extent, unstable and biased perceptions, senses and emotions; but such space of

uncertainties is the opening for city dwellers to think, test, re-imagine and potentially bypass the imposed strings of control and system of power. For now, it is important to at least reveal the complexity behind ‘personalized’ calculative services. On the one hand, presumed personalization with such tools give an *impression* of greater user-control, ‘freedom’ to make an independent choice that comes along with notions of ‘empowerment’ and will finally allow, supposedly, an ‘active reconstruction’ of urban space. However, this kind of ‘empowerment’ still does *not* increase users’ ‘active’ participation, if, by ‘active,’ we mean understanding and control over the actual tools and spatial processes. In fact, it is becoming equally apparent that ‘active reconstruction of space,’ in this context, emerges as the ‘mobilization’ towards the most efficient, optimal and preferred ‘reconstruction of space.’ Therefore, as much as these technologies appear to be empowering and useful, the options are, on the contrary, limited to whatever can be measured, compared and ranked in order to mobilize users towards the more ‘efficient’ appreciation of space. At the same time, they comply with users’ insatiable need for perpetual spatial discovery of the ‘most suitable’—desired—destination, instead of the journey; useful location, instead of just any spatiality.

5.2. Outsourcing Sensorial and Analytical Capacities: Level of Engagement

During the course of this thesis, I presented a number of more recent ‘commercial’ platforms and applications that utilize location-based technologies and predictive analytics of some sort. Such helpful applications

mobilize its users to ‘analyze their location’ but, at the same time, offer interpretation and some analysis through automatic sensing and calculation. In this section, I discuss the outsourced spatial analysis with ‘helpful’ and effortless efficient technologies, and implications these have on the level of the engagement and further down on users’ interpretive and analytical powers. This segment explains the level of engagement in relation to the device paradigm the way Borgmann defines in 1984. I will explain why effortless and easy-to-use technologies are not that helpful as initially promised, especially in the context of technologies that offer to replace cognitive and analytical skills. Active participation is, therefore, compromised with such ‘helpful’ tools that promise to analyze for us, as, according to Borgmann, participation depends precisely on the level of engagement with technologies and technology implicated processes.

In order to stress enough the superiority of such supporting technologies, it is equally important for promoters to stress the extent to which our own judgments, perceptions and analytical powers are inferior to the outsourced sensing and analysis. For one, such technologies are ‘obviously’ more practical; the myriad of platforms and adjoined applications will supposedly bypass user’s sensorial, analytical or cognitive bias, relieved from such *burden, leaving more time and space dedicated to something else*, often presented as “more fulfilling” (e.g., shopping). Second, such technologies are presented as way more superior to our own incompetent and biased perceptions, senses and computational capacities. The smartphone just does so much *more*, and it is so much *better*, as Google’s CEO Schmidt boasted in his 2010 speech. While such praises are endless, here is the interpretation found in

article on the Quantified Self movement that attempts to quite vividly illustrate our inferiority in comparison to technological data crunching:

Unfortunately, happiness, performance, productivity, and other variables in our lives are *complex, confusing, and chaotic processes*.

Every day *we blindly make decisions* we hope lead to improvement. To make matters worse, *we judge success based on imperfect and biased feelings*. If our world is dark, it seems we are also covering our eyes.

(Moschel, emphasis added)

So let us, for a moment, delve into the concept of *replacing cognitive and sensorial* faculties in the name of the users' best 'interests,' so as to grasp what exactly this may mean in the context of spatial conception. Let us compare side-by-side an 'old-fashioned' printed map and a GPS navigated map, a navigation application, which is the 'basic' type among location-based management tools and already widely used in cars or as a phone app. The core function in navigated maps is the use of embedded Global Positioning System (GPS) that automatically detects a user's current location and facilitates the search for the exact coordinates of any desired location. Users of the "old-fashioned" and non-interactive street directory map, for instance, have to resolve several spatial problems in order to detect their position: look for the recognizable physical landmark and locate it on the map; estimate their position in relation to that landmark; and resolve a series of other spatial problems. On the other hand, the navigational application automatically detects a user's position through the embedded global positioning system (GPS) on the mobile phone and provides step-by-step directions to the desired destination, determined by several available parameters such as a preference

for car or public transport and the time of day. After following the simple steps of inserting the desired destination, the navigation tool then suggests a route for the user within a variety of options: Shortest, or the fastest, way? Taking the highways or side-roads? Do you need to fill up your tank on the way there? Next, the user is able to retrieve the additional information about the location and the surrounding with the support of Geographic Information Systems (GIS), platforms that store and manage geospatial information (geospatial imagery and various geo-statistical data). Finally, numerous managerial applications are available, based on a user's personal (location-based) history and trends. As a matter of fact, the device has the user's preference/s either pre-set, or remembered from previous usage, and even more conveniently crossed over to the other useful data 'out there.' Often, a navigational device can almost immediately calculate the most efficient route to one's desired place, while avoiding congested roads and long traffic lights, if connected, for instance, to the real-time traffic monitoring application.

As further expected, it is envisioned that predictive and recommending applications make our lives easier and 'ordered,' leaving us with more 'leisure' time. In fact, one of the design premises is for users not to be bothered with tools to save time and energy for something else 'more creative' and 'meaningful:' "Start browsing through photos of real people *immediately*. Spend *more time* getting to know people and *less time* answering questions" (Meexo). Meexo, a dating application, for instance, offers to let users bypass the 'inconvenience' of filling up personal forms so as to save time, suggesting that this is where predictive and recommending software come in 'handy': "What's your type? Let Meexo figure it out. [...] Without the burden of

extensive personality tests” (Meexo webpage). Praised “personality” is, in turn, computed and extracted from the history of check-ins and other habits, not only spatial, that are collected over the period of use, as I described previously. The only requirement from the user, as we can see from the promotional material for Meexo, is to use that application as much as possible in order for software to ‘learn’: “The more you use the app, the more it learns what kind of people you’re into” (Meexo). From its promotional material, we can conclude that, while it is necessary to use this application as much as possible, actual engagement is not required. The application obviously needs to be downloaded and turned on, and a couple of choices opted-in or opted-out, but everything else is automatically sensed, computed and delivered, as a set of recommendations to browse through.

What else becomes apparent is that the software’s applications are fairly easy to understand and use, while the supporting software, the actual machinery that runs applications, is not. Borgmann explains such a trend as a split between the commodity and machinery of a device, which is characteristic of our technological era dominated by the ‘device paradigm.’ He points to the shift from the ‘thing,’ and its context within the pre-technological age where “the experience of a thing is always and also a bodily and social engagement with the thing’s world” (41), to the device and its consumption in the age of device paradigm. Even though we are, without a doubt, ‘engaged’ with technologies on a daily basis, more so than ever, Borgmann notes that this engagement is, in fact, consuming the commodity made available by the device, but not engaging with the machinery that supports it. Hence, the more we are liberated from the toils of everyday life, as one of the central promises

of the technological progress, the more technology that supports it is concealed: “The concealment of the machinery and the disburdening character of the device go hand in hand. [...] A commodity is truly available when it can be enjoyed as a mere end, unencumbered by means” (44).

As technology becomes fundamental to all we do, and at the same time, is taken for granted, Borgmann attempts to lift this concealment over the dominant technological pattern. On the whole, he alerts us to disengagement, lack of focus and skills required when using the device. We can use commodities with ease, as shown in the example of navigated maps, without understanding how the software works. Thus, the major concealment of user-friendly technologies, he says, is the lack of engagement that is, conversely, exactly the promise made by technological progress and the device paradigm. Functionality in the form of a commodity is accessible to many, with promises to be accessible to all, but as inaccessibility of machinery persists, we are, in fact, technologically illiterate (47). His discussion opens with an important question: “How are people positioned between their engagement with things and approach to reality which is patterned by technology?” (103).

As the device paradigm “distills a foreground of life” by patterns of technology, as he puts it, do we take an instrumentalist’s views that claim freedom to appropriate technology, or a deterministic view that technologies are overpowering us? For Borgmann, the debate is neither about domination nor direction; rather, one is “implicated” in technology (105). Humans have a “capacity for significance” (105) in that we have both a grasp of what is significant, and we are ourselves significant, in the course of technological development.

However, he points to the limitations on the very same aspects that define human intervention, one being the questionable scope of action and the second being an awareness of the implications and complications with technology. “Complicity” (106) in this sense does not refer to a complicated life since, quite contrary, life has presumably become easier and more comfortable since pre-technological times. Complicity refers to mixed feelings between temptation, on one side, of technological promises and, on the other, uneasiness that comes out of the fact that material gains from technological progress has not increased our mental and spiritual well being, happiness and greater satisfactions. Nonetheless, although we have occasional opportunities to decide whether to engage or disengage in certain technologically driven activity, such choices are often limited to arbitrary issues, such as voice navigation or visual navigation, or offered under unfair terms, such as Marcuse’s efficiency compliance elaborated earlier in this thesis.

