MOBILE TECHNOLOGY AND THE CHALLENGE TO PROMOTE A COMMUNICATIVE CITY IN INDONESIA. CASE STUDY BANDUNG METROPOLITAN AREA

By

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To my mother, my wife Astri, my daughter Athaya, my son Abyan
To my mother and father in-law
To our big families in Bandung and Garut, thank you for your patience and prayer
May Alloh SWT is always with us

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LIST OF ABBREVIATIONS

BAPPEDA	Regional Planning Board (Badan Perencanaan Pembangunan Daerah)
BAPERTARUM	Advisory Agency of Civil Servants Housing Savings (Badan Pertimbangan Tabungan Perumahan Pegawai Negeri Sipil)
BAPPENAS	National Planning Board (Badan Perencanaan Pembangunan Nasional)
BKPRD	Regional Coordination Board of Planning (Badan Koordinasi Penataan Ruang Daerah).
BKPRN	National Coordination Board of Planning (Badan Koordinasi Penataan Ruang Nasional)
BMA	Bandung Metropolitan Area.
IAP	Indonesian Association of Planner (Ikatan Ahli Perencana Indonesia).
Kabupaten	Regency, the government tiers in local level within provincial area.
Kecamatan	District, a subdivision of administrative territory within regency or city.
Kelurahan	sub district, a subdivision of administrative territory within Kecamatan.
Kota	city, it can be interpreted into two category, city as functional urban area or as decentralized city which has the same level with regency.
Metropolitan	large sized city and its surrounding area (suburban area) which consists of one decentralized city and one or more regencies as its suburban area.
MUSRENBANG	Consultation of Development Planning (Musyawarah Perencanaan Pembangunan).
PU	Public Works (Pekerjaan Umum).
RPJM	Medium Term Development Plan (Rencana Pembangunan Jangka Menengah).
RPJP	Long Term Development Plan (Rencana Pembangunan Jangka Panjang).
RKP	Work Plan Development (Rencana Kerja Pembangunan), a short term development plan.
RT	(Rukun Tetangga), a neighborhood unit, a subdivision of administrative territory within RT.
RTRWK	Regional Spatial Plan in Kabupaten or City Level (Rencana Tata Ruang Wilayah Kabupaten/Kota).

RTRWN	National Spatial Plan (Rencana Tata Ruang Wilayah Nasional)
RDTRK	Detail Spatial Plan, for functional area within regency or decentralized city (Rencana Detail Tata Ruang Kawasan).
RTRWP	Provincial Spatial Plan (Rencana Tata Ruang Wilayah Provinsi)
RW	(Rukun Warga), a group of neighborhood unit, a subdivision of administrative territory within Kelurahan (Rukun Warga).
SKPD	Local government units (Satuan Kerja Pemerintah Daerah)
SOTK	Organization and working procedure of governmental bodies (Satuan Organisasi dan Tata Kerja)

Abstract of Dissertation Presented to the Graduate School
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MOBILE TECHNOLOGY AND THE CHALLENGE TO PROMOTE A COMMUNICATIVE CITY IN INDONESIA. CASE STUDY BANDUNG METROPOLITAN AREA

By

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The objective of this study is to assess the role of mobile technology to promote a communicative city in Indonesia. The focus is on mobile technologies as symbols of the latest information and communication technology (ICT). Communication influences the capacity building of the governmental planning employees' to conduct better planning management. This will be examined through a case study of the Bandung metropolitan area, West Java Province, Indonesia to see how it influences select governmental planning employees. The study is supported also by interviewing mobile technology actors and studying the efforts in implementing mobile technology at the neighborhood (the case of Solo) and city (the case of Surabaya) levels.

Based on the structured interview of governmental planning employees in planning related offices within Bandung metropolitan area and in promoting a communicative city overall, the evidence suggests that mobile technology is important to enhance planning activities and consequently capacity building of governmental planning employees. It suggests that mobile technology be encouraged, especially in accessing and enriching the content of planning process for better planning management. Mobile technology has the potential to promote coordination and participation among governmental planning employees. Mobile technology can improve

coordination within governmental processes. It is the key to encourage communicative city at the metropolitan context of Bandung, especially in facilitating, conducting, and deciding urban planning performance.

Besides examining the communicative city model in the Indonesian context, the study provides possible recommendations for improvements. These possible recommendations are intended to support the regional autonomy policy in Indonesia, especially in dealing with planning development within metropolitan areas. Improved communication capabilities will facilitate the diversity of cities' and regencies' to address their planning concerns in regional unity. The support of mobile technology leads towards the initial stage of e-governance and the means to convey strategic and advocacy planning concerns.

CHAPTER 1
INTRODUCTION: MOBILE TECHNOLOGY AND THE CHALLENGE TO PROMOTE A COMMUNICATIVE CITY IN INDONESIA. CASE STUDY BANDUNG METROPOLITAN AREA

Let me describe briefly the title of my study in the context of planning theory. Mobile technology (computer, cellphone, computer software, cellphone application, and connection services) represents convergence technology[1] which influences theory in planning. The reason is that the emergence of mobile technology encourages further development in procedural planning theory[2]. The challenge is that mobile technology usage in urban and regional planning enriches how the planning process is conducted in cities/regencies level of provincial governance (descriptive dimension in planning theory). The intention to promote the communicative city leads to the understanding of encouraging mobile technology to support communicative action among development stakeholders. In my case, the requirement of the enhancement of communicative action lies in governmental planning employees at the forefront in the planning decision making process for better planning management. The preparedness of the governmental planning employees in adapting mobile technology to stimulate communicative action in wide range of activities at the city level within a regional context (metropolitan and provincial level)

[1] Convergence technology refers to the efforts to use single technology universally. The term is usually known in merging development of communication technology and computer technology to provide single service, single network system, and single organization type system which promote borderless range of services. In return, it needs suitable governmental system to face this new face by understanding the impacts of convergence technology, including the advance of information and communication technology (Singh & Raja, 2010: 4-5).

[2] Planning theory consists of substantive planning theory which deals with planning object, and procedural planning theory which deals with planning process (Lapintie, 2010). My study tends to elaborate procedural planning theory into descriptive dimension by learning current planning process system in Indonesia, and efforts to consider new trend in mobile technology usage as a representation of information and communication technology development as a planning tool which potentially encourages community attachment along planning process for better planning management. I prioritize community attachment is in limited context of governmental planning employees as forefront in planning decision making process. It is expected that public participation will increase by the support of mobile technology usage following the preparedness of governmental planning employees in adapting mobile technology as a planning tool.

leads to the possibility to enhance public participation in planning process through the support of mobile technology (normative dimension in planning theory).

This first chapter describes the main idea of my research in the field of urban and regional planning, in particular the increased utilization of mobile technology as a part of information and communication technology (ICT) in developing countries, as reflected in the case study Bandung metropolitan area, West Java Province, Indonesia. This chapter examines the following: background, issues, problem statement, research objective, research question, and expected output.

Background

As a consequence of the transformation in economic activities from industrial economic activities to service-based information and knowledge based economic activities, one result is the advance of technology development. The most significant event in the advancement of technology development occurred in America with the replacement of factories by office buildings. This led not only to the transformation of the growth centers functions and urban structure within metropolitan area but also to development in terms of telecommunication technologies and computer technologies. The integration of telecommunication and computer technologies development in the form of computer networks and data communication channels was key to this transformation (Kutay, 1986: 551). This led to the emergence of the influence of information and communication technology (ICT) development in urban and regional planning.

In the initiation phase (1980s), the discussion of the effects of ICT in urban and regional planning was mainly related to the service-based employment in the office buildings, and how ICT influenced travel patterns. So, as a response to the emergence of the advance of telecommunication development at that time, Kutay introduced the new spatial structure concept

where the telecommunication development influences the optimum office location within a metropolitan area (Kutay, 1986: 551-564). In 1990s, Giuliano developed research on information and communication technology in association with work patterns within Los Angeles metropolitan area as way to understand the working patterns of workers who have strong attachment and weak attachment to the office location. Giuliano's research concluded that not all service-based employments get advantage from the information and communication technology in terms of reducing daily travel (Giuliano, 1998: 1077-1095).

Responding to the role of information and communication technology in urban and regional planning, Audirac proposed the categorization of the role of information and communication technology in urban development. She proposed what might be termed the deconcentration and economic restructuring concepts. The deconcentration idea explains the relationship between information and communication technology and urban form which is shown as the new development trend in information and communication technology in dealing with accessibility which is highly connected with the discussion of transportation issues. In addition, she introduced the economic restructuring concept to explain that the emergence of information and communication technology exerts widespread influence on social activities which could transform business, institutions, and everyday life (Audirac, 2002: 212-226).

Silva (Silva, 2010: 1-14) proposed the paradigm of e-planning as the latest study of information and communication technology in the context of urban and regional planning. He explained that e-planning is the new planning system which transforms a paper based urban planning system to an ICT-based planning system. I would like to highlight two important parts from his research as a basis for my study. The first is the external factors of e-planning systems. Basically, this idea can be seen as a continuation of Audirac's economic restructuring concept,

where e-planning emerged as a consequence of the expansion of ICT development into all development sectors in the information age. The examples are: operationalization of ICT in diverse working fields, particular ICT's market expansion, broadband universal access, digital literacy, and the digital divide.

The second encompasses the internal factors of e-planning systems. This is most critical for the future influence of information and communication technology in the urban and regional development area where some studies have to be encouraged regarding the expansion of e-planning system, especially to enrich planning theory, how the planning theory fit in ICT-based planning system, the influence of ICT to the substantial and financial conditions practiced by the planning governmental employees.

Towards the new paradigm of e-planning, and the influence of information and communication technology in the urban development planning arena, I would like to highlights some features as fundamental for my study. One is the expectation of the intensification of the number of participants in ICT-based planning system which has to be accompanied by the preparedness of suitable hardware (computer and other telecommunication devices to receive and transmit information), software (the related application to operate ICT hardware, such as operating system, cellphone application, and planning information system software like geographical information system software), and connection service (internet connection service, telephone likewise cellphone connection service).

Another is the need to understand resistance in the use of information and communication technology which is due not only to weak digital literacy but also problems in data storage which will be transparently available to be accessed and traced. This is a dilemma between the efforts

to promote good governance through development transparency and to deal with data security that has to be covered by the governmental policy.

A third area is related to the effort to understand the common ground of ICT-based planning activities players. It is important to pay attention to the planning related organizations in terms of their preparedness especially in translating planning idea into ICT-based planning activities, and fast technological innovations that need preparedness in rapid adjustment of capacity building of ICT-based planning activities. Another topic of interest is related to stakeholders in ICT-based planning activities. The high expectation of ICT development could promote citizen empowerment which will encourage social cohesion and economic competitiveness in implementing sustainable development.

Finally, this study explores the implications of ICT-based planning activities in theory and methods, on citizen participation, and in terms of innovation and challenges in urban management. It is crucial for developing countries to anticipate the increasing role of ICT in the urban and regional planning arena. This includes the response of planning institutions to the emergence of ICT, followed by the efforts in developing planning modeling with the support of ICT, and likewise learning how political power and governance are exercised. It also involves research on various ICT-based public participation strategies to enhance voluntary participation in planning as well as efforts to enhance the role of planning institutions for good governance. Innovation and challenges in urban management refers to how sustainability considerations are adapted into local policies through the support of ICT, responding to transportation, mobility and information security issues, promoting particular planning modeling through the support of ICT to promote urban competitiveness, and innovating development planning systems to operate ICT-based planning activities to de-bottleneck planning implementation.

Based on Silva, I would like to focus on the internal planning system, especially in how governmental institutions respond the emergence of information and communication technology as an enrichment process. This is of primary importance for developing countries like Indonesia which are in the process of implementing a democratization process. The new regional autonomy policy (Law No. 32/2004), followed by electronic transaction and information (Law No. 11/2008), and the new spatial planning guidance policy (Law No. 26/2007) underscore the importance of adapting planning to new ICT technologies.

Towards the enhancement of ICT's role in urban and regional planning in internal governmental institutions, my study examines the usage of ICT products that are commonly used in everyday life, that is computer (laptop or desktop computer) and cellphone including their connection service. It is important to address the implementation of information and communication technology in the current system to understand the adjustment of governmental planning system and how planning theory and planning regulation respond to efforts in ICT's implementation. In addition, I still use the classical reading of planning theory as a rationale to understand the efforts of ICT's implementation to the planning theory. Considering that mobile technology is an effort to promote communication, most of my classical reading relates to the communicative planning theory. Finally, in order to understand the position of my study in a broader context, initially I consider preliminary studies of mobile technology actors and the efforts in implementing mobile technology in various planning scales.

My study examines mobile technology as a representation of ICT in the planning context, especially in promoting communicative action to stimulate governmental planning employees in achieving better planning management. This reflects the mobile technology usage and linkage to the current planning process.

Research Objective

An objective of the study is to explore the challenge in promoting a communicative city by the support of mobile technology in terms of capacity building of government planning employees and the planning management system. I define the mobile technology as a representation of information and communication technology development which is divided into hardware (desktop computer or laptop, land line phone, and cellphone), software (geographical information system, software application for cellphone, and computer operating system), and connection service (land line phone, cellphone, and internet connection service).

Issues

There are some issues that provide background for ICT and the city which can be categorized into adapting mobile technology to enhance capacity building, and to promote better planning management.

- The ICT development in Indonesia as initiated by the emergence of internet service in 1990s and deregulation of telecommunication regulation after monetary crisis in 1998s has been increasing ICT development, especially for cellphone and internet connection service (Goswami, 2008).

- The institutionalization of Electronic Transaction and Information (Law No. 11/2008) has telecommunication development synergy with planning arrangement (Law No. 26/2007). However, at the local level, the synergy between telecommunication and planning stakeholders has yet to be achieved.

- Mobile technology has been accepted by the public. Most people use and adapt mobile technology such as cellphone and internet connection into their daily life. Mobile technology can be seen as a new social capital that can be guided to promote better planning process. In this case, mobile technology as digital social capital can be used to promote civic engagement (Mandarano, Meenar, & Steins, 2010: 123-135). In terms of daily working activities, the emergence of mobile technology can be used as ways to promote communicative action, where stakeholders could provide planning information to update the latest condition of planning implementation (Evans-Cowley, 2010: 136-149).

- Research about the usage of mobile technology in planning practice to promote communicative action in planning practice in communication era is the challenge. Innes said that the challenge to understand planning as communicative action is by articulating a new

role for information including exploring a corresponding concept of rationality that can provide ethical and legitimate position for planners (Innes, 1998: 59-60).

- The case in developing countries it is the challenge of revising and integrating the comprehensiveness of the plan and its implication. The research draws upon planning implementation in regional and city level to contrast the usefulness of mobile technology in day-to- day planning activities and planning management policy. This idea was inspired by the proposition that "communicative action analysis can combine structural and international concept to revise and integrate the apparent antagonism between comprehensiveness and compromise for planning practice" (Hoch, 2007: 272).

- The weak ties between ICT development on the capacity building of governmental planning employees and the implementation of planning management has been a challenge to promote communicative action to support better planning performance.

Bandung Metropolitan Area as a Case Study

The Bandung metropolitan area is used as a case study not because of any distinct success in adapting ICT to support metropolitan development but because of its unique urban qualities which ought to make it compatible with the idea of a communicative city. These are as follows:

- Bandung has been a center of information and communication technology since the colonial era (Bandung Regional Spatial Plan, 2005 and Revision of Bandung Regional Spatial Plan, 2008). This can be validated by the existence of the headquarter office and central office of Research and Development of PT Telkom, the largest telecommunication company in Indonesia. Furthermore, some scholars and bureaucrats tried to develop in Bandung a high tech valley to support its economic development.

- As the capital city of West Java Province, Bandung has a strategic location and socio-economic attachment with Metropolitan Jakarta as national capital center on the northern side, with Banten Province on the west side and Central Java Province on the east side. Daily commuting occurs not only within the Bandung metropolitan area, but also throughout the Bandung metropolitan area and its adjacent provincial territories.

- Beginning in 2008, Bandung was identified as a pilot project of the "creative city" in Asia Pacific (based on Yokohama Agreement, July 2007) which cannot be separated from the availability of ICT to support its development.

Research Question

To operationalize research objective of this study, I propose one research question: "how does mobile technology, represented by hardware, software, and internet connections, influences

capacity building of the governmental planning employees and planning management to promote a communicative city?"