In fact, technology itself is seldom a choice; it is more likely a basis for other choices (Borgmann 106); for instance, to chose one of several routes offered by a navigation device. And, even though we may chose not to use the device, choice within the technological parameters is further rewarded, mostly as ‘saving time,’ in contrast to the refusal of technology that is seen as a diversion. Hence, we more often feel compelled to use the technology and to accept the choice that is within technological perimeters; we are less likely to *hack it*, to use a contemporary term, and even less likely to build our own tool.

Even the variety of applications that could be developed from one analytical platform does not necessarily allow the variety of uses and ‘misuses.’ Alohar Mobile platform provides a Software Development Kit

(SDK) for further development and implementation of a variety of ambient mobile applications based on their system, as described on their webpage.

Alohar Mobile SDK is “ideal for applications such as smart personal assistants, location-based games, mobile health apps, mobile shopping/coupon apps, social networking apps and mobile dating apps” (Alohar webpage¹⁷).

This seemingly provides endless possibilities: the user’s location information can be further cross referenced with different demographic and descriptive information and used in a variety of situations, which implies that the variety of mobile applications does not end with those dedicated to more efficient advertising strategies as we assumed at first.

Yet again, the proposed analysis comes with a myriad of ready-made applications. CitySense is one such application of ‘sensing’ services that includes automatic matching and recommending; it “passively “senses” the most popular places based on actual real-time nightlife activity and displays a live “heat map” in attempt to “navigate social life” (CitySense webpage¹⁸).

Meexo application, as such, is a “fun, safe and private way to meet new people,” but still uses spatial ‘preferences’ and use histories for effective matching purposes.

As such, the Google search engine, probably the most pervasive of contemporary daily practices, evolves to the Google Knowledge Graph: “to answer questions you never thought to ask and help you discover more.” Google Knowledge Graph organizes and makes connections between data with similar software-sorting principles. With advanced personalizing capacities, Google search engine evolves into a personalized predictive search

¹⁷ Alohar webpage

<<https://www.alohar.com/static/doc/AloharDeveloperOverviewv1.pdf>>

¹⁸ CitySense webpage <<http://www.sensenetworks.com/citysense.php>>

application for mobile phones, Google Now, offering, as expected, “the right information at just the right time” (Google webpage). Therefore, information will come to you “before you even ask,” using sensing and predictive strategies that I have discussed in length in this thesis, unsurprisingly accompanied with usual propaganda on the same page: “Manage your day. Stay on top of what’s happening in your life every day, including what you need to do, where you need to go, and how to get around.” (All quotes related to Google search engines are from the Google webpage.) Many more applications on mobile phone utilize location detection to cross it over with other available data in order to yield all kinds of recommendations. What is, however, shared between all of these examples of applications, spatial or not, is the principle of personalization through the concept of *narrowcasting* that gives way to matching and recommending, which is slowly taking over, even the most arbitrary, daily activities and practices.

The aspect of *narrowcasting*, as described in this chapter, is the trend here to stay. It is implicated not only with spatial data infrastructures, but different analytical platforms and search engines that have access to, or collect their own, information; but more importantly *select, organize, and disseminate* information. What becomes apparent, still, is that the amount of effort put into understanding the surroundings, and involvement in navigation through the actual space, is greater when using *non-interactive* maps. When using the GPS-enabled map, the requirement is for the user to be somewhat familiar with the technology in terms of knowing how to navigate through the software. The same software, as discussed earlier, is built to be intuitive and easy to use. Even more so, as the complexity and multitude of information

increases, we have software for navigating through navigation—i.e., these are personal predictable and recommending services. So even if a proposed software analysis does not necessarily encourage users towards an actual attention to space and analysis, it guarantees *faster* and *more convenient* delivery of whatever/whoever is there to be delivered. As a consequence, however, one is often accustomed to navigate through software that navigates through the space and not necessarily through the actual environment that is the object of inquiry.

5.3. Alternative Strategies: Performing Space, Negotiating Spatiality and Urban ‘Resistance’

Along with the proliferation of mobile media—namely, mobile phones, GPS controllers and, lately, so-called smartphones—location-based media come into view as another promise with possibilities to supposedly creatively and playfully ‘perform the space.’ I discussed at length the contemporary ‘call’ to analyze a location that mobilizes users of location-media towards the efficient performance in space; in this section, I take a closer look at the concept of ‘creative performativity,’ which refers to the emerging practices and concepts surrounding location-based media use that suggests and encourages the creative manipulation of existing geo-spatial data, further implying potential for users to modify and enrich their spatial experiences and eventual creation of user-generated spaces and cities. In my analysis, I use the concept of ‘performativity’ in terms of assumed possibility to ‘appropriate’ location-based technologies and, thus, ‘actively participate’ in

building social meaning of space and negotiating spatiality. More broadly, such visions arise from the claims that there is still space for alternative and creative uses and misuses within technological predicaments and imposed discourses. I look into the conditions of such creative misuses, in contrast to the commercial applications, in hopes of shedding light onto predicaments for the future development of user-generated cities.

This segment deals with the context in which such concepts emerge—enthusiastic visions from artist practices that utilize and further develop location-based technologies. Apart from its military origins, artists working in the field of locative media art were among the first to utilize location-based technologies, in an effort to experiment with new spatial experiences. In that sense, locative media artists have, on one side, been engaging with locative and ubiquitous technology, through research in engineering and designing practice; on the other, they have been rethinking urban issues and spatial concepts moved by the ‘spatial’ attributes and contexts of use of such technologies. ‘Spatial themes’ range from re-discovering of urban mobility in contrast to former ‘attachment’ to desktop era, seen in, for instance, the practice of ‘drifting’ and exploring of urban neighborhoods, to identification and visualization of location-specific or broader urban issues. Looking at this from the artists’ perspective, emerging location-based media could have an interesting and significant role in how potential users, city dwellers, perceive and change the meaning of the space. As such, locative media art practice was seen as an experimental ground for possible ‘alternative’ and even ‘subversive’ uses of proposed technologies.

In addition to the essential affordances such as location positioning and site-specific awareness, tagging and layered annotations come into view significant contributors that could allow “user-led mapping, social networking and artistic interventions in which geographical space becomes a canvas” (Hemment 348). Users of such technologies are presumably ‘free’ to interpret and re-imagine available geo-spatial data, existing maps and urban space in general; they can choose to alter the space by adding or disclosing; to exchange experiences with other users of the same space; to appropriate space for personal use; and so on. Moreover, user control and ease of manipulation over existing spatial information it would seem encourage playfulness and experimentation that would eventually lead towards the creation of user-generated cities.

One of the earliest projects that had for its goal to engage community in collective annotations and urban mapping was ‘Urban Tapestries,’ in which volunteer participants were able to describe and share with others their own experiences in the city (London):

... investigated how, by combining mobile and internet technologies with geographic information systems, people could 'author' the environment around them” and “build relationships between places and to associate stories, information, pictures, sounds and videos with them. (Proboscis)

This provided possibilities by which to comment, attach, and even add and/or delete complete places from maps to emphasize the subjective and personalized experience of a city’s physical space; while, at the same time

attempting to question our commonly accepted views of spatiality, temporality and the social aspect of the cities and our everyday life (Galloway).

The ability for users to comment on a map, to delete meaningless places, add meaningful places, and to share those comments and places with others, may provide means of putting practices of spatialization and temporalization in the hands of users—allowing them to manipulate, or shape, their city... (403)

Emerging novelties, at the time, were very much concerned with individuals' perception of space and the assumption that, with the aid of location-based media, users would be able to construct and personalize the space by adding an emotional layer to it (Amin and Thrift), creating what Galloway describes as “amplified and annotated city spaces” (Galloway 391). More recently, sensors, real-time space monitoring and increased computational power put into the hands of the users, were said to pave the path towards user-generated, and “co-created” cities as artists themselves describe, in one of the latest art reviews “Ubiquitous Inforscapes: new forms of awareness in contemporary cities”:

It is possible to give shape to a scenario in which the concepts of citizenship and political representation can be reinvented, tending towards a vision in which people can be more aware and benefit from added opportunities for action, participating in an environment designed for ubiquitous collaboration and knowledge which is multi-actor, multi-stakeholder, in real-time: the city. (Iaconesi and Persico)

This notion of ‘performing’ the space, and its related set of (location-based) technological practices, therefore, reflects hopes for active participation

in social space production, and users' intervention that will shape spatiality in spite of the mainstream strategies of the systems of control and eventually create user-generated cities. This ability to 'perform space,' a possibility for individual to interpret and manipulate multiple spatial (urban) layers is certainly not new:

Moving through the city, and through public spaces, has always been a performative practice where the citizen is relatively able to use the material world for her own purposes and enjoyment and engage in critiques of everyday life. (Galloway 391)

Certainly, both Lefebvre and De Certeau posit that everyday spatiality is indeed shaped by the multiplicity of daily experiences and, as Massey also points out, interactions between heterogeneous social layers, further suggesting constantly re-produced social meaning of urban space, negotiated and formed through the multiplicity of everyday rhythms of its users that have their own specific, cultural logic of operation. The art and activism in the field of locative media attempt to embody such practices that re-enhance and reanimate the city (Crang and Graham). The role of location-based media would presumably be to boost this potential of everydayness, amplify and encourage 'performative' power of everydayness to re-claim and negotiate spatiality, apparently encouraging deeper and more profound critique in everyday life.

This 'call' for the conscious and subversive personal perceptions, as can be seen in many examples of locative media artwork also originate from 'psycho geography' and related concepts (Galloway). Conceptualized long before location-based technologies set on the scene, theorists and artists

gravitating to Situationist International developed and advised a number of subversive strategies to help ‘urban strollers’ construct such personal experience of urban space; in other words, to learn how to appropriate spatiality, which will serve as a drive for more critical approach to imposed spatiality. In 1958, for instance, Debord defines *dérive* as a “playful-constructive behavior and awareness of psychogeographical effects, and are thus quite different from the classic notions of journey or stroll.” Similarly, Situationist International 1959 explains *détournement* as “the reuse of preexisting artistic elements in a new ensemble.”

Similar to ‘psychogeography,’ locative media artist argue and suggest new models for more critical engagement and active participation in urban space through the everyday life of city dwellers. The important addition in many of such works is the intended disclosure of one’s intimate perceptions, its materialization and visualization in online maps, as well as enabled exchange and alternations over the Internet and mobile network systems. Location-based media, mobile networking and Internet platforms, therefore, have come to represent an opportunity for new levels of individual and shared interpretation and manipulation of otherwise private and often subconscious perceptions. This alternative multilayered urban space that users of location-based media would create, presumably not only detect and visualize urban issues, but also encourages its users to engage in critique and become actively involved in any changes.

According to the Crang and Graham further, we should recognize in the artists’ works, an attempt to create oppositional vision of urban space and to render visible current system of power and knowledge production. Without

a doubt, contemporary monitoring technologies have a propensity to render things visible, as I elaborate in several instances throughout this thesis, while such art practices aspire to expose and make visible those same technologies. Their (artists') intention is not the creation of perfectly known environments but "destabilization of spaces" achieved by preserving 'human link' to a place by recording and sustaining the personal and transient meaning of places" (Crang and Graham 812).

Additionally, McQuire acknowledges artists' efforts and experimentation crucial for driving the thoughts "about facilitating other forms of engagement in public space" ("Modernity, Cosmopolitanism" 57). He recognizes the significance of the artists' exploration within the field of new media as the valuable theoretical ground to stress the possible (mis)uses and future trajectories of the technological development. Drawing on Sennett's ideas of urban value in 'ritual and play,' McQuire claims that such play will test and potentially reinvent social rules (57). Similarly, Crang and Graham see their practice as encouraging new forms of public action and social contact such as multi-authored coding; they also claim to render data and coding environment transparent and aesthetically problematic. In that sense, art practice also presents a model that should, or could, inspire a different approach to technologies, in other words 'appropriation,' in place of submission.

The following segment is a short survey of the issues raised over some speculations in relation to appropriation of predominant technologies to the users' benefit, and the extent to which artist visions of 'active participation,' their ability to play and engage with these technologies, in fact translates to

the domain of the commercially supported platforms. Here we arrive, as I would like to argue, at the central predicament of empowering assumptions surrounding locative media art practice. On the one hand, the intentions of locative media artists are to engage a mass audience in using locative media (Tuters and Varnelis), which further implies the development of user-generated or consumer-created cities. On the other hand, there are several contradictions between the artists' approach and engagement, and the reality of implementation of location-based utility network, which I intend to show in the following text. For a start, as I already pointed, there is no clear line between the alleged individual 'freedom' for manipulation of geo-spatial data and the manipulation of users' individual spatial perceptions by developers and monitoring system. What was once envisioned as a foundation for the user-generated cities, experimentation, playfulness and actual engagement, in commercial use became a "service"—a useful tool—to arrange and organize the vast geo-spatial data and to calculate the customized 'sense' of one's surrounding. Hence, the anticipated personal 'freedom of expression and interpretation' and praised active participation may be closer to the required 'customization' as a strategy of the dominant system of control.

My goal is to point to the complicities of the translation process, from art practice to more widely available platforms, and to further discuss its implications and crucial positions for the potentially subversive powers of everyday practices with such location tools. While irreplaceable and valuable as a source of critique and potential ground of experimentation, artist practice is often times criticized for an elitist vision for those that have the skills, time, money and, most of all, determination, in comparison to the 'common' user.

We need to remember, as Kraan notes, empowering and ‘performative’ in this case depends on that vital *ability* to ‘play’ and experiment with technologies.

These can only be created and facilitated *if* users of hybrid space learn to see the influence of relatively invisible digital structures and appropriate their technology *where possible* for alternative use. (qtd in Crang and Graham, 805, emphasis added)

Certainly, my attempt is not to dismiss art practice and experimentations. My attempt is to point to what I believe is missing in mainstream strategies for development and implementation—a proper acknowledgment of the role of artists’ engagement. Quite contrary, we have seen that the current implementation strategies force automatic calculative processes that give shape to possible participation in space. ‘Active participation’ then becomes self-monitoring and calculative self-management, in which everything and everyone could, and should, be quantified, subjected to calculations of all sorts, and ‘understood’ and explained through these calculations. As such, not only do calculative practices render things visible; even more so, they *enframe* and, therefore, limit the critical and analytical engagement with technologies and surrounding issues, points that are so crucial for the potential ‘reaction’ in urban life. In the following section, I intend to remind my readers of such paradoxes, which are particularly problematic when we consider proposed appropriation, either by artist, or other advocates of alternative practices, or when such technologies become ‘naturalized.’

5.4. Active Participation in Urban Space: From Enhanced to Efficient Spatiality

Looking back into the essential characteristics, such as locating, targeting, maneuvering and tracing, among others, location-based technologies may not be as innocent as they seem. Even with attempts to disclose main sources of power, as attempted by art practice, they use the same technologies and discourses they are attempting to disclose, and in doing so, they materialize and reveal those layers and city movements that De Certeau, the main advocate of powerful everyday practices, terms “invisible and innumerable tactics” (40-41), thus rendering “what was formerly protected by its opacity and transitoriness, visible and recordable” (Crang and Graham 812).

Predictable and recommending practices are an effort to render the user’s spatial experiences as calculable, to visualize and define the same experiences and in doing so, expose to the mainstream gaze and make vulnerable the same ‘subversive’ practices that such services supposedly encourage. Clearly, reviled tactics, by leaving a visible trace of personal impressions and daily routines of users, may have given the desired feedback for more appropriate distribution of power:

While networked computing has since made it increasingly possible to construct user-configured environments ... it has also created sophisticated forms of centralized control over urban space and social interaction ... its other side is the enhanced capacity for tracking individual movements, choices and communications, and aggregating them into searchable databases. (McQuire 89)

Even the ‘search’ itself is compromising the authenticity of ‘personal experience,’ as the individual and personal interpretation is then replaced by the interpretations of others, regardless of the prospect to ‘choose’ and the ‘liberty’ of the potential user to make the final decision. In the case of the previously mentioned “Urban Tapestries’ project, compiled data can be used by others later on to retrieve and explore London, not just, for instance, to search for the nearest restaurant, users reviews and interesting stories, but also to receive recommendations for ‘the best’ and ‘the most interesting.’ This brings to mind several issues regarding this and other similar projects: matters of authorship, responsibility, and to what extent should we allow these new possibilities to guide in usage of the space, instead of exploring it on our own (Galloway)? The personal attribute that this work represents is therefore sacrificed. For the majority of users, it seems that such multi-authored map is not much different from any other map drawn by numerous cartography experts.

However, as multi-authored maps and platforms and applications are still commonly represented as liberation from the imposed strings of control, one of the points that I am trying to accomplish with this work is to point to the misleading notion of such interpretations for the actual ‘liberation’ and emancipation in the first place. As I explained in Chapter 3, the logic of monitoring, marked by properties of calculative technologies, submits all and everything to quantifications, measuring and comparing, and furthermore to segmentation and fragmentation. It becomes apparent that the ‘personalized mobility’ is bounded by *necessity* for movement (Virilio’s modern ‘obligation to move,’ as Douglas elaborates upon), which is highly dependent on efficient

(mobile) networks and related technologies (Sheller and Urry “Mobile Technologies”). Those who initially chose to embrace new technologies of mobility soon find themselves dependent on the technologies being forced to participate; which exerts further pressure on those who choose not to. In consequence, those who actually cannot afford new technologies are being excluded and marginalized (Sassen “Spatialities”). The rest, in fear of being marginalized, are desperately trying to ‘catch-up.’ As participation in social networking is becoming a necessity, the voluntary character, praised ‘freedom’ of choice is eventually compromised, putting under question the subversive nature and critical approach of personal experiences.

Similarly, McQuire adds, the contemporary ‘obligation to move’ is marked by “questions about who can *choose* to move and who is *forced* to move” which “remain fundamental to the emerging liquid society” (McQuire *The Media City* 105, original emphasis). In “Splintering Urbanism” (2001), Graham and Marvin explain the differentiation and segregation within the cities under the private and exclusive development of networking systems and supporting infrastructure. Embedded technological networks within the urban systems are widening the gap between those who can afford, and those who cannot afford; for instance, faster and more efficient highways and telecommunications networks, energy supplies, and so on.