Expected Output

The study assesses two separate interactions between mobile technology as a representation of ICT and local government: a). The capacity building of the governmental planning employees towards the mobile technology usage, which is categorized into: the characteristic of mobile technology users at planning related offices, and the influence of mobile technology on daily working activities. This is to understand the ability of governmental planning employees in adapting mobile technology to enhance their working activities, to intensify their social relationships among governmental employees in communicating planning process, and to use their mobile technology for daily working activities[3]; b). Better planning management which is stimulated by communicative action through mobile technology usage, which is categorized into: the exploration of the basic role of mobile technology in spatial plan, and the efforts of mobile technology to promote a communicative city as stimulation to better planning management[4].

[3] The focus on the capacity building of governmental planning employees is a reflection to understand the cognitive resources (the ability to translate the planning issues into current planning process by the support of mobile technology), social resources (the ability to promote social relationship among governmental employees and with other stakeholders since the governmental planning employees are also the residents of Bandung metropolitan area), and material resources (the ability to use their mobile technology to promote day-to-day planning activities, as the initiation process to promote volunteer based planning activities by the support of the ownership of mobile technology). The terms cognitive, social, and material resources are introduced by Berg and Winden (Berg & Winden, 2002).

[4] The focus to the planning management is a reflection to understand the enhancement of access to planning process, the enrichment to the content of planning process, and the consideration of developing of telecommunication network service as a part of infrastructure in a planning document. The support of ICT in urban and regional planning in terms of access, content, and infrastructure has been introduced by Meer and Winden towards an attempt of e-governance that has to be covered by planning policy (Meer & Winden, 2003: 408-411).

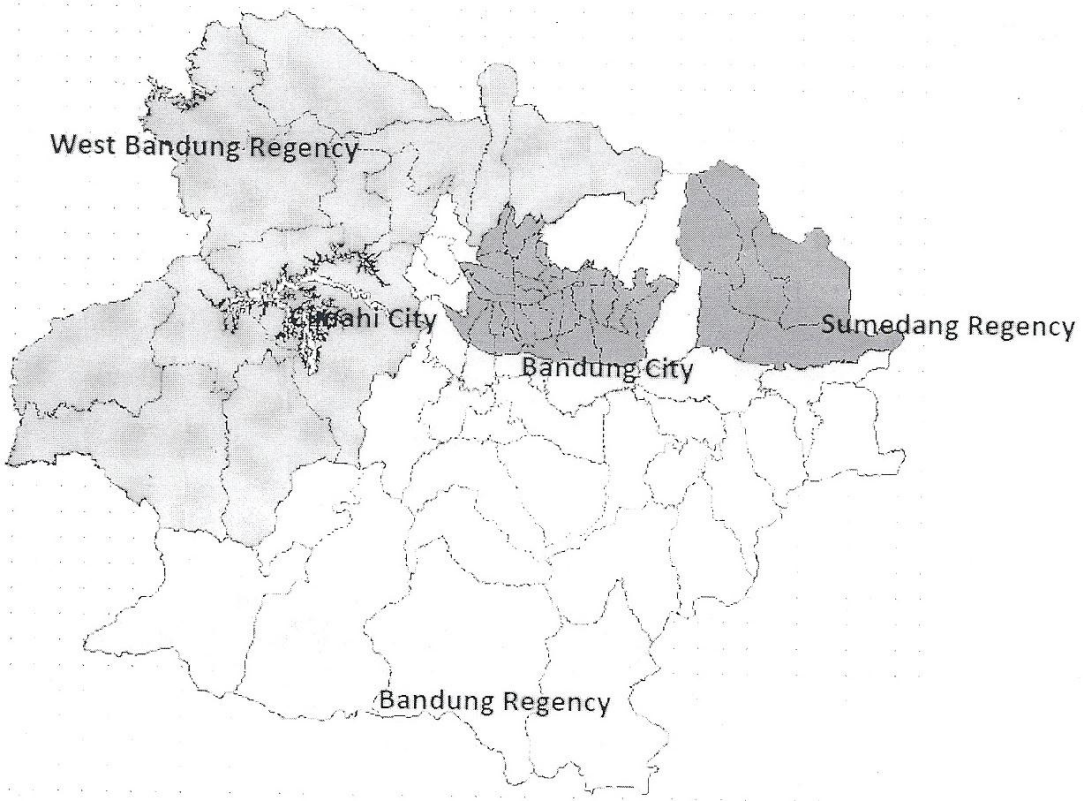

Figure 1-1. Bandung metropolitan area (Source: West Java Planning Board, 2010).

Organization of the Book

The book comprises five chapters. After setting forth the research focus in chapter 1, chapter 2 provides the context of the study by describing theoretical reviews on communicative planning that includes the highlight of advocacy planning and metropolitan governance as a response to the challenge of promoting the communicative city within the regional autonomy in Indonesia, including understanding the role of mobile technology actors and efforts in implementing mobile technology in neighborhood and city levels. Chapter 3 describes the method, analysis, fact findings, and the associated literature review. Chapter 4 formulates possible planning responses based on the findings in association with related literature. It also relates the Bandung findings to efforts in implementing mobile technology in the neighborhood (the Solo case) and city (the Surabaya case) levels, and redefines the concept of communicative city in the Indonesian context. Chapter 5 provides conclusions, recommendations which provide

possible planning responses for the Indonesian context, and reflections of the study in association with the related planning theory.

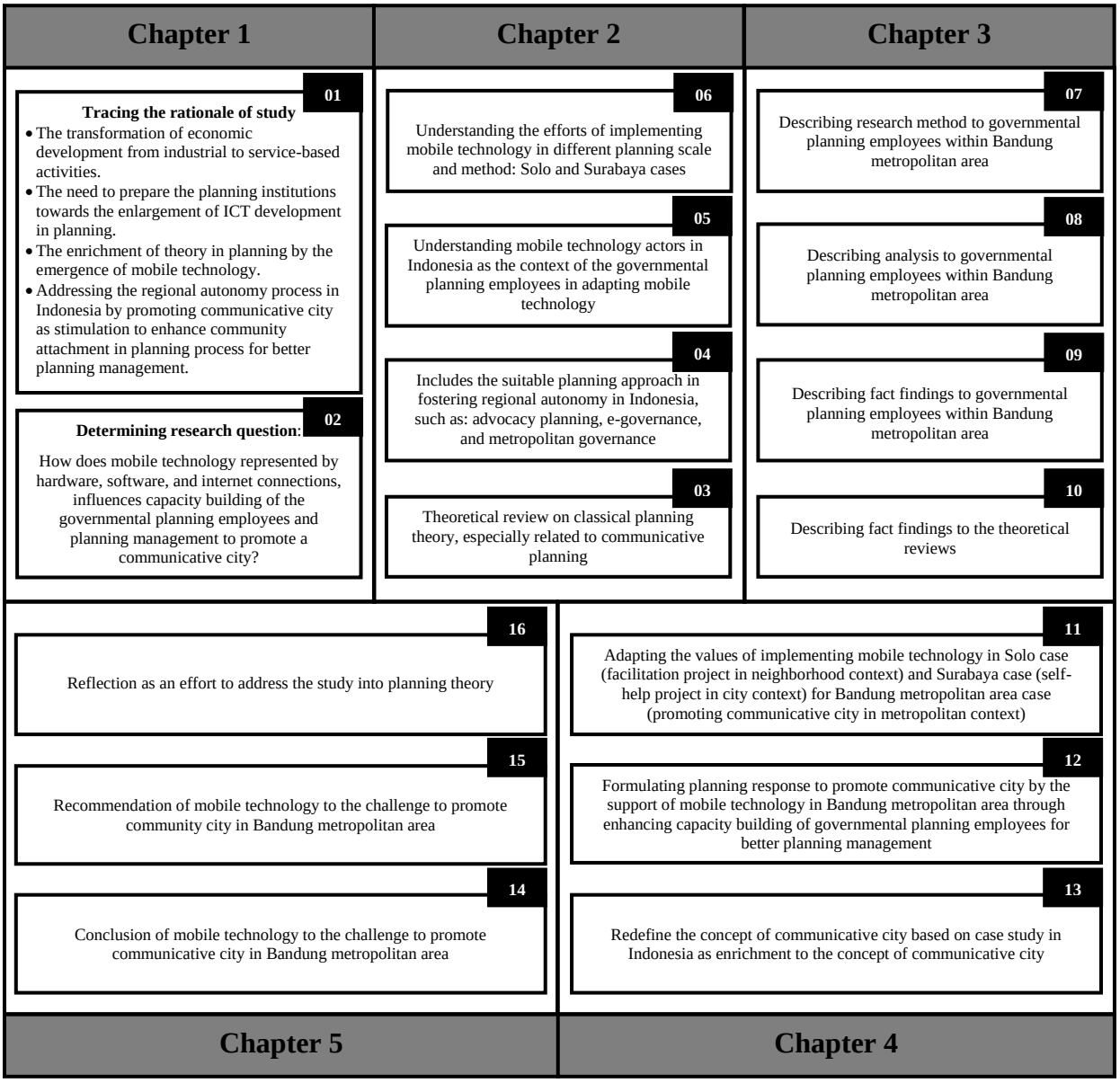

Figure 1-2. The study of mobile technology and challenge to promote communicative city

CHAPTER 2
LITERATURE REVIEW AND THE CONTEXT OF MOBILE TECHNOLOGY USAGE

This chapter profiles a communicative city in planning theory in relation with the effort to utilize mobile technology as a representation of information and communication technology development, the preliminary studies on mobile technology actors, and efforts in implementing mobile technology with various planning scale in Indonesia (Solo and Surabaya cases).[1]

Communicative City in Planning Theory

As the theoretical context of my study on mobile technology and the challenge to promote a communicative city, there are at least eight profiles which are discussed here, such as: 1. the position of a communicative city as a reflection of communicative planning in planning theory; 2. challenging the limits to communication planning; 3. implementing sustainable development concept to city officials; 4. communicative action and the network society; 5. network power in collaborative planning; 6. planning for complex metropolitan regions for a better future; 7. defining information and communication technology as a planning tool to promote a communicative city; and 8. ended by the description in defining facilitation factor, governance factor, and internal factor to promote a communicative city in Bandung metropolitan area.

The Position of a Communicative City as a Reflection of Communicative Planning in Planning Theory

"The communicative city concept focuses attention on communication pattern that connect people in cities and relationships between urban context and communication phenomena so that those who plan, design, and manage cities recognize the impact their activities have on communication and how communication affects citizens and cities in turn." (Jeffres, 2010: 99-100). Based on Jeffres, there are six characteristics of the communicative city, such as: 1).

[1] General information of planning policy, the case study, and telecommunication service in Indonesia are available in appendix 2.

Community attachment is encouraged by existing communication patterns which are covered by the policies; 2). Communication along with the community organizer is an important factor to develop an interaction network among citizens with diverse backgrounds in order to understand and to mitigate conflict; 3). The most disadvantaged members of the community must be supported by the communication system through suitable communication vehicles, patterns, and policy; 4). As a backbone of urban development, economic activity is considered to be stimulated by the communication patterns especially to enhance the relationship among employers, workers, financers, and entrepreneurs with business locations; 5). Cultural organizations and artists as urban entities have to be accommodated in developing a sufficient communication system; 6). The tradition and history of an urban community have to be considered in choosing appropriate communication patterns in order to cope with diverse residents and generations (Jeffres, 2010: 100);

In accordance with Jeffres's definition, there are some important pieces that can be linked to my study, namely planning theory and planning practice, planning management, planning actors, spatial features, and mobile technology as a communication tool to promote a communicative city. To trace those terms in the context of urban and regional planning, I begin by describing the position of a communicative city in communicative planning (Lapintie, 2010), collaborative planning (Healey, 2003: 101-123), and the limits of communicative planning (Huxley, 2000: 373-376) which can be further discussed through the role of network power in collaborative planning (Booher & Innes, 2002, 221-236).

Since a communicative city is intended to bring planning into action in a situation where the advance of information and communication technology continues, it is important to explore the phenomenon of communicative action in the network society (Verma & Shin, 2004: 131-

140) and how communicative action cannot be separated from the sustainable development spirit which has various concerns to be formulized into local development plan by the government (Zeemering, 2009: 247-273) for a better future (Abbott, 2009: 5003-517). Towards an information age and to ensure that the environment concern is addressed, the role of ICT in democratic urban governance has to be promoted by the adaptation of technological based governance (Anttiroiko, 2009: 990-995).

The tremendous influence of ICT on urban planning practice, especially for a developing country like Indonesia, has to be seen not only as an evolution in technology to substitute and to compliment accessibility but also as socio-cultural and economic change as a whole, namely the economic restructuring concept (Audirac, 2002: 212-226). Furthermore, to cope with the current and the future urban planning issues, the role of ICT in urban planning has to be defined clearly to promote sustainable urban development (Cohen-Blankshtain, Nijkamp, & Montfort, 2004: 2647-2667).

For the best result, I draw upon two other case studies, namely Solo City in Central Java Province and Surabaya in East Java Province, for the lessons learned through practice. The dialogue of the success story of the communicative civic engagement in Solo City is based on stakeholders attribute factors (Mitchell, Agle, & Wood, 1997: 853-886). The dialogue of the success story of the communicative annual process in Surabaya is based on administrative operability factors (Patton & Sawicki, 1993).

Communicative City and Communicative Planning

Communicative planning adopts methods and theories from social science and philosophy as a democratic movement to address local social concerns. The concept tries to respond to the recent development trend by considering power relations (Flyvbjerg, 1998) and human interaction, along with the ability to coordinate planning action based on common understanding

and common accepted norms (Habermas, 1984). It is understandable that communicative planning is a reflection of common features in contemporary social sciences and planning theory (Lapintie, 2010).

Capacity building in the context of communicative planning. Communicative planning is always open for planning methods to promote capacity building of governmental planning employees in order to perform better planning supervision. In addition, it can be open to participatory planning to manage asymmetry information, and the ability to deal with public concern for better planning supervision. In terms of communication among stakeholders, communicative planning is concerned with the enhancement of human interaction, especially two way communication types. So, it can be interpreted as a particular planning tool to promote the enhancement of human interaction is needed.

Planning management in the context of communicative planning. Communicative planning deals with development by encouraging strategic action which will work under a socio-cultural and economic system. So, it can be interpreted that communicative planning needs rational instruments that can be accepted widely by the human system in terms of planning implementation. Hence, communicative planning considers communication to develop coordination. Community planning coordinates action on the basis of a common understanding of reality and common set of accepted norms; current planning arrangements can be translated as an example for my case study. On the other hand, it is also concerned with the growth, for a better bureaucracy and the market where instrumental and strategic action prevails.

Communicative City and Collaborative Planning

Collaborative planning was inspired by the perception of planning as an interactive process. It assumed that planning as a governance activity occurring in complex and dynamic institutional environments, shaped by wider economic, social and environmental forces that

structure, but do not determine, specific interactions. In addition, planning and policy initiatives are concerned with maintaining and enhancing the qualities of places and territories. As Healey said, basically collaborative planning focuses on the treatment in the context of where the planning process is going to be implemented, and in terms of implementation adapted to social theory. In particular, collaborative planning determines the power which is highly connected to the planning institutional system. In the context of the perspective of collaborative planning, Healey encourages continuation of the implementation research on collaborative planning especially in dealing with the complexity and diversity of urban governance context and the importance for practical action in grasping the particularities of situated dynamics (Healey, 2003: 101-123).

Capacity building in the context of collaborative planning. The usage of collaborative planning is meaningful to respond to planning implementation in fragmented societies, especially in defining the appropriate planning context, and to acts as social constructivist in a rational way. In terms of the role of the planner, the ability of the planner to deal with complex relations is important, especially in understanding the relationship among planning interventions, processes of land and property development and distributive outcomes. In the end, collaborative planning supports the transformation of development plan orientation from traditional conception as spatial blueprint to strategic structure plans with spatial specifications such as delineating green space or allocating development sites for new housing, industrial areas, or even commercial centers. It is a sign that collaborative planning cares about a better planning quality as a policy focus.