Some of the users’ mental maps do indeed reveal inconsistencies in the power systems, for instance, the ‘true’ dispersion of wireless networks and coverage in so-called “Hertzian space maps” by visualizing the fact that wireless network is not available “whenever, wherever and for all”; and, as such, present a valuable critique to those in power. Unequal access and

ownership of mobile phones, especially use of advanced applications, has remained as an issue, regardless of high penetration rates (Castells et al.). Mobile phones and wireless Internet connection accessibility vary within the “Hertzian landscape,” even in the most ‘connected’ cities in the world:

While these changes [wireless networking] are often presented as ubiquitous, it is immediately obvious that they are unevenly distributed ... The principal stake in the political economy of the Hertzian landscape can, therefore be framed as a question: who today can send what? (Mackenzie)

While such critique tackles the issues of access, it does not address the different uses and the important question as to whether these differences are ‘natural’ or are, in fact, ‘forced’ by mainstream strategies. In that sense, the fact that the mobile phones usage varies between socio-economical, age, gender, ethnic, and other groups is very often excused by different users’ desires and needs. These variations are more often justified as appropriation of different applications that correspond to the needs and affordability of certain groups (Kopomaa “The City”; Castells et al.; Kellerman), further implying that unequal use is due to the unique personalities and individualities that these technologies claim to foster. However, the whole discussion as to whether such needs and desires are, in fact, created and maintained in a bid to preserve the socio-economic gap is unduly bypassed. In other words, regardless of the seeming race to get everyone online in order to ‘close the gap’, in reality, what we are witnessing is a more profound and ‘precise’ differentiation between users, sorted and matched according to their preferences. In fact, “mass surveillance requires constant efforts of

discrimination” (Rule 1973, qtd. in McQuire *The Media City*). Similarly, Murakami Wood and Graham’s “software-sorted city” depicts the process of segregation based, particularly in real-time, on surveillance data:

It is the determination of particular spaces and relationships to those spaces through categorization, boundary maintenance (in terms of both space and identity) observation and enforcement. Surveillance, in its most extremely territorialized manifestations, depends therefore on purity of categories, and on the cleanest possible demarcations between them... (Murakami Wood and Graham)

This trend is clearly evident in the area of mobile commerce, m-commerce in short, that was the first to recognize commercial value in users’ whereabouts, preconditioned by their tracking and monitoring, and effectively using it for their own benefit. In fact, such scenarios in which the commercial sector uses personal comments and maps of daily routines as an advertisement and market targeting tool are reality today, to the extent that nearly all daily activities are now subject to calculation:

...thanks to the development of interactive devices, leisure-time activities can become productive, to the extent that they can take place within a monitored space and generate demographic commodities. (Andrejevic “Monitored Mobility” 146)

M-commerce is also the area where the ‘art’ of calculation and prediction is successfully utilized for segmentation and fragmentation of users (or customers, to use more appropriate jargon). Real-time positioning and users’ preferences help in sorting out undesirable and desirable customers; and user-generated maps are used for commercial purposes by targeting the “right

audience at the right place” (McQuire *The Media City*). Such differentiations are precisely a ‘side-effect’ of calculative, predictable and matching practices that are deepening the gap between users, an argument I discuss on several instances in this thesis.

To be fair, there are indeed numerous emerging location-based tools and applications that appear not to fit the ‘efficiency’ discourse and are more likely presented as fun games and entertainment. The Psychogeography Tool¹⁹ is an example of a mobile application created by walkingtools.net and available for free downloads at Google Play App Store that allegedly encourages users *to explore* cities and get *productively lost*:

The Walkingtools.net Psychogeography Tool gets you out of doors *to explore* your cities, neighborhoods, and parks through becoming *productively lost*! The app first determines your location then *lets you choose a radius*, defining a circular area in which *a random location is chosen for you*. Using the walkingtools.net compass interface or Google maps, you can then attempt navigate to that random location. (Google Play webpage, emphasis added)

This application is also listed as part of a recent “revival of psychogeography” trend, as Popupcity explains on its webpage²⁰ and, as such, is one of the curious transitions from artwork to a platform developed for wider audience and commercial use. Both websites, Popupcity and Google Play, quote the same definition of psychogeography by Guy Debord from Situationist International published in 1955: “the study of the precise laws and

¹⁹ Psychogeography Tool
<<https://play.google.com/store/apps/details?id=net.hipergeo.psychogeo.activity>>

²⁰ Popupcity.net webpage <<http://popupcity.net/2012/01/trend-9-the-revival-of-psychogeography/>>

specific effects of the geographical environment, consciously organized or not, on the emotions and behavior of individuals.” The same definition provided inspiration to much of the psychogeography inspired location-based artwork, as I mentioned in the previous section. In the case of this project, *psychogeography* translates as exploration and discovery of urban space through randomness and spontaneity. However, as far as can be deduced from the above description, random locations will again be *chosen for the user and further navigated by the software*. Hence, what Debord envisioned as a *study* of certain effects on personal emotions and behaviors, which further suggests critical reflection, inquiry and subversive approach to imposed spatiality, is again outsourced to the software that facilitates supposed exploration and discovery.

As such, the Psychogeography Tool is, rather, replacing the potential critical reflection in process of spatial discovery with ‘playfulness.’ The playfulness itself would not be a problem if this were not a tool that presents itself simply to help users to *productively get lost*, to quote one user, who commented on the website “[psychogeography tool] does exactly what it sets out to do, a straightforward app to help you get lost!” (Psychogeography Tool at Google Play webpage). Looking back to Borgmann’s insights on the level of engagement and Heidegger’s thoughts on enframing nature of calculations, I am doubtful if such ‘productive’ software-based, getting-lost actually encourage any critical reflection in urban space, but instead implies a more *efficient and effective* getting-lost. To stay in the spirit of the current efficiency discourse, one will certainly get lost *faster, better and more* with such a tool.

Similarly, many location-based social-networking platforms, such as Foursquare²¹, encourage exchange and manipulation of geo-spatial material between users precisely by implying playfulness, and through the affordances such as to “earn points & unlock badges for discovering new things” (Foursquare webpage). Indeed, users are encouraged to explore urban neighborhoods and exchange information, but the question is whether such playfulness has any greater impact on analytical and critical engagement? What level of ‘meaningful’ exchange is on offer, and is there space for active participation to define and create surroundings by users over such platforms? After all, the analyze-your-location call, as I discussed at length in this thesis, *mobilizes* its users towards more *action*, but with often-ambiguous goals and beneficiaries. Despite the apparent innocence of many apps and platforms, in which users are playfully ‘getting lost,’ the trivialization of potential critical reflection and reaction is just another example how tactics, in the case of previously mentioned Psychogeography tool—Debord’s understanding of psychogeographical tactics—become absorbed by a strategy of those in power, in this case, the efficiency discourse.

We should not forget that artists’ approach is valuable, precisely for a *critical* and *hands-on engagement* with both technologies and current issues, and not for the possible ‘practical application’ of their ideas. Clearly, their practice should not serve as a model for potentially exploitable applications,

²¹ Foursquare is a mobile, location-based, social network: “Foursquare is a free app that helps you and your friends make the most of where you are. When you’re out and about, use Foursquare to share and save the places you visit. And, when you’re looking for inspiration for what to do next, we’ll give you personalized recommendations and deals based on where you, your friends, and people with your tastes have been.” <https://foursquare.com/about/>

but as a model for a probing and analytic approach to technologies themselves which Heidegger debates on in his famous essay, “The Question Concerning Technology.” In my final section in this chapter, I further investigate the possibilities for a probing and critical approach to personalized predictive and recommending analytical systems. I investigate the process of *naturalization* of such systems, in which they slowly blend in environment, become invisible and our ‘second nature,’ and their presumed appropriation through *technicity* and everyday use.

5.5. Naturalization: Between Appropriation and Peculiar Invisibility

This segment presents a short discussion on the contemporary everyday life marked by increased presence of personalized calculative technologies, and some speculations in relation to the supposed appropriation of such technologies to the city dweller’s benefit. As I present in Chapter 2, the great potential for inhabitants to negotiate and so re-shape the imposed spatial order, lays precisely through *living* in space and appropriation of technologies through everyday use, and not as much through activists’ raised questions, experts’ ‘advise.’ Furthermore, locative media artists may have been more comfortable with technologies and are therefore able to ‘play’ and experiment with it. The question is to what extent such aptitude translates to everyday life and practices of common city dwellers. It is my aim in this section to investigate the process of *naturalization* of calculative technologies, in which technologies disappear and blend-with-environment, and the concept of *technicity*, which presumes familiarization with pervasive everyday

technologies, in relation to the speculated possibilities to appropriate such systems. The main question is if software-sorted personalization at all allows creative misuses. In my attempt to do so, I will incorporate conclusions from previous discussions, especially those pertaining to the level of engagement, technological agency and *enframing* aspects of calculations. The very *if*, this possibility to appropriate technologies and use them for ‘active’ participation in critique of everyday life, is not simply given and self-contained in technologies and everyday use; it is implicated with the same mainstream discourses, which I underline in this section.

In Chapter 4, I analyzed important transformations relating to information technologies in urban space. The digital media, in general, obviously have a profound impact in the physical sense, but even more in the contemporary experience of space, as they mediate nearly every aspect of everyday life. The actual digital devices in today’s urban space range from those that are more ‘visible,’ such as urban screens, to those that are rendered as ‘invisible,’ like mobile phones, embedded sensors of all sorts, online geo-spatial data sets and similar. Nonetheless, even these less ‘visible’ ones have a significant impact on the experience of space precisely for their ‘discreet’ presence in everydayness. This trend in ‘invisible computing,’ miniaturization and integration of such technologies into environment, started from the late 1980s and early 1990s research labs, with Mark Weiser as the pioneer in the field, by slowly moving the focus from desktop computers to ubiquitous and so called *invisible computing* (Galloway). Weiser, in his now famous essay, “The computer for the 21st century,” describes: “The most profound technologies are those that *disappear*. They weave themselves into a fabric of

everyday life until they are indistinguishable from it” (Weiser 3). What his statement also indicates, beyond obvious miniaturization and physical invisibility, is the ‘invisibility’ in terms of their unnoticed presence, acceptance and integration of such technologies to the point that Thrift describes as *technological unconsciousness* (“Movement-Space” 177).

Technological unconsciousness [is] bending of bodies with environments to a specific set of addresses without the benefit of any cognitive inputs, a prepersonal substrate of guaranteed correlations, assured encounters, and therefore unconsidered anticipations. (Crang and Graham)

Digital technologies have been incorporated in urban everydayness to such an extent that they are probably more accurately described as ‘second nature’ to the environment. In other words, instead of becoming ‘old,’ new technology eventually turns out to be a ‘natural’ part of everyday life. Such a *naturalization* process, on one hand, suggests the natural proficiency with such technologies, but on the other, naturalization suggests quite opposite. This so-called technological unconsciousness does not necessarily refer to the users’ confidence in understanding of the technology, quite contrary; it refers to ‘comfort’ and ease that comes out from effortless and undemanding use of the device, as Borgmann would argue. Even though we may become comfortable within such systems, that does not necessarily affirm our engagement with the underlying processes, as Borgmann argues. Even more so, by the time the technological system penetrates everydayness on so many levels the ‘other way’ is rendered beyond description and imagination, all the while, the origin and fundamental conception is seldom questioned (Thrift

“Movement-Space”; “Non-Representational”). Technological unconsciousness also indicates the understated role these miniature technologies actually play in everyday life. Hence, even though unobtrusiveness and unconsciousness, on one hand, imply a seamless effect on urban landscape; on the other hand, these aspects, even more so because its *invisibility* alerts us to this contemporary *unawareness* and the *lack of engagement* with the exact processes that translate our understanding of reality and spatiality.

Thrift and French underline this point by arguing that cities are already relying on ‘invisible’ software to such an extent that we may rather speak of *automatic production of space*. As a result, everyday urban experiences, digital mobile media and information converged forming what numerous theorists named ‘hybrid,’ ‘sentient’ (in Crang and Graham), ‘animated’ spaces (in Crandall), ‘Media City,’ (McQuire *The Media City*) and others, many of which I already mentioned in previous chapters. Software and code, therefore, as a kernel of pretty much every technological device today, augment, supplement and facilitate people in their daily tasks and routines to the point they became ‘invisible.’ It is precisely this invisibility that urges to shift our investigation from “who or what is observing, toward one regarding the practice—“the nature of the program at work,” as Crandall observes (84). Dodge and Kitchin (*Code/Space*) define this software-mediated spatiality as “code/space” in which code contributes to complex discursive and material practices, producing eventually complex spatiality “the power of code to transform everyday life is not simply a function of extent or pervasiveness or visibility, but primarily of effect (169). It is, therefore, correct to say that

everyday practices, as well as the spatiality and sense of place that indeed develop through daily tasks and routines, are re-fashioned precisely by this ‘invisible’ politics of software. Similar to ‘invisible’ information networks, as I analyzed in Chapter 4, invisible software devices are more often embraced as they promise increased productivity and efficiency and give impression of democratization and empowerment while subduing the role of the power structure.

As briefly discussed earlier in this thesis, Thrift on the one side discusses the controversial nature of “technological unconsciousness” (“Movement-Space” 177), but on the other, he still believes contemporary human is adopting and adapting to the new ways of thinking and functioning, developing new forms of intuition in what he terms “movement-space” (593):

New qualities might become possible which assumed this enhanced calculativity as a space-time background through an array of new co-ordinate systems, different kinds of metric and new cardinal points, backed up by much enhanced memory and a certain limited predictive capacity. This background would enable new movements to occur, against which all kinds of experiments in perception might become possible, which might in turn engender new senses, new intelligences of the world and new forms of ‘human’. (596)

It is left to investigate these new qualities Thrift discusses with particular attention to the analytical and critical engagement that such technologies might enable. Is he referring to the same qualitative change Marcuse debates? For Marcuse, the problem lies in this predominant ‘one-dimensional’ ideology embraced by the discourse of efficiency and supported

by calculations within the sphere of actualities and, in fact, excludes unforeseen, new ‘potentiality.’ Thrift too, maybe not in the same sense, recognizes that enhanced calculation is “allowing all kinds of entities *which could be imagined but not actualized* finally to make their way into the world” (594, emphasis added). However, the question is whether, and under which terms, enhanced calculation allows beyond the imagined (in this case beyond quantified)? While software indeed induced and *intensified flows*, in terms of speed and volume of information permutations, more importantly, the *flow* itself is *designed and limited* by the ordering and calculative nature of code (among others), for e.g., what operation it does, or what it does not. As reminded by Heidegger’s insights on calculations, and by Douglas Thomas in regards to software and code, they are *inevitably normative* (Thomas, qtd. in Dodge and Kitchin *Code/Space*). As such, predictive and recommending software is programmed to identify which property, to decide where it belongs, to measure its values and relations to other properties, all within the scopes of predetermined values and relational possibilities, whatever these may be. While no system can, indeed, ever totalize itself, including the myth of perfect visibility and predictability of Intelligent Cities, the point is that such new potentialities cannot be foreseen and calculated.

Even though ‘naturalization’ and ‘technicity’ appear to align with De Certeau’s belief in capacities for symbolic interpretation of everyday practices, we have to remember that the very same symbolic interpretation, for De Certeau, critically depends on the invisibility of such practices and ‘room for maneuvers’ *outside* of the mainstream gaze. Equally, Lefebvre’s interpretation of *autogestion* argues for autonomy and integrity of everyday

life. According to him, we need to preserve *some space outside of the domain of state calculations and formations* in everyday life, and precisely these pockets and voids of everyday life will serve as a test-bed and a space for positive social failures, in other words, a space for potential critical and analytical re-thinking of imposed spatiality. But, does predictive and recommending software leave any space for ‘misuse,’ symbolic interpretation and critical reflection within designated flows; in other words, limits and nature of code?

‘Naturalization’ of a certain technology, without a doubt, extends far beyond technological specifications, and includes the conceptual predicaments and essential characteristic of technologies that have been accumulated and appropriated over time by people and environment (Thrift “Movement-Space”). This complicated interrelationship, if looked at through Thrift’s 3R’s of contemporary urbanism outlined in the introductory chapter of this thesis, on the one hand, shows software that enables ‘new social relationships’; this software is nonetheless susceptible to the new forms of ‘representation’ and shape new discursive practices; which, in return, shape new ways of ‘reaction’. Similarly, Dodge and Kitchin argue that software has the possibility to change in practice and develop more through its ‘technicity’—programmability, possibility to enhance with new functions, networking, plasticity, openness to unpredictable input, and others (Dodge and Kitchin “Code”; *Code/Space*). In their work “Code and the Transduction of Space,” the authors emphasize once again the important point that “the tool emerges *in situ*” (Star and Ruhleder, qtd. in Dodge and Kitchin “Code” 169), attempting

to emphasize, once again, that the technicity of technology emerges through and in the context of the practice and use:

Technicity refers to the extent to which technologies mediate, supplement, and augment collective life; the extent to which technologies are fundamental to the constitution and grounding of human endeavor; and the unfolding or evolutive power of technologies to make things happen in conjunction with people.” (Dodge and Kitchin “Code” 169)

Crang and Graham further differentiate among several channels of appropriation in the contemporary over-coded environment. One is the domain of the so-called “augmented space” that enables a significant level of inscribing user-generated content, seen in various forms of annotated maps. Such platforms also come with limitations, such as the theme and length of content, and so on. Another level is what Crang and Graham term “enacting space,” actual technological characteristics and affordances that enable only certain practices, and not others. The last listed by authors is the domain of “transducting space” perpetual and iterative process of understanding and appropriation of technology coming out of everyday practices (Crang and Graham), which relates to previously mentioned *technicity*. In a quest to detect such iterative process within predictive and recommending services that are beyond the stipulated feedback, technological affordances and discursive construct of its use, to add to the list outlined above, I will turn again to the everyday practices affected and implicated in various analytical tools.