Planning management in the context of collaborative planning. Collaborative planning may strengthening development planning quality by accommodating political and business

concerns through promoting capacity and competence of local government. Collaborative planning may support development priority by implementing planning strategy. The planning strategy has to be incorporated in an innovation manner which accommodates time efficiency and market efficiency to incorporate business concerns into the planning system. In terms of planning process, the collaborative planning concept considers the meaning of planning justice by supporting the sufficient interaction between planning interventions and development processes. In particular, the existence of planning justice can be seen in the regulatory power which is used to safeguard valued environmental qualities. To provide better planning performance quality, a critical evaluative framework for assessing the interactive qualities of processes became increasingly urgent as governments came under pressure to restructure their systems and practices. This is also a sign that planning system transformation is needed due to a break from the traditional hierarchical and bureaucratic process which involves new groupings and networks, new partnerships, including sometimes business or NGOs or community representatives. In terms of planning innovation to deal with limited planning development resources, creative invention is needed along with critical evaluation that focuses on particularities of specific times and places as a support to deal with planning system transformation in a globalized world. Finally, in terms of planning regulation adjustment, planning system transformation must be done along with the enhancement in planners' and policy analysts' capacity building which has an important role in an urban governance context. It is important to involve planners and policy analysts in the interactive discussion, design and management of particular planning actions, which tries to grasp the specific difference between case specific and broader dynamics.

Communicative City and Limits to Communicative Planning

Limits to communicative planning emphasize the limitation in implementing communicative planning in everyday planning practice. In this case, there is a debate between the need for superior acknowledgement of power in terms of governance and inequality in terms of economic development. Such limitation can be seen as a trigger to always look for communicative planning to be well performed (Huxley, 2000: 373-376).

Capacity building in the context of limits to communicative planning. Qualified planners are needed as a response to how knowledge and communication are being deployed by planners. This is shown by the planners' skill in their daily work, and the capacities that they have to encourage better planning outcomes. Qualified planners are needed to interpret the social life of stakeholders and to formulate a better plan with specific capacities in conjunction with wider social transformations. As a reflection of democracy in planning, it is a challenge for planner to create less distortion between idea and practice. In addition, existing power relations must be recognized in order to find appropriate planning prescriptions.

Planning management in the context of limits to communicative planning. Communication is used to promote better planning management as a response to the challenge in performing appropriate strategic and instrumental realities of planning practice in dealing with the dynamics of development. At the operational level, technical and practical planning has to be better understood by adapting a sufficient communicative process. In terms of developing innovative analysis for better planning implementation, a challenge in communicative planning is also to understand the ideal and practical method in the context of governmental tiers which represent development priority and planning concerns.

Communicative City and the Importance of Network Power in Collaborative Planning

Network power can be defined as a flow of power which development participants all share. It has a strong relationship with collaborative planning, since collaborative policy processes are increasingly in use as ways of achieving results in an era distinguished by rapid change, social and political fragmentation, rapid high volume information flow, global interdependence, and conflicting values. It is a challenge for planners to enhance their planning capability to participate in network power, especially in understanding the factors in a collaborative network, such as diversity, interdependence, and authentic dialogue (Booher & Innes, 2002: 221-236).

Capacity building in the context of network power in collaborative planning. It is significant for the planner to understand the profile of the flow of power which development participants all share in the governmental body. The profile includes potential powers and conflicted values among development participants. Capacity building to understand network power in collaborative planning is important to be considered by planners, especially in understanding collaborative network for consensus building through support of diversity, interdependence, and authentic dialogue. Diversity leads to the assurance that participating actors will have full range of interests and knowledge relevant to the issues at hand. Interdependence leads to the situation in which the interests of participating actors depend on each other's actions. Authentic dialogue leads to the two-way communication that occurs among participating actors. It must be both accurate and trusted by the participating actors to allow full advantage to be taken of their diversity and interdependence. The effort to enhance capacity building is needed since development participants have to deal with the communication network in which sincerity, legitimacy, and accuracy of people can be judged. So a communication network is sufficient to be operated under the official planning mechanism and governmental

organizational structure. Finally, a particular planning tool is important, especially one which deals with the enhancement of innovative communication, either one way or two-way communication typed to synergize the adaptation of network power in collaborative planning.

Planning management in the context of network power in collaborative planning. To be able to adapt network power in collaborative planning into planning management, some planning actions have to be promoted in the current planning management system, such as shared identities in managing communication to enable better planning quality, shared meanings of the interactive communication to the enhancement of planning management process and outcome. In addition, experimental innovation that works under planning mechanism and governmental organizational structure is always welcomed to promote the better planning management. The concepts of diversity, interdependence, authentic dialogue, and network power in collaborative planning are important in enhancing metropolitan development where two or more administrative territories are joined together to look for better planning management in regional context. The combination between top down and bottom up planning management can be promoted towards better planning management by adapting the concept of network power in collaborative planning.

Communicative City in Association with Communicative Action and the Network Society

Communicative action and the network society is an effort of Verma and Shin (Verma & Shin, 2004: 131-140) to indicate the similarity of the concept of communication action (Habermas), with network society (Castells), in order to respond the turn of communicative planning (Healey). It has been cited by Booher and Innes as an indication of the usage of the network society in the planning context. System and life world concepts are a representation of the communicative action concept. System is defined as shared understandings, values and practices in a communicative rationality (life world) where the logic of the system is defined.

On the other side, network society is represented by the concept of the net and the self. The Net denotes the network organizations replacing vertically-integrated hierarchies as the dominant form of social organizations, the Self denotes the practices a person uses in endorsing social identity and meaning in a continually changing cultural landscape. Verma and Shin concluded that there is a similarity between the concept of communicative action and the network society. The similarity becomes most usable when the core ideas in the network society, such as civil society, communalism, and reflexive life-planning from a broader perspective of the impact of these ideas on human relations rather than as stand-alone concept (Verma & Shin, 2004: 131-140). The implication of this marriage is that the harmonious communicative stakeholders' relations with civil society may support and strengthen the legitimacy of governance system. The transformation in the governance system is possible to enable civil society.

Capacity building in the context of communicative action and the network society. The ability to utilize the latest technological devices to support two-way communication is important in the context of network society. However, the roles, values, and the connection types among stakeholders must be determined in order to identify their positions within planning system. The inability of governmental planning employees to utilize the latest technological devices to support communicative action among participating planning officials may lead to policy failure because it cannot accommodate the ordinary values, concern, and issues of participating planning actors. In the end, it is important to choose the suitable technological support for establishing two-way communication to make certain communicative action is well organized and implemented.

Planning management in the context of communicative action and the network society. To integrate ~~a~~ communicative action tools into the planning management system cannot

be avoided in the network society to ensure the establishment of civil society. The traceable planning process to develop better planning policy, program, and projects can be promoted by adapting appropriate communicative action tools by considering values, concern, and issues of participating planning actors. The reflexive life-planning as an implication of the adaptation of communicative action in the planning management system may lead to the creation of the transformation of planning management system. In return, it could also transform planning management systems into performance based governance in order to address the complex bureaucracy process.

Communicative City and Efforts in Implementing Sustainable Development Concept to City Officials

Since environmental limitations compete with population growth, it is understandable that the sustainability spirit becomes and embedded factor in formulating development objectives. However, challenge is to transform the sustainable development concept into an operable indicator in day-to-day planning activities. This creates difficulty for city officials in coping with the variety of development programs that are intended to be a reflection of the advance of sustainability goals. There are three important parts that must be examined in accommodating the sustainable development agenda. These include urban design strategies to guide land use development, reformed economic development actions to represent the variety of economic activities, and the civic engagement as a representation of good urban governance. In the end, understanding the various implications of sustainability for local government employees will be critical as city officials pursue to promote this new priority for local governments (Zeemering, 2009: 247-273).

Capacity building in the context of implementing the sustainable development concept for city officials. In enhancing the capacity of city officials, it is important to formulate

the clear conceptual meaning of sustainable development. The clear understanding of sustainable concept for the city level could encourage the need for capacity building, whether it is related to the land use change management and urban design, urban competitiveness from the point of view of economic development (green economy) and distribution of social equity (through infrastructure development or development incentives and disincentives), likewise to enhance the good urban governance by various adjustment to promote resource efficiency for instance by promoting e-government implementation. In the end, the conceptual of the clarity of sustainable development mission at the operational level in a form of policies, programs, and projects is important for city officials to make it implementable. On the other hand, the clarity of sustainable development will support city officials in formulating the city's development mission.

Planning management in the context of implementing sustainable development concept to city officials. Choosing a suitable urban form for the long run, like managing growth to cope with urban sprawl or choosing a compact city, is important in formulating land use change, zoning, and planning decisions. Sustainable development cannot be limited by an administrative boundary; it is usually based on the functional concept of land use, zoning, and interregional governance. So promoting sustainable development including economic development and civic engagement which is reflected in plans and policies is appropriate to be analyzed in the regional context. In terms of promoting the viability of economic development, the encouragement to look for local economic base is important in formulating land use allocations which will be developed in association with the economic potential of the city. Hence, a level of economic competitiveness in the regional context can be well identified and formulated. In association with civic engagement in implementing good governance, adapting a

sustainable development concept in planning management can be translated into adapting communicative action and collaborative planning. This leads to rethinking resource use and patterns of development, and by encouraging citizen engagement in the dialogue about how sustainability will be implemented for a better future. Sustainable development in the end will lead to transforming communities, since the sustainability movement has to cope with a variety of environmental initiatives.

Communicative City in Association with the Planning for Complex Metropolitan Regions for a Better Future

Realizing a better future in a complex metropolitan region requires a lot of effort, such as dealing with uncertainties, formulating planning objectives and adapting them to a planning management system which is possible to be developed and carried out by the visionary planners under the governance system. In this case, Abbott draws upon lessons learned from New York and Queensland (Abbott, 2009: 503-517).

Capacity building in the context of planning for a complex metropolitan region for a better future. External uncertainty has to be well understood and well formulated in order to support a suitable planning process in terms of the urban environment being planned. The effort to identify and to deal with the possible planning uncertainties which could influence plan preparation and implementation must be encouraged. This includes sudden natural disasters, such as flooding, fire and hurricanes; unexpected election outcomes; and deaths of key leaders in organizations. The knowledge enrichment about the urban environment has to be encouraged, especially in terms of cause and effect relationships in the change processes, and how these different relationships and processes interact to produce outcomes in a complex urban system, like in the metropolitan level that consist of several administrative territories and planning concerns. Since metropolitan areas are complex multi-organizational environments, the

knowledge enrichment about the better future has to be encouraged. This includes the future intentions, policies, plans, and actions of organizations in the planning environment. Finally, in terms of stakeholders' concerns, such as values about an urban area, where it is heading, and its possible future must be accommodated. The capacity building enhancement includes the effort to understand uncertainties about political values and uncertainties about community values.

Planning management in the context of planning for a complex metropolitan region for a better future. The external environment has to be considered since it is mainly related to the external planning process and the urban environment being planned. To cope with this situation, a better understanding about the knowledge of the urban environment has to be considered, especially in terms of cause and effect relationships in the change processes, and how these different relationships and processes interact to produce outcomes in a complex urban system. Since planning is for a better future, an effort to enhance knowledge about the future intentions, policies, plans, and actions of organizations in the planning environment must be encouraged. Finally, since planning is for a better community, stakeholders' concern, such as values about an urban area has to be accommodated, including accommodating the effort in understanding uncertainties about political values and uncertainties about community values.

Communicative City and the Importance of Democratic E-Governance

Government employees play important roles in facilitating public and private interests to be accommodated in formulation. For the public interest, government employees have to be able to use the administrative machinery to translate the needs of citizens in different roles in governance processes (voters, active citizens, inhabitants, service users). Second, government employees have to be able to use suitable technology for mediation purposes, namely: mass media, internet, extranet/intranet, video conference, e-mail, and telephone. Finally, government

employees must be able to undertake suitable institutional mediation for large groups, small groups, or individuals.

Capacity building in the context of democratic e-governance. The capacity building of government employees has to be driven in terms of facilitating the information process, supporting communication and negotiation, citizen consultation and involvement in preparation and planning, community based deliberation and participation, political transaction and decision making, implementation and service processes. In terms of ICT development, the enhancement to utilize ICT has to be supported, since e-governance activities are based on the ICT usage to provide a better plan.

Planning management in the context of democratic e-governance. This includes facilitation, communication and negotiation, also citizen consultation in the context of community based developments that are covered by planning policy. Facilitating information processes must be accommodated, such as presenting, disseminating and sharing information, collecting and processing data, and facilitating communicative or two-way information processes. Communication and negotiation during planning process must be supported, such as facilitating discussion and interaction, generating understanding and awareness, and facilitating citizen-expert interaction. Citizen consultation and involvement in preparation and planning must be supported, such as consultative referendum, moderated deliberative polling, various forms of citizen consultation, participatory planning, likewise modeling decisions and advising on possible consequences. Finally, community based deliberation and participation must be supported, such as virtual communities and cyber associations, community networks and local associations, also local and neighborhood regulations. Since planning policy is related to the political concern in practicing democracy, political transactions in terms of decision making

must be considered, such as making proposals and initiatives, participating and voting in elections, making decisions, and the achievement of planning implementation as a feedback to the future planning agenda.

Communicative City in Association with Urban Form Issues in Information Age

In the information age where information and communication technology is a part of urban life, it has a link with urban form and can be well explained through two urban theorizing traditions. These are: a). the deconcentration concept, generally conceptualizes information technology as an extension of communication and transportation innovation; b). the economic restructuring idea, generally emphasize a fundamental change in the organization of production brought about by a socio-technical paradigm based on microelectronic and information technology, the increasing political-economic importance of multinational corporations concerning weakened nation-states, and the role that global capital and the international division of labor play in the rapid and flexible geographic relocation of capital and production in a world economy (Audirac, 2002: 212-226);

Capacity building in the context of urban form issues in information age. In terms of the conceptualization of city and region, the capacity building is directed to cope with the transformation of the globalized planning system by the emergence of information and communication technology. This includes how industrialization process performs through high-tech industry, and how high-tech industry that most of them ICT-based products have been influencing the borderless urban development (Audirac, 2002: 214). Still, the understanding of a planning scale is important, especially in enhancing the knowledge of the nature of the planning process at the neighborhood, city, metropolitan, regional, and global levels. On the other hand, virtual accessibility through ICT development is important to be understood and learned by the planners since it combines with physical infrastructure to shape urban structure. The capacity

building is directed to promote research tradition, especially in enhancing the knowledge of the ICT and urban life, such as encouraging case studies and lessons learned. In terms of social equity issues, the capacity building is directed to enhance the knowledge of social polarization or dual city which is created by the emergence of ICT in daily life; casualization of labor and flex-timers including socioeconomic stratification, uneven development, as well as physical and electronics ghettos. Those are the implication of the ICT-based activities versus non-ICT-based activities (Kumar, 1990: 137-148). The enhancement of capacity building issues must consider how entrepreneurial ideas can boost urban development in global context as well as the implications of ICT to economic centers within urban structure orders.

Planning management in the context of urban form issues in information age. In terms of the conceptualization of city and region, the planning management is directed to anticipate the phenomenon of the restructuring concept to the planning management system which will lead to accommodating the issues into planning management system or even transforming the planning management system to anticipate the future. The effort to utilize ICT for performing better planning management is a consequence of the restructuring concept. In addition this effort can be seen as the entry point of the emergence of the need of democratic e-governance and sustainable development in information age.

Communicative City and the Importance of Defining ICT Perception to Promote Urban Development

Towards the information age, ICT can be seen as significant planning tools to encourage and strengthen urban planning management. As urban front-liners, urban government employees are mandated to carry out suitable urban policy making. Cohen-Blankshtain, Nijkamp, and Montfort suggested defining the role of ICT in association with the challenge of urban development. Furthermore, it is suggested to explore. the perception of a city as an imaginable

city model, by profiling the possible perceptions, such as: the functions of the city (industrial center, service center, administrative center, logistic center, tourist center, commercial center ICT/multimedia center, higher education center); problems of the city (traffic congestion, housing shortage, unemployment, industrial decline, aging population, negative image, budget deficit); expectation for the future (the importance of the city, its potential to attract service companies, industrial enterprises, and new residents, the importance of the CBD). It is also suggested to assess the model of the beliefs about ICT, such as the effect of ICT on urban trends (the importance of the city, the potential to attract service companies, the potential to attract industrial enterprises, the potential to attract new residents, the importance of the CBD), the effect of ICT on urban administration and governing (change the policy making process, the implementation of policies is more efficient, improve the ability of the administration to serve the citizens, improve citizen access to useful information, give the administration better access to public opinion, increase citizen participation in the policy process), and the effect of ICT on social life that provide all segments of the population with equal access to education, employment and social services, also improve the quality of social relationships (Cohen-Blankshtain et al., 2004: 2647-2667).