Analytical and interpretive informational services, of all sorts, are indeed becoming an inevitable ‘technological unconsciousness’ to everyday

life. However, such services are ‘naturalized’ as a necessary utility network, as described in this thesis thus far, and as such shaping the social understanding of space through the everyday software-sorted utilization. As I mentioned before, it is not the actual space that is determined, but the *flow*, the way the space will be understood and utilized. Therefore, aspects such as quantification, efficiency compliance, productivity, competitive advantage and compulsory feedback conduct their users towards the certain appreciation of space, in which, I argue, there is not much space (or time) for analytical and critical reflection.

Concepts such as *personalization*, *networking* and *information potential*, all discussed in this thesis from different perspectives, contribute together to the presumed active participation in space, and to the overall empowering feelings surrounding location-based media in a pursuit of user-generated cities. An amalgam of very similar concepts suggest a new kind of user-generated cities and communities enabled by mobile technologies and exchange over mobile networks, presented in “Networked Spaces, Emerging Communities” talk as: *Peer-To-Peer Cities (PTP)*, *Open Source Cities*, *Commons Cities*, *Hybrid Cities*, *Platform Cities*, *Crowd Sourced Cities*²² (Bernardo Guitérrez from Futura Media, speaking at Harvard in September 2012). In fact, many theorists and artists envision new individual “awareness” in cities using the ubiquitous technologies that will further draw people towards an active participation in space; proposing possibilities to co-create cities, as discussed earlier in this thesis:

²² Bernardo Guitérrez, from Futura Media, quoted on blog <<http://blog.p2pfoundation.net/creating-networked-urban-spaces-to-support-emerging-communities/2012/09/26>> From Guitérrez’ talk “Networked Spaces, Emerging Communities” presented at Harvard, September 2012. Link to Guitérrez’s presentation <<http://prezi.com/onzrbg2qadeo/networked-spaces-emerging-communities/>>

It is possible to give shape to a scenario in which the concepts of citizenship and political representation can be reinvented, tending towards a vision in which people can be more aware and benefit from added opportunities for action, participating in an environment designed for ubiquitous collaboration and knowledge which is multi-actor, multi-stakeholder, in real-time: the city. (Iaconesi and Persico²³)

Similarly, Crandall, new media artist, sees an opportunity in citizen-activated social data analysis “to optimize analyses, providing “megacity managers” [...] with more effective and timely information required to manage sustained development” (Crandall 81). Yet, the author himself questions if it is possible to cultivate an “ethic of dynamical co-presence” in the megacities when the same “participatory tracking can easily turn into a (non) participatory targeting” (Crandall 81). As I previously discussed, such practices often become assimilated by the culture and entertainment industries, or popular discourses that promote efficient performance. Crowdsourcing and crowdfunding models have been also adopted by the commercial management sector, often as a valuable ground and an indication where the potential business might be: “Crowdfunding sites are often a good indicator of market trends, and quantified self tools are among the most successful” (Moschel). As illustrated earlier in this thesis, with SenseMaker application, employees’ feedback is used to yield a diversity of opinions, to reach faster and more creative decisions. Yet their participation is most beneficial for generating profits (which most likely gets unevenly distributed within the company) and

²³ Salvatore Iaconesi and Oriana Persico. “Ubiquitous Infoscapes: New Forms of Awareness in Contemporary Cities.” *Journal of the New Media Caucus*. 8.2 Fall (2012). <<http://www.newmediacaucus.org/wp/ubiquitous-infoscapes-new-forms-of-awareness-in-contemporary-cities/>>

can potentially be used for selecting and discriminating between employees. The main problem, I argue, is that employees themselves do not have a clear outlook on the strategies and underlying software-sorted practices. Their level of engagement with such a system is reduced to providing, often compulsory, feedback.

This interchangeability of the user-generated concept, and therefore personalization as well, is precisely what adds to the ambiguity of presumed active participation in space, for, on one hand, it is enabling individual contributions in the form of critical annotations, inscriptions, diversity of perspectives; and on the other, quite the opposite, personalization is automatically extracted through narrowcasting. Information potential is equally exchanged, between Intelligent Cities discourse and the trend towards visualizing “the city built of data,” described as empowerment through urban data visualizations in Flowing city webpage as “making the city smarter with data” (Flowing City webpage, designed and managed by Margarida Fonseca). New infographic and mapping techniques may indeed bring awareness of certain issues; however, infographic alone does not encourage personal engagement and critical reflection.

Personalization and performativity appear to location-based media users as attractive concepts, anticipating a way to appropriate technologies to our own benefit, and an empowering reaction to supposed attempts for centralized control. However, as we can see, the same aspects are presented as predisposition for the envisioned appropriation through everyday practices, such as annotation, visualization and exchange of personalized spatial content; analytical platforms turn personalization into the software-sorted

customization and guidance; networking and exchange into efficiency compliance and competitive advantage; and new awareness and active participation into individual risk-management and normalization. Interestingly enough, I opened this thesis with lines from Sam Altman, who was then CEO of Loopt mobile networking platform, and one of the first to announce personalization as an innovative form of distilling ‘meaningful’ information to its users. In March 2012, Loopt was acquired²⁴ by Green Dot, to focus on mobile banking application development, and a year later Techcrunch webpage announced that the Loopt acquisition “bares some fruit” (Cutler), referring to launch of a new mobile application GoBanking. This peculiar twist to Altman’s original promises for meaningful and personal information with the “incredibly informed guess,” only serves to further highlight my argument in regards to the ambiguity of such personalized mobile technologies, which as it seems, ‘perform’ the best in terms of economical advantage and daily life management (for instance, mobile banking).

Without a doubt, city-dwellers do continue to *act* in space in various manners, producing distinct spatiality, and the decision-making is still, arguably, in the hands of the user. As much as any other consumer, users of predictable analytics still wield power over “perceptual labor,” as Thrift notes (“Movement-Space” 593). However, the perceptual labor does not assume the power over calculations, and what is seen is processed and returned as a feedback (Thrift, after Cetina’s clearings), thus leaving an individual as an “instrument of seeing” (593). Equally, decision-making based on processed

²⁴ Acquisition announcement “Green Dot to Acquire Loopt,” on *Business Wire*, March 2012, <http://www.businesswire.com/news/home/20120309005422/en/Green-Dot-Acquire-Loopt>

feedback becomes an *instrument* of new governmental strategies aiming to detect *normal* vs. *abnormal* among population, as Foucault describes. In spatial terms, we may think of conditioning towards desirable activities on account of undesirable, and greater differentiation and segregation, achieved over a self-regulation against the software-calculated standards and matching. Hence, quite contrary to the active participation in terms of critical and analytical reflection, which Lefebvre and De Certeau argue for, performance and personalization in space is preoccupied with risk-management, efficiency compliance and required participation. The decision-making is mediated and fashioned by software, or to use more popular terminology, it is *navigated by* software. Such conception of navigation transmits the control over instruments from the hands of users to the instruments themselves (software-sorted recommendation services). The journey itself, even less the control over instruments, is not that much of a matter, as long as the goal is met—to reach the desired destination on time, without the discomfort and frustration of being stuck in traffic congestions.

Therefore, the important ‘lesson’ for such visions that embrace active participation, I would like to conclude, is to ensure that the citizens as ‘megacity managers’ in fact discuss what kind of development, optimization and effectiveness; and for whom exactly? Equally, when discussing ‘urban sensing’ and ‘participatory sensing,’ Crandall identifies the need for “critical engagement” towards the same calculative practices, with “both reductive and extensive” critique (86). He suggests working with the program and expanding its programming potential, on the one side; but also a critical ‘uncovering’ of agency, structuring principles, tendencies, default spaces and settings, on the

other side (86). As such, proposed concepts should not just represent technical skills to operate and build monitoring systems of one's environment, but a community of citizens that will employ a critical approach to 'monitoring' environment when they connect, share and discuss their results, for individual or collective goals.

Thus, my central suggestion that arises from the discussion in this chapter, and the thesis in general, is to ensure, not only an awareness of issues that are further down presented on user-generated maps; but also to ensure a *space* for an in-depth discussion of the complex implications that arise in result (and in spite) of such visualizations and supporting calculative systems. Which brings us back to another Heidegger's position—on the task of thinking and the question of unconcealment. To remind my readers, for Heidegger, unconcealment is not only the question of revealing what has been concealed, but even more importantly, I argue, is the question of revealing the "self-concealing of the opening of presence, from which unconcealment can be granted to begin with" (390-1). This is only possible if we let the concealed present and open itself to us, and let such openings "say something to us," to use Heidegger's words. To ensure that, new utility systems, in this case personalized location-based systems, once set in motion and become 'natural,' provide 'space' and allow discussion beyond what is simply revealed in our spatial-databases and fashioned by the software.

CHAPTER 6: CONCLUSIONS

Active Participation in Space: In Between Calculability and Incalculability

Alpha 60: I shall calculate so that failure is impossible.

Lemmy Caution: I shall fight so that failure is possible.