Capacity building in the context of defining ICT perception to promote urban development. The position of ICT in the role of the municipality has to be clarified, in order to identify the need for capacity building for urban front-liners in terms of ICT usage to support government intervention. In return, the translation of development goal into the operationalization level will give direction to the type of capacity building which is needed in order to enhance the role of urban front-liners in terms of achieving planning goals. Finally, it is important to understand what kinds of relevant tools for ICT policy must be developed at the

local level, especially to enhance the knowledge of the ICT role in the planning and decision making process by the urban front-liners.

Planning management in the context of defining ICT perception to promote urban development. The position of ICT in the role of the municipality has to be clarified, since it has to be accommodated in the planning management system for better planning quality, especially in implementation at the local level. Local planning management has to accommodate the planning goal at the operational level for which ICT should be mobilized for better planning quality. Finally, it is important to understand what kinds of relevant tools for ICT policy that must be developed at local levels for better planning quality. It might be an effort to strengthen the national regulation of ICT and urban planning in local level that must be creatively adapted in local planning management.

Communicative City and the Challenge to Address Regional Autonomy in Indonesia

To provide possible recommendation for Indonesia which is running the regional autonomy policy, the mobile technology usage is intended to improve the planning process by enhancing cooperation among governance tiers. This is because the new regional autonomy policy (Law No. 32/2004) raised three important issues: a). the need to promote suitable planning control especially for regions and cities/regencies (article No. 29 Law No. 25/2004 concerning national development planning system policy) to encourage administrative accountability; 2). The need to enhance the harmonious relationship among governmental tiers (national-provincial-city/regency) under the principle of unity in diversity, as the consequence of the planning authority and power that are given to the cities/regencies level; 3). The need to respond to the unique role of provincial government, where provincial government has to be able to promote harmonious relationship among national/central government with local governments (cities/regencies levels); Hence, provincial government has to be able to implement regional

autonomy policy in the context of cross cities/regencies territories, and undertake regional autonomy authority that has not been accomplished by cities/regencies. Finally, provincial government has to do particular government tasks delegated within the framework of management responsibility among governmental tiers.

Communicative city in the context of strategic and advocacy planning towards metropolitan governance

A consequence to undertake regional autonomy policy is a transformation of planning policy from traditionally comprehensive planning approach, where innovative planning tool is possible to be taken in order to respond planning issue and insufficient public development financing.[2] Mobile technology usage to promote community attachment at diverse planning scale can be seen as an innovative way to support planning process in regional autonomy era. On the other hand, advocacy as well as strategic planning method can be seen as alternatives to enhance planning process as well as planning management in within regional autonomy era in Indonesia. Both advocacy planning and strategic planning are in line with the spirit to enlarge the possibility of stakeholders to participate in planning process for better planning management, along with the need to enhance transparency and traceable planning process in terms of administrative accountability can be supported by the usage of mobile technology. In conclusion of my study, to respond the challenge in promoting communicative city in Indonesia, some possible recommendation are formulated by considering advocacy and strategic planning on one side as alternative planning method to promote better planning management in the various governmental tiers within regional autonomy in Indonesia.

[2] The general information of spatial planning policy in Indonesia is available in appendix 2. In terms of national development planning system in Indonesia (Law No. 25/2004), it is indicated that planning method in regional and local levels are encouraged to strengthen the planning management in regional autonomy era. This explained why the relationship among local government units (SKPD), plans (long term, midterm, and short term), and annual budgetary system are associated with strategic planning manner as a response to the limited budget to cover development issues that must be formulated based on to planning priorities.

The description below identifies two efforts for implementing mobile technology in the context of different planning scales, one being Solo at the neighborhood level and the other Surabaya at the city level. They also model different planning approaches, namely the advocacy and strategic planning types. Solo is implemented with the spirit of facilitation project where Surabaya is implemented with the spirit of self-help project. The intention of examining these cases in the context of my study is to show ways to enhance mobile technology usage that could be used to promote communicative action in the Bandung metropolitan area, especially to enhance the capacity building of governmental planning employees as agent of change to achieve better planning management.

Communicative city and facilitation factors: Defining stakeholders attributes

In understanding the role of stakeholders to facilitate planning development, there are factors that have to be examined, such as noted by Mitchell et al. (1997: 853-886):

Table 2-1. Power as stakeholders attribute

"Power can be defined as the position of one actor within a social and governance relationship would be in a position to perform his/her own will despite resistance in carrying out they desire." (Mitchell et al., 1997: 853-886).	
Focus	Power as Stakeholders Attribute
Power and capacity building	It can be defined as the role of government employees which is supported by suitable planning knowledge, within current planning mechanism and governmental organizational structure in conducting spatial development organization, especially in practicing planning supervision.
Power and planning management	It can be defined as the role of government employees which is supported by suitable planning knowledge, within current planning mechanism and governmental organizational structure in promoting better planning performance.

Table 2-2. Legitimacy as stakeholders attribute

"Legitimacy is referred to normative core in carrying out action with something at risk, or in property rights, in moral claims, or in some other construct to the principle of who or what really counts." (Mitchell et al., 1997: 853-886).	
Focus	Legitimacy as Stakeholders Attribute
Legitimacy and capacity building	The ability of government employee to take suitable planning action based on his/her legalized authority within planning mechanism and governmental organizational structure for better planning supervision.
Legitimacy and planning management	The ability of government employee to take suitable planning action based on his/her legalized authority within planning mechanism and governmental organizational structure to promote better planning performance.

Table 2-3. Urgency as stakeholders attribute

"*Urgency* is associated as calling for immediate attention or pressing to launch planning action. It is usually happening to cope with time sensitive and unavoidable action to alleviate planning issue." (Mitchell et al., 1997: 853-886).

Focus	Urgency as Stakeholders Attribute
Urgency and capacity building	A planning knowledge capability to give immediate response in terms of planning action by considering time limitation to alleviate unavoidable planning issue.
Urgency and planning management	A knowledgeable planning response in terms of planning action by considering time limitation to alleviate unavoidable planning issue under current planning mechanism and governmental organizational structure for better planning performance.

Communicative city and governance factor: Administrative operability factors

Administrative operability has to be examined as a way of encouraging internal government employees, such as (Patton & Sawicki, 1993):

Table 2-4. Authority as administrative operability factor

"*Authority* can be defined as a personnel official influence to conduct or decide planning action in the form of policy, program, or project." (Patton & Sawicki, 1993)

Focus	Authority as Administrative Operability Factor
Authority and capacity building	It can be defined as an official influence of government employee which is followed by sufficient planning knowledge in conducting or deciding a particular planning action in the form of policy, program, or project within current planning mechanism and governmental organizational structure.
Authority and planning management	It can be defined as an official influence of government employee which is followed by sufficient planning knowledge in conducting or deciding a particular planning action in the form of policy, program, or project within current planning mechanism and governmental organizational structure for better planning performance.

Table 2-5. Institutional commitment as administrative operability factor

"*Institutional commitment* can be defined as an official guarantee from the governmental policy in terms of implementing planning policy." (Patton & Sawicki, 1993)

Focus	Institutional Commitment as Administrative Operability Factor
Institutional commitment and capacity building	It can be defined as an official guarantee for planning policy implementation which can be scientifically counted for under planning mechanism and governmental organizational structure.
Institutional commitment and planning management	It can be defined as an official guarantee for planning policy implementation which can be scientifically counted for under planning mechanism and governmental organizational structure a better planning performance.

Table 2-6. Capability as administrative operability factor

"*Capability* can be defined as a personnel competence in terms of staff and financial which is essential to policy implementation." (Patton & Sawicki, 1993)

Table 2-6. continued

Focus	Capability as Administrative Operability Factor
Capability and capacity building	It can be defined as a knowledgeable planner competence in terms of staff and financial which is essential to planning supervision under current planning mechanism and governmental organizational structure.
Capability and planning management	It can be defined as a knowledgeable planner competence in terms of staff and financial which is essential to promote better planning performance under current planning mechanism and governmental organizational structure.

Table 2-7. Organizational support as administrative operability factor

"*Organizational support* can be defined as administrative and governmental provision to implement a policy and the commitment of key personnel. It is also necessary to have adequate equipment, physical facilities, and other support services." (Patton & Sawicki, 1993)

Focus	Organizational Support as Administrative Operability Factor
Organizational support and capacity building	It can be defined as official administrative and governmental provision to enhance the governmental planning employee capability in implementing a better planning supervision.
Organizational support planning management	It can be defined as official administrative and governmental provision to enhance the governmental planning employee capability in promoting better planning performance.

Preliminary Studies of Mobile Technology and the Challenge to Promote a Communicative City in Bandung Metropolitan Area

This section describes some preliminary studies that relate to the research question. Serial preliminary studies were done during summer 2009 and summer 2010 to examine the challenge of promoting a communicative city. This includes planning activities done by governmental planning employees and their advances in mobile technology usage issues, mobile technology usage of suburban Bandung metropolitan residents in order to understand the telecommunication service characteristic, telecommunication service owners to understand the direction of the future mobile technology market, ICT academician to understand the mobile technology development, and professional planners to understand how they work towards the information era.

Government Employees Role in Bandung Metropolitan Development

The roles of government employees of West Java Province and cities/regencies within Bandung metropolitan area have been explored based on the current system of organization and working procedures (SOTK). This was recently reformulated as a result of the enactment Regional Governance Policy (Law No. 32/2004).

Stakeholder analysis was adapted to explore governmental roles to identify their sphere of influence and interest in carrying out Bandung metropolitan area development. As the result of the stakeholder analysis, the actors that play some roles and have interests were identified. Their roles and interests are ranked by their influence and interest from high to low in the field of decision-making process, plan making, planning implementation, and spatial implementation control.

In terms of decision-making, the main actors with significant roles and interest are the Governor of West Java Province, the Mayors of cities and the Head of Regencies (Bupatis) in West Java Province (Bandung, Cimahi, Bandung Regency, West Bandung Regency, and Sumedang Regency), the municipal regional secretary, the local regional parliament of municipalities, and several national agencies with local offices, including the Department of Transportation and, the department of Housing and Regional Infrastructure. Their authority enables them to have a profound impact on the decision-making process in their working field. Specially related to Bandung local planning, the main actors are the Local Spatial Planning Coordination Board, the Regional Planning Board in each city and municipality, and the Provincial Spatial Planning and Housing Board. Other boards concerning physical and infrastructure planning and management have lesser roles and interest. The local community, private sector, professional associations, and non-government organizations/community based organizations also have the same level of roles and interest.

In local planning, the main agencies are the Regional Planning Board (in each city/municipality/province), the Division of Spatial Planning (also in each city/regency), Provincial Spatial Planning and Housing Board, and other boards concerning physical and infrastructure planning and management (generally known as Bidang Fisik dan Prasarana). Especially now under decentralization, the professional associations, and non-government organizations/community based organizations are engaged in policy making. Meanwhile, in the area of planning control, the main agencies are the Local Investment Management Board/Local Investment Office (one in each city/municipality) for permitting operation and licensing; the Regional Auditing Board/Office (one in each city/municipality) for auditing of the governmental units; and National and Local Government Police Office, High Attorney Office, and Legal Division of Local Government (one in each city/municipality/province) for enforcing laws. The heads of the sub district and village areas also play a role in this control implementation to prevent deviation or corruption in the planning process.

Among all of these actors, none has power/influence high enough to determine the final decisions. The final decisions are made by the chief administrators, the government, mayor, or district head. The agency's influence is limited to recommendations to governor/mayor/district head about alternative solutions for technical reasons. Outside government institutions are also actors that influence the planning process, especially the private sector, but also professional associations, and non-government organization/community based organizations. Because of their position as investors, the private sector has a higher bargaining position compared to the community itself. On the other hand, the local community has high interest compared to other actors because they are most affected by planning activity. Yet, they do not possess influence

needed to affect the planning process, implementation, control, and final decision-making process, although their roles have increased appreciatively under decentralization.

Internal factors

There is a shifting paradigm for many employees who work at planning related offices as a result of democratization and regional autonomy (known in Indonesia as decentralization policy). Planners now have related offices in the regional (provincial) and local (cities and regencies) the authority to formulate long-medium-short development plans, along with the authority to formulate development scenarios, governmental funding and spending, and to engage in development control. They have to dedicate their work not only to dealing with day-to-day activities of their particular position but also by law (expressed in the form of letter of assignment from their direct superior), they will be appointed and distributed in every planning and development projects although those projects are done by other working divisions. Related to annual governmental accountability, they typically work overtime and must also complete side jobs that are assigned not by their direct superior but by the Governor at the provincial level or mayors at the city level or bupati at the regency level.

It seems that government employees at planning related offices believe that ICT could support their working activities. As an indication, most government planning employees in Bandung metropolitan area have their own laptop and cellphone. They usually have external hard drives for their own working and private data (with a capacity of at least 40 GB) and a flash drive for data sharing (with a capacity from 2 GB to 16 GB) and some of them use a smart phone. There are conditions in which mid-level employees get unanticipated instructions from their direct superior or from the governor, mayor, or bupati through their cellphone or short message service.

Even when there is limited governmental funding, most government planning employees secure ICT hardware such as laptop/desktop computer, internet service, and cellphone. There are various type of internet service that are used, from Telkomnet speedy, Telkomnet instant, or even mobile internet connection services like Telkomnet instant or IM2 or Smart or Aha. Employees believe that ICT is important to support their working and non-working activities. The ICT hardware is not supported by suitable data protection, however.

Government planning employees understand about the priority projects that have been or will be conducted in locations within the Bandung metropolitan area. Since the introduction of the regional autonomy policy, senior officers in regional and local government understand better the increased prestige of governmental planning employees. And when they seek promotions, they do so within the planning field. For instance, a Head of Sub Division of Environment under West Java Planning Board was promoted as a Head of Division of Development of Strategic Region at the Office of Housing and Settlement. Two years later, the same individual was appointed Head of Spatial Planning and Environment Division in the West Java Planning Board. In another case, a middle management employee from Division of Spatial Planning and Environment of West Java Province Planning Board received a promotion to Head of Sub Division under Program Control Office and later was promoted to Head of the Division of Development of Strategic Region at the Office of Housing and Settlement.

Governance factors

Based on regional autonomy policy (Law No. 32/2004), the Government Regulation on Discipline of Civil Service Employees (Government Regulation No. 53/2010), and the regulation of the Coordinating Board of National Planning or known as BKPRN (Badan Koordinasi Penataan Ruang Nasional) under Presidential Decree No. 4/2009, the planning function lies in

Planning Board Office. The Planning Board has five divisions: spatial planning and infrastructure, social and cultural, regional economic, governance planning, data and reporting.

For urbanized areas like Bandung, there is also a planning related office that deals with various planning activities concerning projects with a detail scale (1: 5,000). This is usually the Office of Planning and Housing Settlement (Tata Ruang dan Cipta Karya). Every planning board at the regency or city level deals with planning activities at the meso scale (smaller than 1:100,000). Regional Planning Board Offices at the provincial level deal with planning at the regional scale (smaller than 1: 250,000). However, for a strategic region or area in regional context, it is conducted by the Office of Housing and Settlement. At the provincial level, every planning activity within provincial authority has to be evaluated and monitored by the Office of Development Control (Pengendalian Program) which is a part of the organizational structure in the Governor Office.

Nowadays, government employees in planning offices within Bandung metropolitan area deal with all these functions, namely plan making, planning implementation, and planning development and control. This creates an often chaotic situation. Since there are so many meetings, coordination and other working activities only two or three employees are left to run the offices. On the other hand, one may find some parallel meetings, especially at the beginning of the year when employees must prepare, evaluate, and reconstruct development planning for the coming year. The situation is made even more chaotic at the end of the year when employees must finalize every project in their divisions (usually all projects have to completed by December 15). Between October and January, they are responsible for preparation of administrative accountability reports, and to prepare future activities. The Planning Board Office at the Provincial level has to coordinate and make a full accounting to the Governor annually. The

same situation happens at the regency and city levels where they complete parallel activities to document administrative accountability and coordinate and be responsible for the administrative accountability of the mayor and bupati. That is why by the end of the year they are usually overloaded. To get the best result, the Head of the Planning Office forms a satuan kerja or small working group who stay day and night to finalize the annual reports. The Institut Teknologi Bandung is located in Bandung. Its faculty and staff often provide technical support either in an official or non-official manner to help meet work deadlines.

A similarly hectic situation can be found in West Java Planning Board at the end of the year and at the beginning of the coming fiscal year. Not only they do have to finalize their own administrative accountability to the Governor, but they also have to assist the entire finalization of planning related projects in all regencies and cities within West Java Province, including nine administrative cities and 17 regencies.[3]

In the context of the reformation era (after regional autonomy policy ~~is~~ was adopted), there was new institutional commitment and organizational support for better planning performance with the creation of the Group of Functional Planners as a support system to respond to the dynamic situation in planning activities. This group is available in every regency, city, and provincial level, and they have a blog and mailing list through which to share information about planning activities in their own administrative territories. The availability of the Group of Functional Planners is encouraged by the National Planning Board (BAPPENAS) to assist in implementation of the new Planning Guidance Policy (Law No. 26/2007), National Spatial Plan (Law No. 26/2008), and Coordinating Board of National Planning or BKPRN

[3] Bandung Metropolitan area has five administrative boundaries, consists of: Bandung City, Cimahi City, Bandung Regency, West Bandung Regency, and Sumedang Regency. Determining this situation, there are no doubts for dedication of government employees at planning offices.

(Badan Koordinasi Penataan Ruang Nasional) based on Presidential Decree No. 4/2009. To enhance their knowledge and level of planning capability, members of Group of Functional Planners at a certain point of time must take further functional planning studies and training until they reach the highest level. There are five hierarchical functional planner levels. Functional trainings is funded by National Planning Board and organized in association with university staff such as the Department of Regional and City Planning, Institut Teknologi Bandung.

There is recent reform in West Java Governance that reflects a breakthrough in governance efficiency. The West Java Province applied to Institut Teknologi Bandung to borrow a well-qualified Professor to be appointed as a Head of West Java Planning Board. Institut Teknologi Bandung appointed a young professor, Denny Juanda Puradimadja, who was acting as vice rector for public service at that time, to fill this position. His expertise is in line with the development challenge of West Java Province. He is an expert in geology, river and water development, has experience as a public official who has supported West Java for a long time and is originally a Sundanese from West Java (2006-present).

Facilitation factors

Facilitation factors are influenced by two main factors, one being an external body which offers facilitation activities for particular schemes in support of planning activities. Another influence is the willingness of government employees to welcome facilitation into their functions in terms of governmental organizational structure. In this situation, Bandung has a locational advantage because it is home to universities with diverse expertise. These include the Institut Teknologi Bandung for technology development; the Universitas Padjadjaran for social, cultural, and environmental health; and the Indonesian Education University for educational service. Also there are many private universities located in the Bandung metropolitan area. In terms of telecommunication technology development, Telecommunication Research and Development

owned by PT Telkom as the largest telecommunication company in Indonesia is also located in Bandung region.

The first regional and city planning education program in Indonesia (and South East Asia) was founded at the Institut Teknologi Bandung in 1920. Its success triggered the growth in regional and city planning throughout Indonesia. There are at least five planning education program in private universities in Bandung at the undergraduate level, which include: Bandung Islamic University (Unisba), Winayamukti University (Unwim, owned by West Java Province and currently is being liquidated by Institut Teknologi Bandung), National Institute of Technology (Itenas), Pasundan University (Unpas), Institute Technology of Science Bandung (ITSB, owned by the Commercial Business Unit of Institut Teknologi Bandung, and relocated to Delta Mas, a new town in Bekasi regency in metropolitan Jakarta), and the Indonesian Computer University (Unikom).

An outcome of the Bandung planning education program, was the establishment of the nation's first planning consultancy firm, PT Heksagon, by alumni of the program. The recent governmental reformation movement was strengthened by the many planning consultancy firms operating in the Bandung metropolitan area. Since Bandung has many potential planners graduating from its universities, this also generated an increasing array of planning studios which operate in residential areas within the Bandung metropolitan area, especially in residential areas in the inner suburban area, such as the Gedebage and Ujungberung districts and northern Bandung part. As a center of excellence, the good governance era began in the mid-1990s and prompted the emergence of non-government organizations in Bandung metropolitan area, especially related to an initiative to support spatial plan making process, implementation, monitoring and control.

The growth of planning consultancy firms and non-government organizations in the Bandung metropolitan area cannot be separated from the availability of governmental planning employees provided by the universities and also the affordability of daily living expenses, including the affordable rental space in which to conduct their activities. A second benefit is that the suitable information and communication technology is also provided in the Bandung area. For instance: the largest market for hardware and software computers are available in Bandung, including Kosambi Golden Triangle Plaza, Bandung Electronic Center, Bandung Electronic Mall, and ABC corridor. They provide competitive pricing for high end products and also provide the second hand items. Additionally, the suitability of ICT connection service is also available in Bandung. For instance, Telkom speedy, a bundle connection between land line and internet service was first introduced by PT Telkom in Bandung. Telkom speedy is a product of the Research and Development Center of PT Telkom that is located in Bandung, and they developed a pilot project of telecommuting in 1998-2003. PT Telkom introduced an affordable mobile internet connection in mid 2000s namely Telkom flash and recently PT Telkom introduced internet TV for several residential blocks in Bandung city.

When the West Java Planning Board revised its regional spatial plan in the beginning 2000s as a response to the government reformation from centralization era (Law No. 5/1974) to regional autonomy era (Law No. 22/1999), there was a desire to develop competitive functions in West Java as a leading province in Indonesia apart from the Special Capital City (DKI=Daerah Khusus Ibukota) of Jakarta. Some academicians from Institut Teknologi Bandung began to think about the Bandung metropolitan area as international research center with a focus on high technology development and the transformation of Bandung into a high-tech valley. This idea

gained traction when the Rector of Institut Teknologi Bandung was appointed as a Minister of Research and Technology (2004-2009).

Because of an increase in ICT development after 2000, the West Java provincial leaderships realized that something had to be done to link planning development and ICT development. Some academicians who were active in Bandung High Tech Valley selected the city of Cimahi as a pilot project to be developed as an ICT-based development region. Later, Cimahi was the first city in Indonesia to prepare an ICT Master Plan (in 2005-2006) to facilitate ICT development, especially for regulating the building of BTS (base transceiver station) towers in Cimahi. The plan indicated that BTSs had to be based on a planning process. A similar approach was employed in 2006 by the West Java Province as it formulated an ICT Master Plan of West Java Province. Recently, some professors from Electrical Engineering at ITB helped governmental offices in Cimahi to use open source software to address a problem related to computer software utilization.

Planning Activities and Communicative City Issues in the Eyes of Governmental Planning Employees

As a part of ICT development, mobile technology is expected to have significant impact in dealing with urban and regional development issues. Blankshtain, Nijkamp, and Montfort noted that in adapting ICT to promote urban development, some governmental issues have to be identified since they stand at the forefront in planning decision making. These are: the governmental planning role, development goal, and governmental policy related issue (Cohen-Blankshtain et al., 2004: 2656-2657). The following description provides a current condition to

promote communicative city based on the interview to the key persons and my observation to the governmental planning institutions at the Bandung metropolitan area as the case study.[4]

The governmental planning role. This focuses on the planning role of the Provincial Planning Board as well as the Housing and Settlement Office in facilitating planning activities at the level of province, metropolitan, regency and city that have been mandated by National Planning Guidance (Law No. 26/2007). The roles in formulating spatial structure plan have been categorized into three types: activity center for national context (Pusat Kegiatan Nasional=PKN) or Indonesian wide context, regional context (Pusat Kegiatan Wilayah=PKW), or West java Province wide context, and local context (Pusat Kegiatan Lokal=PKL) or regency and city wide context. In this case, the Bandung metropolitan area functions as a national activity center which means that there are particular cultivated functions of Bandung metropolitan that have to serve a national context, such as industry, telecommunication, higher education, and particular public services. Besides the technical support from provincial government to promote sustainable development, agreement has been made by regencies and cities within West Java Province towards protected and cultivated land. These are: 1). supporting the attainment of 45% protected area, 2). supporting food security by maintaining technical irrigation for paddy fields; 3). investment development plan throughout West Java Province through sufficient support of infrastructure; 4). providing land allocation for urban and rural area, including its interconnection

[4] During the summer of 2009 (Sutriadi, 2009), interviews were conducted with selected government planning employees at the provincial level. These key persons were the ones who facilitate national examination of the planning process, as well as the planning process in the level of regencies and cities. Based on regional autonomy policy they have facilitated a process for a Regional Spatial Plan (Rencana Tata Ruang Wilayah=RTRW) in all levels of the regencies and cities. One key person is Slamet Mulyanto Sudarsono who works as Head Section at Division of Data Center and Development Analysis of West Java Planning Board. He was appointed as the representative of West Java Province in monitoring the planning process in all the regencies and cities in West Java. The other is Rudi Mahmud Zafrullah worked at the Head of Division of Development of Strategic Region at the Office of Housing and Settlement. Recently he was promoted as the Head of Division of Regional Planning and Infrastructure in the West Java Planning Board. He oversees the development plan of metropolitan area within West Java Province.

system. The official agreement was signed in April 22nd, 2009 in Cianjur at the West Java Planning Board coordination meeting.

Governing a harmonious protected and cultivated area to achieve sustainable development has the potential to be supported by new telecommunication technology like mobile technology. Towards a communicative city, community attachment can be promoted through the efforts of planners, officials, and residents in implementing appropriate communication pattern to deal with various environmental variables (Jeffres, 2010: 106). However, Jeffres reminds us that the governmental role in disseminating planning decision through appropriate communication patterns must consider that communication is a symbolic process that requires encoders or actors. The actors have to translate city's image as a result of decisions by the cumulative planning actors such as planners, policy makers, and residents determining earlier planning decisions (Jeffres, 2010: 107). It means that the governmental planning role cannot be well implemented without participation of development actors. However, a sufficient communication pattern to disseminate planning process by the governmental planning employees can be seen as entry point to enhance a communication pattern to promote community attachment.

The development goal. The plan must ensure a sustainable development principle by developing a harmonious relationship between the protection area land allocation and the built up environment land allocation. The built up environment is categorized into five allocations, including environmental preservation activities, social activities, cultural activities, economic activities, likewise defense and security activities. Hence, the planning implementation goal is emphasized in promoting the physical infrastructure network to ensure the operationalization of the growth centers system in West Java Province. Although the telecommunication network

system plan which includes ICT is a part of the plan, the telecommunication network system is regulated in a normative way, not only in the regional context, but also in regencies and cities as well. So, this is a segment that has to be encouraged in terms of enhancing the role of the telecommunication network since sufficient telecommunication access is a requirement to create a strong pattern ties between urban development and the communication system (Jeffres, 2010: 102).

Governmental policy issues. From the governance point of view, it can be interpreted that West Java planning related offices have been trying to organize planning processes based on the current planning system, especially in formulating planning criteria.[5] The efforts focused on mechanism and organizational structure can be described as follows.

As an implication of policy on securing 45% as protection are in West Java Province, West Java Planning Board has been plotted on spatial pattern arrangement map 2025 that has to be followed by all regencies and cities within West Java Province. Other things that have to be determined by every administrative authority within West Java Province is that to ensure the food security by providing suitable agricultural land, especially paddy fields (sawah), including its technical irrigation system that has been protected its access by Presidential decree. In terms of communicative city, the issue on securing the protected area translates as the effort to deal with development equity and protect disadvantaged members of community. This is in line with the second communicative city indicator, which is to pay attention to the disadvantaged members

[5] Based on the Regional Autonomy (Law No. 32/2004) the power structure is complicated because in terms of development plan, provincial government has to facilitate the national concern to be implemented in regencies and cities. In terms of power structure, provincial government as well as regencies and cities have the same governmental tiers. Previously, provincial has the higher development tier compared to regencies and cities. In present, there is a possibility of regencies and cities not to consider the development plan in provincial level because it does not have the line of direct order except to coordinate development plan in regencies and cities.

of the community to be supported through suitable communication vehicles, patterns, and policy (Jeffres, 2010: 100).

Serial meetings have been conducted with regencies and cities within West Java Province, and in Mid 2000s the best effort from West Java Province which had an agreement with regencies and cities within West Java Province regarding spatial structure and spatial pattern arrangement of West Java Province, including a land use map that has been updated and fine-tuned for years by the West Java Province in the form of a Regional Facility of Spatial Data (IDSD=Infrastruktur Data Spasial Daerah). The effort to promote regional development planning consensus building can be seen as a way to enhance community attachment through the efforts of community organizers. This is in line with the second indicator of communicative city. In this case Jeffres said that communication along with the work of community organizers are important factors in enhancing an interaction network among stakeholders with various backgrounds to look for conflict resolution (Jeffres, 2010: 100).

In conducting the planning project, West Java Province, especially the West Java Planning Board, is supported by academicians from public universities such as Padjadjaran University and Institut Teknologi Bandung. Cooperation between West Java Planning Board and Department of Regional and City Planning of Institut Teknologi Bandung has been longstanding. Some scholars are providing assistance in developing terms of references for particular projects in order to implement the West Java Planning Objective. Student interns do the preliminary planning projects that will later be conducted by a professional planning consultant company in a year to come. The results of preliminary planning project can be used as an entry point for the official planning project that will be completed by a professional planner from the consultant company. Preliminary findings indicate that facilitation factors for planning related offices have

been carried out to support better planning performance.[6] This regional development advisory issue can be seen as an effort to promote communication among stakeholders in finding better planning solutions which are in line with communicative city indicators by Jeffres (Jeffres, 2010: 100), especially in enhancing community attachment through a particular community organizer.

The Advance of Telecommunication Development Issues in the Eyes of ICT Actors

The interview of ICT actors helps us to understand comprehensively various mobile technology development issues as entry points to studying the communicative city. This includes interviewing ICT academicians to understand mobile technology development, a telecommunication service company owner to understand the future of the mobile technology market, a telecommunication service bureaucrat to understand the usage of mobile technology for the public, and telecommunication service provider employees to understand the characteristics of telecommunication service. Since my research focuses on governmental planning employees, the interviews with the ICT actors are described to respond the efforts to promote a communicative city which includes responses to governmental planning role, the development goal, likewise governmental policy issue.

Some efforts through serial interviews with key ICT practitioners were done in the summer 2009 and summer of 2010. Those key persons are Dr. Trio Adiono, Associate Professor at the Department of Electrical Engineering, Institut Teknologi Bandung an electrical engineering academician who a specialty in ICT application software; Abdullah Fawzi Siddik, the President Commissioner of Sony Ericsson in Indonesia; and Cahyana Ahmadjayadi, Industrial Engineering

[6] The effort to enhance community attachment is also represented by the establishment of Planning Committee of West Java Province (Komite Perencanaan Jawa Barat= KP Jabar) of West Java Province which is promoted by West Java Planning Board, the members are the senior academicians from diverse knowledge and some of them come from non-government organizations.

alumnus from Institut Teknologi Bandung. Mr. Ahmadjayadi was the CEO of state owned Indonesian Air Mail Company, and has been working at PT Telkom for some time. Currently he is a Director General of ICT Application at the Ministry of Information and Communication. There was also an interview with Sony Ari Yuniarto, an ICT practitioner from the Department of Research and Technology of PT Telkom who was accompanied with two unnamed friends from the same division from PT. Satelindo and PT. Telkomsel, cellular and internet operators in Indonesia.[7]

The Highlight of Mobile Technology Development in the Eyes of ICT Academician

I learned about mobile technology development issues from the interview with Dr. Trio Adiono. The highlight of the interview can be described as follow:

Responses to the governmental role. The reformation in the government role to develop telecommunication services leads to the direction of mobile technology software development which relates to the mobile technology demand side that is the characteristic of mobile technology users. These include:

Shifts in software and hardware development. The software products in Indonesia have limited service ability, and product features change frequently, for instance the change from conventional cellphone to smart phone technology. From the point of view of a software application developer, there is a market consideration in introducing certain feature. There are so many technological features from Indonesia's telecommunication products which do not operate properly if they are used in Indonesia. This is due to the limited availability of infrastructure's telecommunication. This issue presents an argument for a communicative city, where cultural

[7] Sony is an ICT expert who ever been trying to conduct a possibility of telecommuting, and ever been implemented in Bandung (Antapani region, at inner suburban Bandung city) as pilot project (1998-2003). However, the project is terminated because there is an unmet telecommuting vision between research and development division (considering public concern) and marketing division (concerning commercial interest).

transformation along with market concern could promote community attachment (Jeffres, 2010: 100).