(*Alphaville* Godard)

This quote from the movie *Alphaville*, directed by Jean-Luc Godard in 1965, quite charmingly summarizes my efforts to convince my readers of what I suggest is a complicated relation of *active participation* in urban space with personalized predictability and calculability. Informed mobility is an attempt to mobilize the population towards everyday calculations with the assurance it will secure their future; yet, to keep such a promise is impossible, even delusional. With efforts to clear our future of unpredictability, we are in fact clearing (reducing) our analytical capacities to respond to such inevitable unpredictability. In all our efforts to calculate so that failure is impossible, we are losing ground for positive failure, our test-bed for the current efficient technological and organizational system. Therefore, it becomes urgent to either re-define existing or to define appropriate channels outside of the prevalent ‘personalized’ predictive analytical tools and recommending services.

I began this thesis by discussing the promise of ‘meaningful spatiality.’ According to the current developers, location-based technologies and spatial analytical platforms will supposedly deliver, at our own convenience, personalized spatiality; as Altman puts it, predictive recommendations that “matter here and now.” While being presented by mainstream developers as

empowering for the supposed active reconstruction of space, location-based services and analytical platforms are envisioned as another urban utility network, being active, in the context of outsourced and predictive analysis and calculations, puts a strain on actual involvement and participation in space. I have, therefore, ventured to investigate the ambiguity of promised active participation in space, with tools that are supposedly empowering, and within the discourse of efficient spatiality that calls for such active involvement. If active participation with predictive and recommending services is, in fact, required by the mainstream efficiency discourse and reduced to the set of technological predicaments, my question is, how *active*, really, is such imposed active participation, in terms of critical reflection in urban space and negotiation of spatiality? Predesigned and visualized relations of interactions, software that determines—and facilitates—the terms of exchange, replacing cognitive and sensorial functions to the supposed user's benefit, clash with what Lefebvre and De Certeau had in mind when discussing the crucial element for spatial negotiation. Instead of simply claiming that the imposed spatiality and technological system will simply be appropriated through everyday practices, as it 'always' has been, I set out on a quest to show that mediated and calculative participation is, in fact, antithetical to actual engagement with both tools and spatiality that is shaped in interaction with such tools in everyday life. Thus, I highlighted what I argue is the vital element for the space of contestations and negotiations. While appropriation indeed occurs through active engagement of city dwellers in their everyday practices, true active engagement in terms of negotiation and critical reflection remains *outside of the domain of calculations*, as I take the freedom to

summarize in this chapter. Such a space is always outside the domain of the formed, visible, and even imagined and, as such, *cannot be calculated and predicted*. It is formed spontaneously; it represents a gap, or a void within formed space, that allows for potential positive social ‘failures.’ Such failures, as Lefebvre argues, play a crucial role as a spontaneous test ground for current forms and structures. Such a void in interpretation leaves enough room to maneuver, as De Certeau calls it, for the necessary symbolic interpretation, which is again at the heart of the ‘negotiating’ practices. I further support their arguments with Heidegger’s insights on enframing and the reductive nature of calculative practices and his stance towards allowing openings so the concealed can “say something to us” (“The End”); Marcuse’s discussion on dialectical struggle between potentialities and actualities; and Virilio’s position on mediated perception and reversed visibility. All of them claim the same, based on their unique perspectives: incalculable, unpredictable and unformed, both perception and thinking, allow for active critical reflection and analytical powers. Using their points as a stepping-stone, I argue that true active participation can only take place outside of calculations and, as such, predictive and recommending location-based services do not exactly encourage and enable active participation, but instead facilitates the necessary participation in support of the mainstream system of power. Thus, I venture on a quest to reveal obscurities and ambiguities embodied in this contemporary call for active participation in urban space.

In Chapters 3 and 4, I showed the contemporary strategies of systems of control that attempt to absorb active participation, through a compulsory participation and efficiency discourse, for the stability of the system of control

itself. Risk-management and individualization of risk, as discursive constructs, are reflected in current urban fantasies and imaginaries of personalized mobile lifestyle and the discourse of information potential that necessitate it. As such, the commercial application of location-based technologies replicates the notion of performance in terms of efficient personal time-space management, as shown in this thesis. It is believed that, to overcome anticipated fears of total control that may occur with a centralized system of power, individuals would willingly embrace self-regulation through personalization. Yet, as we begin to realize, promoted ‘personalization’ lends much to crafting ‘customized spatiality’ and, as such, may rather represent a form of consumerism than alleged empowerment and user-control over technologies and the system on power.

While it is said that predictive and recommending location-based technologies enable more activity in urban space, in reality, it renders such activity compulsive and reflexive behavior within the domain of the normalizing curve, as Foucault would say, which stands in contradiction with empowerment promises. Even over three decades ago, in 1978, Foucault had already recognized that supposed individuation and personalization are false forms of empowerment; and that normalization and optimization are part of the new and advanced strategy of control in which we all get precisely what we want, in which case, any failure must surely be our fault, as well as our supposed choice whether to participate or not. This, of course, has high implications on accountability and responsibility, transferred to each individual to manage risks and supposedly ‘shape his/her own destiny.’ This explains why many continue to adopt and embrace mobile lifestyles and

adjunct applications, which are supposed to make our lives easier, at the same time keeping up with efficiency compliance and preserving our competitive advantage over others. Within such a discourse of technologically driven efficiency, an active participation becomes a necessary and efficient compliance through self-conduct and self-normalization with recommending and predictive data analytics. Under circumstances in which participation becomes obligatory in order to provide feedback and everyday urban life is more and more implicated in mediated perceptions and outsourced calculations, active participation and, therefore, appropriation through personalized and predictive calculative practices is questionable.

Outsourced analysis itself, but even more so with predictive calculus, directs the focus of analysis from the core to arbitrary and irrelevant issues, as I elaborated in more detail in Chapter 5, with insights from Borgmann, Marcuse, Virilio and others. In effect, the principle of narrowcasting, under which such technologies operate, reduces our vision and, thus, our perceptible reality to the range of ‘personalized’ issues (what matters to one here and now). In doing, so they steer attention from overarching politics of development and implementation of such networks to the range of software-sorted quantitative aspects that is supposedly relevant to each individual; all the while encouraging actual disengagement with the technology itself, as processes become automatic, effortless and ‘invisible.’ I also introduced alternative practices of location-based media that the ‘pioneers’ of locative media art envisioned. Such practices, as I showed, reflect the desire for alternative ways of participation, proposing creative alternations in the experience of space, user-control and appropriation of location-based media.

Their practices further underline the necessity for conscious and reflective engagement with actual technologies and in analytical processes, quite contrary to what is suggested by mainstream development. Therefore, in the process of ‘naturalization’ and ‘normalization’ of such analytical tools in our everyday lives, we should make space for proficiency and actual engagement in operating such tools, to begin with.

As I already discussed in this thesis, the automatic sensing only starts with arbitrary and ‘innocent’ issues such as hailing a cab. CabSense, to remind my readers, “uses your current location to find the best street corners near you to hail an open cab” (*Cabsense.com*). This app will display the results, a perfect match, on an *interactive map* and will “automatically point you in the right direction.” Interactivity therefore relates to the real-time update of automatically sensed and collected data, and/or to the preset preferences, such as an option to calculate and plan in advance: “Set the date and time you plan to leave and see the corner you should walk to.” The personalized recommendations are, again, extracted from an automatic match between the real-time location data of both open cabs and potential users and with predictive software that will learn and deduce from the patterns of use.

The biggest problem in this case is not even the fact that such an application does not require any cognitive nor sensorial skill. The problem, potentially, is the fear of ‘wasting’ time, and making sure this time is ‘wisely’ used. Even more problematic, I believe, is the representation of the space through the ‘eyes’ of such interactive maps and the reality that they inform, such as, for instance is Mappiness²⁵—the ‘interactive’ map of happiness. The

²⁵ Mappiness website <<http://www.mappiness.org.uk/>>

Mappiness application, free for download on iPhone, is part of a research project by the London School of Economics, which

...maps happiness across space in UK,” as they claim on their webpage. Users will receive ”interesting information about [their] own happiness [...] including when, where and with whom [they’re] happiest.

The happiness data is generated from users’ checked answers on their self-reported level as to how happy, awake, and relaxed they believe themselves to be; additional information is also automatically collected, such as the noise level at a given location and their location (e.g., home, workplace, elsewhere). The researchers are particularly interested, as the website explains, “in how’s people’s happiness is affected by their local environment—air pollution, noise, green spaces, and so on—which the data from Mappiness will be absolutely great for investigating” (*Mappiness.Org.Uk*).

During the course of this thesis, I have pointed to some of the most problematic issues with this and similar platforms and applications: to actually quantify what is otherwise non-quantifiable and implicated with complex context and discursive practices and, in doing so, reduce understanding of our surroundings to a limited range of variables. An even bigger problem is the illusion we have is that such maps present the (one and only) accurate account of our surroundings, which I trust Heidegger would argue as well, leading to our decisions that are made on the basis of these maps. Hence, the quantitative charting of happiness and likeness, based on self-reported levels of ambiguous concepts, and cross-referencing with other variables such as noise level and the presence of trees at the location (mentioned as one of the variables at the

Mappiness website), shapes and reduces or, to use Heidegger's term, *enframes*, our understanding of happiness and also our own introspective capacities and the actual search of what makes us happy.