Curiosity of mobile technology user. Indonesian people are creative. They want to try every available feature, even seemingly minor or unimportant ones. The case is when there is a technology of polyphonic or private connection sound (nada sambung pribadi=NSP), etc. The curiosity of Indonesian people is so high, even when the feature is only a mirror on a cellphone it creates a new market for the product. The truth about Indonesian community is that they are curious and sensitive to new gadgets and new gadget features, i.e.: the emergence of polyphonic cellphone, camera phone, and smart phone. There are two types of telecommunication products which are offered in the Indonesia market: a). the product which has addition in its core technology; b). the product which has addition in its external features. The people's curiosity is piqued by creative market strategy to enhance mobile technology market selling. However, it is essential that the creativity of the people be directed by sufficient knowledge of new products and their application in promoting a communicative city. In this case, the capacity building of public employee is needed to enhance public knowledge in adapting mobile technology to promote economic productivity.

Responses to the development goal. Economic concern, environmental concern and the need to promote good governance lead to the challenge in promoting mobile technology development in Indonesia. These include:

The challenge to utilize telecommunication channel. Some efforts have to be made to drive the mobile technology to use existing telecommunication service especially in enhancing economic productivity. In Indonesia, the decision to use mobile technology depends on private decisions. For planners, this shows the importance of the governmental role in encouraging the

mobile technology usage, not only for supporting people's life but also to alleviate urban problem by promoting telecommuting, although there is some debate that telecommuting is a way to alleviate urban problem. In terms of communicative planning theory, this can be seen as an example of the statement that pragmatic communicative action responds to the particular urban change through planning activities (Hoch, 2007: 280).

Encouraging telecommunication effort. There is a good case study about the emergence of telecommunication technology in Indonesia. The headquarters of Indonesia's online news as one of ICT's news firms. In the beginning, this firm rented a three story office building. However, when the financial crisis struck, the firm changed its strategy. Now the firm rents only a one story office building. This firm gives every employee a reliable internet connection. Previously, previous times every employee had to come into the office each day and sign an attendance sheet. But now, if they would like to come to the office, they must call the office a day before, to make sure that they will have a room to work. This strategy makes the firm more efficient, and cuts around 40% of its operating costs. In terms of network power in collaborative planning, this can be seen as an example of encouraging telecommunication channel to promote collaborative planning. It is a response that creates network power as a result of creativity with authentic dialogue from particular participants in promoting network power (Booher & Innes, 2002: 222-231).

Responses to the governmental policy issue. The concern to promote mobile technology development in order to enhance productivity and better planning management through stimulating telecommunication service led to the issue of affordability and the drawbacks of mobile technology products. These include:

The price of telecommunication service. Affordability in utilizing telecommunication services becomes a significant issue. The price for teleconferencing is higher than the plane ticket to attend the meeting in person. In other words, telecommunication infrastructure in Indonesia is still expensive compared to the physical transportation. In this case, back to the theory of goods and services, people want sophisticated cellphones, but they are expensive to operate. If the consumers want to use it, they have to think twice, because the cost is still high. In terms of promoting a communicative city, this can be seen as an example of the statement that economic concern is embedded as a communicative city indicator especially to promote the relationship among stakeholders with business locations by providing suitable communication pattern (Jeffres, 2010: 100).

The drawback of mobile technology products. The obstacle of ICT's development in Indonesia is that the people still prefer to conduct face-to-face communication and the bandwith is still limited. The price of ICT's infrastructure is still not affordable. In terms of promoting a communicative city, this can be seen as an example of one of communicative city indicator that in promoting communicative city, disadvantaged members of the community must be supported through suitable communication vehicles, patterns, and covers by the policy (Jeffres, 2010: 100).

The Highlight of the Future of Mobile Technology Market in the Eyes of Telecommunication Service Company Owner

The future of mobile technology market issues raised from the interview with Abdullah Fawzi Siddik a Commissioner of Sony Ericsson Indonesia. He discussed the government role in ICT development policy from the perspective of a telecommunication service company owner.

Response to the governmental role leads to the discussion of telecommunication service development in Indonesia. The development of information concept has been started along with the development of the computer. In the first stage of computer development, people have to go

to the location of the computer which is inconvenient. To cope with this situation, telecommunication development is potential to facilitate the computer usage which can be accessed anywhere, any place, and any time. Customers need more telecommunication service, they want to watch TV, Skype (moving picture), voice, and data management. Multimedia is coming into account and information technology changes into information and communication technology, or in business or the banking community is known as technology multimedia telecommunication (TMT). An essence of ICT or TMT development is highly related to how to increase speed accessibility in bandwith dimension. In Indonesia, the awareness of increasing speed accessibility of telecommunication has been realized since the period of New Order Era under President Soeharto (1968-1998) [8] which began with analog bandwith then changed into digital bandwith.[9] This showed the importance of telecommunication service development in Indonesia to meet the challenges of advances in global telecommunication technology. Hence, telecommunication service transformation is needed in order to provide suitable telecommunication service for the people. Towards the challenge to promote a communicative city by the support of mobile technology, this can be seen as an example of the effort to promote a communicative city by providing appropriate communication patterns that are in line with the history (Jeffres, 2010: 100).

[8] The telecommunication service is operated by the cooperation between PT Telkom as the only state owned telecommunication service and PT Rajasa Hazanah Perkasa, Mobile Telephone Company owned by Tommy Suharto, the youngest son of former President Suharto.

[9] This is supported by the enactment of Law No. 36/1999 on Elimination of Telecommunication Monopoly towards telecommunication development in 21st century. The Government of Indonesia performs telecommunication deregulation by opening free market competition. Thus, the telecommunication service in Indonesia is no longer monopolized by PT. Telkom. As the largest telecommunication service company in Indonesia that has 14 million land line phone consumers and 50 million cellphone consumers. PT Telkom is one of state owned government enterprise, PT Telkom whose shares are mainly owned by the Government of Indonesia (51.19%) and the public amounting to 48.81%. Most of the public shareholding (45.58%) owned by foreign investors and the rest (3.23%) by domestic investors (source: http://id.wikipedia.org/wiki/Telkom_Indonesia).

Response to the development goal leads to the discussion of telecommunication service and urban development. In the context of 21st century, there are two main types of telecommunication technology which consist of fixed telecommunication technology development and wireless telecommunication technology development. These technologies are the backbone that encourages competitive nations to get in touch with the borderless development as an impact of the globalization process. He explained how European GSM technology could spread throughout the world with the concept of roaming. In social and spatial development, it is interesting to pay attention to the GSM development. GSM was developed by Sweden, a Scandinavian country with only nine million inhabitants. ICT practitioners in Sweden realized that this kind of service coverage of telecommunication development would not have the desired impact, so they developed a concept of roaming, to provide telecommunication service to people who reside in Scandinavian countries. Meanwhile, the US developed CDMA technology because its ICT practitioners concentrated on large geographical coverage without adapting a concept of roaming. In the next phase, because of their experience in developing a concept of roaming, GSM technology entered the European region (Germany, the Netherlands, Spain, Portugal, and UK), then expanded to Asia (including Japan, because his telecommunication technology type could not compete with GSM, so Japan joined to develop GSM technology), Middle East, Latin America, and Africa. The latest development is that the US has realized that consumer demand for GSM technology is high and that investment in ICT is needed, so the ICT practitioners in the US developed a technology of WCDMA (a wide band of CDMA technology) which is a convergence of GSM and CDMA and known with a concept of LTE (long term evolution). Mr. Siddik concluded that in terms of ICT industry, system (ICT infrastructure development), terminal (wireless ICT's device, i.e. cellphone) are the most important variable.

Furthermore, such variables have to serve sufficiently the people within specific geographical coverage so economic of scale can be reached, that is why he described CDMA technology as more advanced compared to GSM, because of market behavior CDMA has to be transformed into the concept of WCDMA to reach economy of scale. In terms of spatial development within information age towards 2020, speed (in bandwith) to access is the most concern. Again, this is an example of the effort to promote a communicative city by providing appropriate telecommunication network to stimulate economic development (Jeffres, 2010: 100).

Response to the governmental policy issue leads to the discussion of the future direction of telecommunication service development in Indonesia based on development stakeholders. The cooperation among development actors such as the government, ICT engineers, economists, and the people are significant factors. This in line with the statement that communication pattern is to stimulate economic activity and enhance relationships among development actors which must be covered by the policy (Jeffres, 2010: 100). These include:

Government has to realize that the system development of ICT is expensive and has to be included in national, regional, and local development concern to accompany physical infrastructure as a way of alleviating urban and regional development problems. Mr. Siddik showed evidence how Malaysia could succeed in creating golden triangle development (Sepang-Kuala Lumpur-Putra Jaya) which is supported by ICT's system (in this case, Ericsson took part in developing ICT's system).

ICT engineers have to include market behavior in developing ICT technology not only in system development but also terminal development. That is why Ericsson tried to cope with this situation by separating system development (high end technology which is handled by Ericsson engineer itself through software development) and terminal development (not a high end

technology but the technology which understands consumer behavior. Terminal development is handled by joint venture between Ericsson for the engineers and Sony for the designers who understand market behavior). Mr. Siddik explained that in Indonesia, the latest ICT terminal products and system exist.

Economists. So far, economists are the parties who understand well about the consumer behavior of ICT products especially terminal products (i.e. cellphone). That is why the coalition of Ericsson's engineers and Sony's designers could compete with Nokia who understand more about a sensitivity of consumer behavior in Indonesia. Investments in ICT could give significant impact in increasing national and regional GDP as well as increasing tele-density (a sufficient mobile technology compared to the number of the people to ensure those people could correlate through telecommunication).

People. In examining professional experiences in ICT industries and in discussions in international seminars and forums, there are two main aspects in western community daily life which trickles to Indonesian people. Life is a matter of sex and shopping. Those two main aspects in consumer behavior encourage people to access information (including data), voice, picture, and moving picture. So, a discourse in telecommuting theory which said that telecommuting could encourage productivity and accessibility has to be accompanied by the understanding of consumer behavior about the eagerness of getting pleasure in terms of sex and shopping.

The Highlight of Characteristic of Mobile Technology Service in the Eyes of Telecommunication Service Bureaucrat

The normative ICT development in Bandung metropolitan area can be concluded from the interview with Cahyana Ahmadjayadi, Director General of ICT Application at the Ministry of Information and Communication conducted during the summer 2010.[10]

Responses to governmental role leads to the discussion of socialization of the advance of ICT development, developing synergy among stakeholders, and enhancing ICT knowledge.

Socialization of the advance of ICT development. The advance of technology can be seen as a desire to make easier life for the community, especially in dealing with particular problems. Bandung's people are able to adjust their daily life to the advance of ICT. Take a look at how Bandung's citizens could get advantages by the creating wifi hot spots surrounding university campuses, commercial centers and cafes. This is an example of the encouragement of community attachment to promote a communicative city (Jeffres, 2010: 100). These include:

Development synergy among stakeholder, such as among public sector, private sector and the government must be encouraged in order to achieve a better urban environment. The government serves as a policy maker that must be able to formulate suitable policy to cope with current problems especially traffic congestion by optimizing ICT usage. The private sector is expected to play an active role in order to develop ICT by considering the existing urban problems and addressing the needs of the public sector. Still, the government is the key for success in coping with Bandung's problem. There is no other way for private sector and the public to work hand in hand with the government to perform a better environment in Bandung region. This is an example of the effort to promote a communicative city by providing

[10] Cahyana Ahmadjayadi is an internet activist. He promotes the usage of radio as media for citizen journalism in terms of traffic monitoring. He introduced the healthy internet connection regarding adult contain. He is a doctor in law with his research on enhancing e-procurement to encourage good governance in Indonesia.

appropriate communication pattern to enhance the relationship among stakeholders to promote economic productivity (Jeffres, 2010: 100).

Enhancing ICT knowledge. The best thing to do for the Bandung region as a center of excellence is to develop advanced education and research on ICT. So far, there is still no particular ICT infrastructure to cover the Bandung city problem, especially to alleviate daily traffic congestion. It is expected that current ICT infrastructure, such as the cellular network system and hot spot internet could be implemented as tools to alleviate Bandung's traffic problem. This is a sign of the challenge in enhancing ICT knowledge, towards development of a communicative city. Jeffres suggested that the effort to provide appropriate ICT infrastructure needs to consider existing the communication system which consists of: 1). Identifying community's communication system gaps to understand the alternative of a communication system; 2). Suggesting alternative communication systems to promote better urban development based the basic goals of the community considering existing communication system and urban development; 3). Suggesting appropriate possibility to response the communication issues identified by the community (Jeffres, 2010: 103).

Responses to the development goal lead to the discussion of ICT development in the context of Bandung region and governmental effort to develop ICT. These include:

ICT in Bandung region. There are ICT applications in the Bandung region especially as a response to the need for better urban environment. ICT in transportation issues can be seen by the application of ICT for a self-service parking system in nearly all public and commercial buildings. Recently, a mobile service system has been adapted for taxi services. In terms of traffic congestion, radio can be used as an informative media to inform urban citizens about traffic situations, as has been done by Radio Shinta and PR FM, which provide interactive

information about current issues in the city minute by minute. These efforts are very significant for the urban residents to understand about the current situation in their surrounding area. This is an example that the implementation of point to point communication that is tied to the problem in geographical place (Jeffres, 2010: 100).

In terms of governmental effort to develop ICT, a cooperative approach has been used in the case of ICT development. In terms of implementation, it has to be admitted that sometime the Government policy contains political sense. However, other components must be able to responds and provide the precise advice that is needed by the community itself. This is a challenge in promoting a communicative city especially related to the creation of appropriate policy to encourage community attachment through ICT development (Jeffres, 2010: 100).

Responses to the governmental policy issue lead to the discussion of tremendous potential in ICT to support urban development and ICT implementation. These include:

There is tremendous potential in ICT to support urban development like Bandung and its surrounding area. The perception of ICT and the purpose of ICT implementation are the first steps that must be formulated to optimize the advantages of ICT in the field efficiently. In this case, the support system can be focused on enhancing the role of the younger generation, especially higher education students as agents of change in ICT development in Bandung, since so many universities are located in Bandung region. The existing ICT infrastructure, such as wifi in public places can be optimized to cover Bandung's problem, such as utilizing wife to monitor daily traffic management in certain corridors. Other usage is to give actual information which can be used as inputs for policy making process. This is a statement to reply the effort in providing appropriate ICT infrastructure needs by considering the existing communication system in the context urban development (Jeffres, 2010: 103).

ICT development segment. It is important to conduct a pilot project in the particular sector where ICT is going to be adapted. A pilot project is a way to promote ICT as a new technology on a gradual basis. Slowly and surely the advantages of ICT can be perceived by the public. One way and two way communication types that are conducted in an intensive and parallel way along with the appropriate approach to the key stakeholders to get better understanding about the advantages of ICT and to optimize it for particular implementation as a response to the stakeholder's need.

ICT implementation could give positive and negative impact. In this case the government has to be able to promote its positive impact and anticipate negative impact which could be raised. It depends on the system where ICT is going to be implemented; the character of development actors in that system and efforts to disseminate ICT to every member of the system, likewise monitoring and evaluation of ICT projects that have been done in order to offer an optimal solution in alleviating the negative impacts. To promote ICT implementation and anticipate its negative impact, it is important to identify the appropriate communication system (Jeffres, 2010: 102). For instance: identifying the type of current citizen's involvement; understanding key actors among groups, organizations, and institutions; the sample of communication diaries among groups, organization, and institutions; an inventory of mass media along with adapted telecommunication technology; inventories of physical locations including public activities to understand communication behavior.

The Highlight of Characteristic of Mobile Technology Service in the Eyes of Telecommunication Service Provider Employees

Here are some highlights from the interviews with middle management employees[11] in Research and Development Division of PT. Telkom, Indosat, and Telkomsel[12] in order to understand the characteristic of telecommunication service in Indonesia.

Responses to the governmental planning role lead to the discussion of ICT service availability, the effort in introducing new technology to the society, and the government's role in ICT development. These include:

ICT service availability. This provides the characteristics of services offer by Indosat, Telkomsel and PT Telkom. The discussion showed that in terms of telecommunication service, Indonesia has communication capital for urban development by stimulating the usage of mobile technology (Jeffres, 2010: 101). In general Indosat provides nearly all telecommunication related services, from wireline based network (fixed phone, data communication), wireless based network (GSM, CDMA, satellite phones services), retail telecommunication (for individual and family packages), and for corporate communication purposes (company development solution through LAN networking, frame relay, bundling corporate service), etc. Telkomsel has been developing nearly all high end technological based communication network services which are related to the telecommunication services on data, short message service, VAS and broadband with various packages. PT Telkom provides service for small and medium enterprise and also for retail purposes. Telkom has been developing ADSL (asynchronous digital subscriber line) technology which has the capacity to establish broadband technology implementation (until 128

[11] The interview is organized by Mr. Sony Ari Yuniarto from the Research and Development Center of PT. Telkom.

[12] Indosat and Telkomsel are the extensions of PT Telkom which provides cellphone and internet services, and currently have been developing their telecommunication service in a competitive ways. The interview is conducted during summer 2010 and never been published in scholarly paper.

to 512 kbps) in the current telecommunication network system (along with the existing land line network system that uses copper cable network system). A brand new product of Telkom is Telkom speedy (www.telkomspeedy.com). Through Telkom speedy, every person can use internet connection and internet TV (IP TV or internet protocol based television) through their own computer by plugging it into a land line telephone system. Recently, there is a new technology's is offered, namely SpeedyEye with a purpose for home monitoring that can be run through land line phone connection system (http://speedyeye.telkomspeedy.com/). Other high end technology which is provided by Telkom for small and medium enterprise is a blue chip (for enterprise use). For extreme speed, Telkom offers metro Ethernet which is sufficient to deal with data communication among headquarter office and branch offices. In terms of content service development, Telkom offers dedicated line (true broadband larger than 2 Mbps), namely Ethernet connectivity service, business network service (network service and managed equipment), managed service (hosting, collocation, disaster recovery center), and managed application service (e-office, virtual contact center, and distant learning).

The effort in introducing new technology to the society. Several methods can be adapted, for instance through ATL (above the line for mass audience) and BTL (below the line for particular segment). ATL can be done through media advertisement such as television, radio, magazine, or websites BTL can be done through media banner, pamphlet, streets advertisement spot (billboard) or in commercial center, or even door to door advertisement. In detail, Telkom has a specific method to advertise its products through three marketing channels: enterprise service for corporation customers, customer service (Indonesia is divided into west customer service and east customer service) to serve retail or households and inter-carrier service (through OLO-other license operator or other operator which needs Telkom's services/products).

The government's role in ICT development. Through existing policy on telecommunication development, usually the government provides direct monitoring to the establishment of ICT development for the retail segment. By implementing an operation assessment test (ULO=Uji Layak Operasi), development license will be given if the ICT development concept the mechanism test. Normative direction from the government is provided by the Directorate General of Postal and Telecommunication under the Ministry of Information and Communication in association with the State Ministry of State Own Enterprise. Business competition is regulated by special institution, a business competition supervisory commission (KPPU=komisi pengawas persaingan usaha). At the regency and city level, local government has an obligation to pursue location permits and recommendations for ICT development installation.

Responses to the development goal lead to the discussion of the initiation of ICT development to regency and city level, ICT faced challenges with metropolitan development control, and cooperation efforts among telecommunication service providers. The discussion concluded that there is a willingness of the telecommunication service as part of development actors to promote a communicative city by providing suitable telecommunication service. This can be seen as an example of the effort in community attachment by participating actors that has to be covered by suitable policy as the first indicator of communicative city (Jeffres, 2010: 100). These include:

The initiation of ICT development to regency and city level. The ICT development program is usually initiated by telecommunication companies by providing a product roadmap in a corporate strategic scenario (CSS), including the business investment segment. A good communication and development planning synergy is better to be established earlier with the

local government to build a synergy with current development scenario. The missing link with the planning coordination with the local government is that not all ICT development initiation has been done through these mechanisms. The intensive coordination with the local government is only be made if the services or the products are related to the social, cultural aspects, governmental issues, such as: e-government development, online procurement system, internet goes to school, or e-police.

ICT to cope with metropolitan development control. The respondents strongly agreed with the idea of cooperation with the local government in development control in the context of urban and regional sustainable development. They said that all telecommunication services and products of Telkom, Indosat, and Telkomsel can be used to deal with development control using such simple strategies as short message service, conference calls, video conference, VoIP technology; Permata (audio outlet service), web conferences, unified communication, and internet based protocol services. In short, telecommunication companies are able to provide telecommunication infrastructure (network, venue, and equipment), support system product and service (selling outlet, customer service outlet). Recently, Telkom has begun to provide mobile service (not only fixed service) as a reflection of a three windows concept, a concept which is represented by computer screen based service, mobile service, and also television service. The high end development of the three windows concept is believed to be a suitable telecommunication service to cope with job-housing mismatch phenomenon.

Cooperation efforts among telecommunication service providers. Among telecommunication companies there are mutual cooperation efforts which have been established, such as in joint use of BTS towers with the consideration of urban landscape, satellite access service, high speed bandwith for data transfer to the international connection and interconnection

service for voice and sms services. Other possible use of these cooperation efforts is to make telecommunication service and product affordable for the urban and rural residents.

Responses to the governmental policy issue lead to the discussion of the challenge of ICT development in coping with metropolitan problems, the implication of corporate social responsibility (CSR), and the ability of ICT to cope with job-housing mismatch. In terms of communication in communicative planning, a possibility to form informatize planning is wide open. Informatize planning means to enhance the information to promote a communicative planning. This includes the enhancement of PT Telkom in responding to governmental policy issues to encourage changes in governmental policy. For example, the enhancement of the planning process and public action by involving participating actor in communication transfer to influence planning action (Innes, 1998: 53). These include:

The challenge of ICT development in coping with metropolitan problems. The most challenging is in developing network system service which can deal with BTS (base transceiver system) construction, including land acquisition, and proposing development licensing from the local government. Sometime in BTS development process, land acquisition and development licensing process are more expensive than the BTS construction itself. However, to meet the ICT development challenge, inter institutional development coordination must be made, especially related to: a). Investment cost efficiency, in order to reduce total cost for land acquisition; b). Aesthetic, by considering urban landscape in terms of locating device and equipment of every telecommunication company; c). Technological performance, many telecommunication operators will lead to an increase in equipment and energy is needed to serve the same area. In this case, green telecommunication development has to be adapted; d). Development synergy through development guidelines has been made by the emergence of

Ministry of Information and Communication Decree (16 February 2007) which focuses on Guidelines for Use of Telecommunication Tower; e). Urban and regional development scenario has to be well disseminated openly to the public, especially to telecommunication companies to reach development synergy;

The implementation of corporate social responsibility (CSR). So many CSR programs have been offered by telecommunication companies to cope with hectic traffic during national holiday; CSR to the community surrounding BTS tower especially in financial support to local schools and mosques; and free telephone calls from a natural disaster location. Recently, Telkom has been focusing CSR to cope with small and medium enterprise in every economic activity. CSR is delivered through community development. The purpose is to enhance the small and medium enterprise economy of scale. In addition, Telkom encourages CSR for the economic activity which is in line with PT Telkom products, especially to support development and product marketing mechanism (www.telkom.co.id/telkom-peduli/pembinaan-usaha-kecil/).

ICT to cope with job-housing mismatch. Telecommunication service companies have been trying to address the job-housing mismatch phenomenon. For instance it is possible to provide data service throughout metropolitan region; the data service can be developed not only with the area scope but also the whole data bandwith capacity. The only problem here is to provide financial support to make it possible. However, Telkom as the leading telecommunication company in Indonesia has reformulated its owned business mission as TIME company (TIME=telecommunication Information Media and Edutainment). In general, Telkom Group will support the possibility of alleviating job-housing mismatch, for instance by supporting telecommuting activities, through infrastructure development, as well as product varieties to respond to public.

The Highlight of Planners Role and the Emergence of Mobile Technology to Promote Better Planning Quality in the Eyes of Planning Practitioners

During summer 2009, I conducted interviews with two professional planners who regularly work to assist the government from the national to local level. My resource persons are Putu Octavia and Ryan Hakim. Octavia is a freelance planner who for thirteen years has worked for diverse planning consultants and also has an experience in working with international institutions such as USAID and NEC (Netherlands Education Center). Hakim has been a freelance planner for around thirteen years and has established a planning consultant company with several colleagues. He has experience in assisting in the planning process in remote areas such as in Aceh, Kalimantan, and Papua. The highlights of the interview are categorized to respond to the planning activities and communicative city issues in the eyes of governmental planning employees.

Response to the governmental planning role leads to the discussion of a planner's responsibility in planning projects, the procurement process, and the planner's challenge. The planner's role in a communicative city can be interpreted as one who tries to understand and resolve conflict. Hence, the planners concern is to deal with deterioration of environmental quality which is a reflection of the disadvantaged members of community in the larger context (Jeffres, 2010: 100). These include:

The position of planning consultant. Planning consultant is government partner in making a spatial city plan. Consultant takes role in arranging plan stage with working reference decided by the government. After the plan has been made, government plays a role again in the socialization and law aspect. There is a tendency for government to self-manage the making process now. Outside government planner involvement is not a 'government-planning consultant', but rather a 'government-planning expert' relation.

ICT role in the procurement process. Information and communication technology assistance in procurement process of a spatial city plan has been started in several regions, with e-procurement facilities, Bandung city has just launched a Department of Public Works and the National Planning Board. Goods and services supply process, from notification, registration, until announcement of winning bids has been done through a website. But there are several stages that must be done physically; for example, verification of expert qualification.

The planner's challenge to promote a better planning arrangement. The challenge is to frame a city or regency which is being planned in the regional constellation context to ensure the regional spatial structure arrangement. In the making of spatial structure, things to be considered are external factors such as the role of the city in a wider scale (regional, province, national), the existence of primary infrastructure network (artery road, energy, major transportation facilities like harbor or airport), the national law regulations which regulate the hierarchy of infrastructure, the minimum service standard, and other concerns.

The sounding of environmental concern. In terms of land use planning, factors that need to be considered are the issues in environmental support (particularly the availability of clean water, protected areas,and hazardous areas), population development and distribution, social cultural condition (ethnic groups, social vulnerability), economic activity, and future vision of the city. Environmental support capacity is considered to be the boundaries in city development. Population development is important to be considered in relation to the future facility and land requirements to accomodate citizen activities. Social and cultural conditions are observed to see if there is a potential for conflict between certain ethnic groups and if it does exist, whether the condition could be minimized or even eliminated using certain land use regulations (for instance by doing the separation or even assimilation by locating public space where society can be

interacting together). In this case, the practitioner plays a role in capturing aspirations from society (in receiving and allocating their needs in spatial plan) and also as a facilitator between different groups of society.

Response to the development goal leads to the discussion of the planning scale, the importance of place, and the effort to encourage the ICT usage. The discussion showed that towards a communicative city, the meaning of place along with the geographical scale is important in conducting the planning process. This is because the ICT usage has not been adapted yet. While, based on conceptualization of a communicative city, even when telecommunication infrastructure and ability to share planning information is promoted, mobile technology as media to perform electronic communication still has strong attachment with geographical place (Jeffres, 2010: 100). These include:

Planning in the metropolitan scale. In terms of metropolitan context, also considered in arranging the spatial plan of a city/metropolitan/province is the plan of some areas which are located in surrounding planned area. This is important since in Indonesia's context there is often lack of synchronization between one plan with another community's plan that often causes interregional conflict. For example, an area in the upper course plans to open a new forest area in its region, that will become an agricultural area, whereas in fact this plan has the potential to cause flood in the lower course, because the forest in the upper course is a water absorption area. Another potential conflict that is necessary to be concerned with is the imprecise administration border between one region with another. Although the determination of the administration border is government's duty, oftentimes planning practitioners are burdened with the duty to determine the administration border. If this is happen, first thing to be done is coordination of the border determination with the government of the border region, usually in form of a seminar and

planning arrangement socialization. Thereby, sometime a practitioner also takes on the role of a connector in enforcement of coordination intergovernment level.

The importance of place. There is an assumption in the spatial structure arrangement making process that people in a particular residential area will consume nearby public services. While for metropolitan context, there is a phenomenon of job-housing mismatch between residential area in suburban region and employment location in urban city center. For a current planning process it can be explained that the closeness of facility access with the center of residential is important, especially to render efficiency in citizen mobility. By adjoining development center, indeed it is to be expected that citizens around it will be able to utilize the facilities properly that have been provided at that area . Yet, besides physical closeness, service level factors must also be considered. Facilities with national or regional service levels usually were located near the access of main road or major transportation facilities in order to make it easy for citizens of different regions to remain in contact with one another. In fact, the Regional Spatial Plan (RTRW=Rencana Tata Ruang Wilayah) that had been made often was not set as a reference in development implementation which influenced structure and spatial pattern of the city. The result is disorder in spatial use implementation such as inefficient land use (many lands abandoned at the center of the city), urban sprawl, the change of protected area's function, traffic congestion, and pollution. These cases particularly have been initiated by the lack of coordination among all parts involved in city development. Government as the plan maker did not obey the plan that they themselves had made because of some pressure from investors; meanwhile society (and the private sector) as the users of plan have made some infractions based on lack of knowledge of the planning contents or certain economic interests.

The effort of ICT usage by the planning consultant. There is no information and communication technology assistance in creating a process of spatial planning yet. Even though it exists, it is only a communication process through internet between planning consultants and government as the project client. That process usually happens because of a personal agreement (not in formal standard operation procedure process), so it depends on human resources in each region.

Responses to the governmental policy issue lead to the discussion of ICT concerns in the planning process, including integration, implementation, and completion of the planning project. This can be seen as an example of the existence of the unifying planning theme, namely the interplay of ideas, societal trends, and development of authority over managing growth that shaped the field (Birch & Silver, 2009: 115).[13] For Indonesian context, this phenomenon occurs against a background of shifting governmental policy from centralized to decentralized policy (known as regional autonomy policy), dealing with the results of reducing regional inequality considering unity in diversity, addressing the emergence of ICT development in daily life, and the effort to combine a top down approach with a bottom up approach to achieve consensus building. These include:

ICT concerns in plan making process. Telecommunication network development is planned in an integrated way directly with the direction of transportation and energy networks, as a part of the spatial structure arrangement. But the ICT consideration is done in a normative way, not in a detailed way, and since it always happens in the field it is hard to find suitable data

[13] For the American context this phenomenon occurs against a background of shifting ideas about property rights protection, dealing with the results of urbanization, and addressing social question, especially immigration or other internal population movements (Birch & Silver, 2009: 115).

related to ICT network.[14] Usually data is limited to the availability of the existing land line phone plan, not including the development of internet connection service and the development of BTS for cellphone connection services.

Issues on integration of plan: plan making process, implementation, and controlling. In making the plan, regional planning products from surroundings area or from higher hierarchy are usually considered. For instance in arranging city plan, planners must consider the plan of surrounding regions, the province plan, and the national plan. Because of these considerations, the plan of a part of a city region was made by looking at the city plan and the urban area division based on their functions in a city wide context (bagian wilayah kota=BWK) that was located on surroundings. Thus, institutionally one city plan should not be in contradiction with another. However, in the implementation these checks and balances may not work. Spatial use conflict often happens because there is no coordination among all of the development actors and also because of the absence of development synchronization with planning document. This is a challenge in promoting the creation of a communicative city. On the other hand, the incentive to promote coordination is that by sharing data as an entry point, planners promote attachment among participating actors. Another product that is helpful is the base map that has to be committed by administrative boundaries.

The practice of planning implementation. In order to make a plan can be implemented properly, it is advisable that a higher/more macro plan only formed as development direction document. The more detail document can be formed as a zonation plan for directing the development techniques. Citizensshould be involved in making the more detailed plan in order

[14] ICT data based on telecommunication service is handled by PT Telkom. In general, getting telecommunication related data for planning in regional and regency-city level is hard since there is no memorandum of understanding between the government and PT Telkom in data provision. It leads to the situation where telecommunication service as part of planning material is formulated in a normative scale.

for them understand and feel a sense of ownership of the final planning product. In addition, regional and city planners work based on terms of reference and higher for a certain point of time with certain salary. So, after the employment agreement between planner and consultant ends, the obligation of the planner to provide 'after sales service' to the planning project is also ended. In this case, it is often for a certain reason a planning project lasted past the completion deadline, and the government which is a partner of the planning consultant as for more service that make both planner and Consultancy Company may be unhappy because it is beyond their capacities.