Soon enough, such happiness maps could become the source of endless abusive manipulations, since in a very similar way and based on maps similar to the Mappiness, our predictive software learns what we "like" and decides what we may like. Let us recall the Citysense application that "learns about where each user *likes* to spend time," and the practical utilization of such machine learning processes:

it processes the movements of other users with similar patterns [...]

Citysense will not only answer "where is everyone right now" but "where is everyone *like me* right now" (emphasis added).

Livehoods maps,²⁶ an innovative platform for studying "social dynamics, structure, and character of cities on a large scale," similarly explains how their maps and information are generated:

Given data from over 18 million foursquare check-ins, we introduce a model that groups nearby venues into areas based on patterns in the set of people who check-in to them. By examining patterns in these check-ins, we can learn about the different areas that comprise the city.

(Livehoods website)

²⁶ Description from the Livehoods website: "The Livehoods Project presents a new methodology for studying the dynamics, structure, and character of a city on a large scale using social media and machine learning. Using data such as tweets and check-ins, we are able to discover the hidden structures of the city with machine learning. Our techniques reveal a snapshot of the dynamic areas that comprise the city, which we call Livehoods. Livehoods allow us to investigate and explore how people actually use the city, simultaneously shedding light onto the factors that come together to shape the urban landscape and the social texture of city life, including municipal borders, demographics, economic development, resources, geography, and planning. Livehoods is a research project from the School of Computer Science at Carnegie Mellon University (Livehoods.org).

Surely, as I have discussed at various segments in this thesis, such platforms are not legally enforced (yet), as much as this necessity is presented as ‘choice.’ But, with the current rate of implementing such networks and interactive platforms becoming a necessary part of everydayness, the option to either participate or not, is not exactly an option. Exclusion from the system, even if on a voluntary basis is, in a sense, marginalization and condemnation.

Therefore, before we simply opt-in or opt-out, we need to carefully rethink and redefine this current efficiency-driven active participation, addressing precisely the overarching issues that such an increased need for calculative analysis creates in everyday life. This overall ‘trend’ to precisely quantify, calculate, predict and recommend, as I underlined at several junctures, not only relates to spatial analysis, but encroaches on all aspects of everydayness, makes vulnerable the power of everyday practices to reclaim and negotiate imposed spatiality, by absorbing and diluting the critical reaction.

Such an ‘atomization’ of city dwellers, as Marcuse and Virilio would say, shows that such a supposedly empowering technological system indeed encourages efficiency; but, as Andrejevic argues, it is the efficiency in which individuation (and, therefore, this current ‘personalization’ as well) becomes a perfect tool for the sorting and matching and, in doing so, serves only to preserve the existing or, at the most, delineates new inequalities, instead of supposedly erasing them. Personalized analytics, offering software-sorted matching and exchange with others in the network, therefore only facilitate the contemporary software-sorted city, as Graham and others have elaborated.

The main goal of this thesis was to reveal problems and issues brought about with fantasies of intelligent cities and information potential, of which participation in the form of a mobile lifestyle and increased calculability and predictability in everyday urban life becomes an imperative. My particular focus was on the presumed active participation by city-dwellers in co-producing the social meaning of urban space: re-thinking, negotiating, tweaking, and testing imposed and represented spatiality. Yet, the very notion of active participation, the so-called analyze-your-location call, as I pointed out, is implicated and complicit with the overarching efficiency discourse. Therefore, it is crucial to demystify such supposed ‘active participation’ implicated with interactivity and compulsory feedback through the contemporary mobile lifestyles.

In order to do so, my intention was to complicate and problematize the ‘commonsensical’ ideology of efficiency, the language of practicality and apparent personalization and customization in which predictive analytics and recommendations are involved, specifically in relation to the emancipation and empowerment with such calculative technologies on account of analytical and critical powers. My concluding argument is that such simple-to-use, ready-made applications or, even worse, with automatic sensing and calculations, will change little or nothing, except for the minority of those who own and create such tools. We need to complicate our current urban/technological system so as to increase the level of critical and analytical engagement. That said, not only do technologies need to be more complex, and require more attention and engagement, but more importantly, our actual

involvement with issues, development and implementation needs to become more complex too.

I am aware that such a suggestion is the direct opposite of the current trends to make our life easier and ordered. Yet, as discussed with insights from Borgmann, Marcuse, and Virilio, easy and ordered are in itself just constructs, and with the current race to achieve such *effortless lifestyles*, our lives are in fact becoming more and more complicated. This apparent *effortlessness* of everyday life is undermining the very same active participation that is promising to encourage, by diluting our analytical powers, as well as pushing towards, the less relevant issues that are of no crucial and strategic value for the stability of the system of control. Personalized calculations, even more so, predictability and recommendation systems, ensure the stability of the system by setting and enforcing the rules of interaction through calculation and the very urge to calculate.

I am also aware of the fact that I am not able to ‘produce’ an effective solution to the problems detected over the course of this thesis, even less so to produce an attractive application or a computation that will somehow just make sense of all the ambiguities. Quite on the contrary, I claim that the solution is precisely in the incalculability of a solution, and the ambiguity of a sort, in a *process of searching for a solution*, and not in offered solutions themselves and supporting discourses, such as the ambiguity of active participation with perfectly defined analytical tools in urban space. As I, among others, have argued in this thesis, the solution to a problem, whether is urban or any other, is not that much in defining it and setting its course: calculating, predicting and preventing it from happening; but precisely in

allowing concealed ‘problem’ reveal itself to us, and leaving it open for the discussion. This is something that Heidegger argues in his essays “The Question Concerning Technology” and “The End of Philosophy and the Task of Thinking,” and with which, I believe, both Lefebvre and De Certeau would agree.

In that sense, art practice, which I mentioned on several occasions, has an important place in this thesis. The foundations of location-based media use, as we know it today, were, by and large, set in the field of locative media art, particularly in terms of the conceptualization of related ideas. Many of those concepts were later absorbed and exploited by the mainstream commercial sector. However, art practice, as I highlighted before, should not be used as a recipe for commercially exploitable applications, but rather, to implement an artistic *approach to technology*, which Heidegger discusses as well, especially in terms of leaving the space (openings) for both issues to surface and be discussed about, as I mentioned a few lines earlier. This would imply a holistic approach to the concepts and issues addressed, engaging experimentation with technologies, building tools *in situ* and so on, in place of ready-made, easy to use applications and, even worse, automatic sensing and analytics. Therefore, when I say *outside of the domain of the calculative*, I do not necessarily dismiss calculation; rather, I am referring to the awareness of the reality that is ‘outside’ of the reach of such platforms and networks that claim to visualize it; and the awareness of the fact that the very ‘outside’ is, in fact, a product of the ‘inside.’

I also refer to the dangers of enframing and automating our understanding of everyday urbanity, especially the more abstract aspects, such

as happiness and livelihood, aspects that are incidentally crucial to understanding our surroundings and, as such, for actual participation in cities. *Understanding* of our surroundings should not be left to automatic sensing and analytical platforms, since the same understanding informs our critical and analytical capacities and, as such, affects the active participation of city dwellers in negotiating imposed spatiality.

Perhaps it is not by accident, then, that the main villain in the above quoted movie, *Alpha 60*—the centralized sentient computer system in control of the entire city—is destroyed by the power of poetry (which is very reminiscent of Heidegger’s artistic approach to technologies as elaborated in his essay, “The Question Concerning Technology”). The main character, a detective, is not an artist himself, but one who takes the ‘artistic’ approach as the last resort against the “evil logic.” Jean-Luc Goddard’s *Alphaville*, since directed in 1965, reflected the fear, at the time, from the centralized control, in attempts to erase an urge for individuation and imagination:

His whole theme, imagination versus logic, is consistent with his deployment of Paris as it was in the ’60s—or at least, those portions of Paris which struck Godard as architectural nightmares of impersonality. (Sarris)

Yet, the computerized principle behind the potential source of power, in this film represented through the centralized responsive computer system that at one moment of discussion says: “I shall calculate so that failure is impossible” (*Alphaville* Godard), predicts to a remarkable accuracy, of course unintentionally, today’s efforts of current system of power to maintain control through the real-time responsive calculations and elimination of potential

failures (risks) and unpredictability. Only this time, with supposed *personalization* and *sentient mobile location-based utility network* at stake, it is not individuation and imagination in itself, but the potentiality of urban dwellers, as true active participants, to re-invent and re-negotiate an imposed *logic*, which today is the discursive construct of efficient spatiality.

In the context of efforts of the system on control to abduct and incorporate active participation through obligatory calculation, prediction and outsourced analysis, we should indeed “fight so that failure is possible”; in other words, we should fight for the potentiality of Lefebvre’s positive social failure. Risk calculations and predictions that will allegedly support the effort to eliminate failure by eliminating the incalculable are, therefore, inducing the very risk they attempt to clear existence of, the risk of losing ground as a test-bed for all the uncertainties and risks to come.

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