Planning project completion issue. The creation of a plan is too complicated. It may take years before a plan been ratified in legal aspect. For instance in Kutai Kartanegara region the planning document had not been ratified until the planning period was over. I agree with a self-management concept, it can make the process more efficient. The public officer recruitment, after all, is already based on expertise, the government should be able to make their own spatial plan.[15]

The Highlight of Mobile Technology and the City in the Eyes of Suburban Bandung Metropolitan Residents

To understand more about ICT and the city in Bandung metropolitan area, I also conducted interviews with suburban residents in order to find out the latest ICT usage from suburban residents who are likely to do daily commuting.[16] I highlighted the mobile technology usage which is represented by the emergence of internet service and cellphone usage to understand the

[15] Based on the regulation, the planning project is usually done by the consultancy firm, which is indicated by the submission of hardcopy and softcopy (compilation, analysis, and final report) of plan document.

[16] A result of this interview is adapted in paper that I have been presented in ACSP Conference 2010: Sutriadi, Ridwan. 2010. Coping with Decentralization Era and Information Age in the Context of Indonesian Metropolitan Development. Case Study Bandung metropolitan area, Indonesia. ACSP Conference, Minnesota, USA. In this case, random survey has been done to outer suburban residents who live outside Bandung city and within Bandung metropolitan area. Survey is conducted to housing location in eleven district city centers (IKK=Ibukota Kecamatan), with total sample 548 questionnaires.

effort to promote community attachment through mobile technology towards communicative city. In general, it was found out that suburban Bandung Metropolitan residents are conscious of the existence of globalization and the information age which is indicated by ICT usage, especially on cellphone and internet service.

The phenomena in internet and cellphone usage can be seen as indications of the emergence of the information age in the Bandung metropolitan area where synergistic relations between urban place and electronic space (Graham and Marvin, 1996 in Audirac 2002: 214) is needed. In terms of the urban development challenge, inter-jurisdictional development synergy within Bandung metropolitan area urban system could be supported by mobile technology usage. This leads to the conclusion that the role of governmental planning officer as forefront in planning management has to be encouraged to respond to the urban development problem.

In particular, the characteristic of internet and cellphone usage of Bandung's suburban residents lead to the conclusion that the suburban residents knew about mobile technology as communication channel to promote community attachment. Hence, the potential usage of internet has not been used optimally to stimulate economic productivity, and improve on the daily transportation problem rather than enhancing social relationships.[17] To promote a communicative city by enhancing the usage of mobile technology, cultural transformation is needed to drive mobile technology usage not only to promote social relationship but also economic productivity. On the other hand, the government has to promote ICT's learning as the consequence of the mobile technology usage where the cost for establishing telecommunication network and having mobile technology must be considered. The mobile technology usage in

[17] The emergence of mobile technology in Bandung metropolitan area leads to the new direction of face-to-face community attachment or known as 'silaturrahmi' (a conceptualization of brotherhood, which is a part of Sundanese culture) to virtual community attachment. So, it is not surprise if Bandung's people prioritize mobile technology usage to promote social relationship rather than economic productivity.

terms of planning management and bottom up planning process may lead to the emergence of volunteered spatial based planning (Evans-Cowley, 2010: 144), where ordinary people could enhance sharing communication to promote planning management since they own mobile technology and transfer information through the existing telecommunication network service.

The emergence of internet service: a). Knowledge of internet service. This is important because some of 11 IKKs are less urbanized with their activities based on agricultural. Surprisingly, 88% respondents know about internet service, 9% do not know, and the rest (4%) are not sure about internet service; b). Advantages in using internet service for daily life. Mostly respondents agreed that internet service is useful (75%), 7% disagree, and 18% not sure whether internet is useful or not. Surprisingly, more than 70% respondents said that after they are using internet they can get information, establishing communication, and online transaction easier than before; c). In terms of internet usage, most people use internet 30-60 minutes, and 60-120 minutes per day. Furthermore, about online activities, most respondents said that they often using Facebook (21%) followed browsing activity for particular reason (17%), and other activities (in average) are for chatting with Yahoo Messenger or with other messaging sites, blogging and play with Twitter; d). By using internet, most respondents can increase online social networking (59%). The interesting part for planners' response is that internet could increase travel for non-working activities, especially for hanging around urban areas or taking tours, and 37% respondents said that they could increase their shopping activities; e). In terms of internet priority usages: most of respondents said that they use internet for non-business activity (80 respondents). However, as the second highest rank (51 respondents) said they used internet for both business and non-business activities; f). Respondents tend to use internet in warnets or cyber cafés (147 respondents), some of them accessing internet in their house (68 respondents),

some of them in no specific geographic location (using internet mobile by cellphone: 21 respondents), only small of them using wifi/hotspots (18 respondents); g). In terms of ICT usage tools, respondents tend to use cellphone in doing ICT service (170 respondents), internet (117 respondents), TV (105 respondents), and Radio (90 respondents); h). In terms of time percentage in accessing ICT tools (TV, radio, internet, and cellphone), most of respondents said that they are spent 40-60% to access TV and cellphone, 30% to access radio, and less than 20% or 40-60% to access internet;

Cellphone usage: a). Most respondents have cellphone (92%), and 8% do not have any cellphone; b). Most respondents are satisfied with the information by cellphone service (62%), some of them are not satisfied (20%), and some of them are not sure (19%); c). In terms of monthly pay bill, most respondents spent 20,000-50,000 rupiahs, some of them spent 50,000-100,000 rupiahs, only few of spend more than 100,000 rupiahs; d). Most respondents said that they use cellphone for doing business; some of them use cellphone for browsing, social network, and short message service banking;

The Highlight of the Emergence of Mobile Technology and a Communicative City in the Eyes of Governmental Planning and Information-Communication Employees within Bandung Metropolitan Area

Some efforts have been undertaken to identify the governmental issues (the governmental planning role, development goal, and governmental policy related issues)[18] from key governmental planning employees. Responses to the governmental issues have been identified from the ICT actors (academician, telecommunication service company owner, telecommunication service bureaucrat, and telecommunication service provider employees), planning practitioners, as well as suburban Bandung metropolitan residents. Then, to stick to the

[18] The governmental issues are derived from Cohen-Blankshtain et al. (Cohen-Blankshtain et al., 2004: 2656-2657) about the role of city officers as the forefront to promote sustainable development.

research focus, during summer 2010 I also conducted some interviews with respondents at the governmental planning offices, the information communication office of Bandung City, plus middle management officials at PT Telkom, and the House of Representative member of Bandung regency[19]. The intention was to explore input into the governmental issues related to the capacity building of governmental planning employees to perform better planning management towards communicative city by the usage of mobile technology.[20] The interview categories included: the characteristic of mobile technology usages as an input to the enhancement of community attachment by support of mobile technology as an input to the capacity building; Second, the mobile technology in relation to planning supervision and enhancement of current planning performance as inputs to the better planning management.

The characteristic of mobile technology usage: a). Issues in mobile technology usage. There are two types of people activities based on mobile technology usage, mobile technology based working activities and non-mobile technology based working activities. In this case, mobile technology usage cannot reduce daily working travel because these people have strong attachment to a working location. However, those who have flexible attachment to their working location because of mobile technology usage still have physically travel to do other daily tasks. Face-to-face activities cannot be easily limited because they may also be related to the affordability in getting suitable mobile technology hardware and connection service. To enhance a working type which has a flexible attachment to a work location, it has to be followed by the preparedness of the transformation of the working system, such as based on productivity,

[19] The consideration is Bandung regency lies at outer Bandung suburban area, has the largest area within Bandung metropolitan area, and potentially to conduct daily commuting to Bandung city center.

[20] The result of this interview is framed into a paper with the title "Telecommuting: Working at Home! Optimizing the Usage of Cellphone and Internet. Option to Cope with Large Sized City Problem," which is a part of Proceeding of National Conference of Smart Green City Planning 2010 (Sutriadi and Marendraputra, 2010).

confronted with time limit, and creation of a suitable online working system and procedure to make their work legitimate from an administrative accountability point of view; b). Regarding cellphone and internet connection service of the respondents, some began to get cellphone service beginning in 1995. The highest year when they began to get cellphone service is in the year 2000, that is around 17% from all respondents (total respondents are 78, and 22% of them did not answer). Related to the telecommunication service which provides cellphone service, most government employees tend to have service from Telkomsel (38%) followed by Indosat (10%), and XL (8%), 16% answer other telecommunication services, and 28% did not answer; c). Mobile technology ownership. Most residents have internet connection services, firstly it began on 1997. Slowly and surely usage has increased over time (2007 and 2008 are 9% and 2009=12% and 58% of respondents did not answer). Most respondents use Telkom and Telkomsel (22% and 12%), Indosat (10%), and etc (6%), while 50% of respondents did not answer. Still, the usage of ICT within PT Telkom Company indicates that Telkomsel has the highest use in cellphone and internet connection service, because they already have infrastructure network together with land line phone infrastructure, where land line phone service monopolizes by PT Telkom; d). Mobile technology to stimulate productivity enhancement. Some respondents said that internet and cellphone network distribution quality is not comprehensive and consistent among all of the Bandung metropolitan area, especially rural areas and in outer suburban areas which lie within Bandung regency territory. There are groups of people that like to use free internet connections, which in the Bandung metropolitan area includes wifi connections available in some cafes and food court in every Shopping Center Mall. Induced travel becomes important for the Bandung metropolitan area. Most respondents also said they were concerned about a virus attack to ICT hardware, not only to computer, but also to cellphone, especially a

modification of international wide virus software. This virus had been modified by local creative people who made it difficult to resolve; these types of viruses are not widely identified on the list of virus definitions. As an example, there is a cellphone virus that can 'eat' a usage service connection, there is a virus who can directly delete all files with extension related to CAD (computer aided design), which will delete all maps that have been created in related program such as Corel Draw or Adobe Photoshop. There is also a virus which can delete or reduce Microsoft Word files; e). Mobile technology development as a representation of ICT development is not just a matter of a means to enhance accessibility and productivity. Knowledge in how to use ICT wisely is important because it could transform traditional way of communication with the new form of communication based on ICT. Most respondents spent 10% to 20% of their salaries to get cellphone, land line phone, and internet connection service. From respondents it was learned that people have limited knowledge about mobile technology usage, and that people view technology acquisition as enhanced social status in the modern world. This is an indication of the absence of the similarity perception about mobile technology, because the lack of socialization of mobile technology usage including its advantages and drawbacks that should be well understood and anticipated, including the preparedness of the need for suitable mobile technology hardware, software, and connection service because some people feel that the requirements are still expensive; f). Most mobile technology hardware is promoted by private sector, like any other private goods, the private sector likes people to buy more and more, change or upgrade the product periodically to the high end products, and even they cannot buy it in cash, they can buy it using credit card. Take an example of the cellphone market in Bandung, as the most attractive cellphone market in Indonesia like in Batam area (near Singapore) or Jakarta, and Surabaya[21]; g). Lack of public socialization to disseminate that

[21] This is new thing because based on my experience that is a group of people like to see this situation as an

through mobile technology people can reduce physical travel. Some respondents said that to conduct physical travel to working location is the travel purpose. In this case a travel purpose is not a single purpose travel but also multiple purpose travel that cannot be done through non-physical travel completely. Respondents said that ICT could not fully replace physical travel because people are looking for satisfactions in consuming goods and services that they could not find near their homes. Furthermore, physical experience and recreation are the most non-working activities that people believe are cannot be replaced by virtual access;

The mobile technology in relation with planning supervision and enhancement of current planning performance: a). Mobile technology and planning supervision. A focus is on land used and its infrastructure and how the government employees perform the planning process, especially in implementing an idea of enhancing the role of satellite cities in reducing daily travel to the city center. Respondents suggest several options to encourage the satellite cities development, such as: (i). Regional constellation in performing Bandung metropolitan area development plan is important in activating the role of satellite cities in the detail plan, such as using adaptable zoning regulation as a continuation of Detail Spatial Plan (RDTRK=Rencana Detail Tata Ruang Kawasan). Some specific suggestions are raised: Soreang as a civic center, residential center, and commercial center for Bandung Regency; Rancaekek and Cileunyi as transit city, industrial center, and residential center; Gedebage as new primary center for Bandung city for new sport center, commercial center, and a place to relocate civic center for Bandung city; industrial and trade development center in West Bandung; and encouraging new development activity centers in southern part, namely Cililin and western part, Cikalong Wetan.

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opportunity to get fresh money. They buy cellphone using credit card, right away sell it with a price lower than the new one. Then, he got fresh money, and monthly he/she paid certain amount of money that he/she has to be covered during a year to come.

Outer suburban areas with a dominant land use on agriculture must be supported as agricultural production centers for small and medium enterprises; (ii). A compact city concept must be adapted for the Bandung city region while the suburban area must be developed using smart growth concept to respond to existing horizontal urban land used expansion; b). To enhance the role of satellite cities, infrastructure development as a backbone for urban and regional development must be encouraged. Infrastructure development cannot be separated from the classical issue of the funding limitations of the government. Most respondents suggest enhanced cooperation with the private sector must be encouraged to fulfill public needs in developing commercial centers in suburban areas to reduce the attractiveness of Bandung city center to accompany new residential development and agricultural based activities.[22] Mobile technology is important to be adapted in association with the way people utilize the limited resources and transform their economic activities, which could save natural resources such as land. However, this will not happen overnight since economic activities have to deal with supply and demand phenomenon. Like the idea of ICT practitioners, it is expected that mobile technology could be used as a means to alleviate poverty, especially for rural communities. Back to the opinion of the respondents, most of them agreed that optimizing suburban area and satellite cities can be done through empowering local people who live in and nearby those satellite cities. Empowering can be done by providing sufficient ICT infrastructure and knowledge to accelerate local economic development. It needs creativity to transform a conventional economic activity

[22] In terms of Indonesian policy, road system network are mandatory to be developed by governmental funding. Local road system, for instance internal residential area or road system to connect any residential area to the collector road are able to be developed by housing developer but for a certain point of time its operation and maintenance has to be given to the local government (the Regulation of Ministry of Internal Affair No. 1/1987, which is currently has been replaced by the Regulation of Ministry of Internal Affair no. 9/2009). For the future, the shifting public participation type has to be made to cope with this situation because the more new residential development which will influence the more burden for the local government to finance the operation of maintenance of residential infrastructure.

into the creative one. Again, human resource development is a key, along with government advisory and facilitation; c). Mobile technology and planning performance. It is obvious that the issue is unclear. The Bandung development strategy that can be well implemented in local level in terms of planning context must be provided in a detailed spatial plan (RDTR) as a detail translation of a regional spatial plan (RTRW) that must be followed by the possibility for stakeholders outside the government to get actively involved in the spatial development implementation. The very important planning objective that has to be understood by local governmental planning employees in district level is the idea of urban and regional development scenario, especially for the idea of compact city for Bandung city territory and the accommodated smart growth idea to develop suburban regions. Related to the importance of ICT to be included in detail spatial plan, here are some conclusions from the respondents: (i). ICT consideration is important in the level detail spatial plan especially in determining nodes of BTS (Base Transceiver Station) for cellphone networks and land line phone networks in a structural way with detail spatial structure arrangement; (ii). It has to be regulated this way: land line phone should be a part of the land line network service development, the cellphone network a part of regulation of BTS development including its location, and internet as an element of cyber city development concept. So, by structuring ICT elements it can be well adapted towards a better detail spatial plan material in information age; (iii). In a current plan making process, telecommunication network service development has been adapted but only in a normative way, not in a specific direction because a limitation of data and analysis that has been done; (iv). Based on the current government development policy, it appears that local government only regulates management right issues not up to management. The management appears to be in the hands of PT Telkom and other private sectors on ICT related activities; d). There are some

highlights concerning the idea of providing mobile technology to enhance accessibility in the format of the current planning mechanism and governmental organizational structure: (i). It is necessary to establish 24 hour telecommunication networks among local government units (Satuan Kerja Pemerintahan Daerah=SKPD) with the districts employees related to the span of control; (ii). The dynamic of current spatial development can be done by encouraging citizen journalism, where people could use their own mobile technology hardware and software, could be linked by camera or cellphone or even GPS technology, send through their connection service to the local government as feedback for planning implementation; (iii). Providing more public space which is completed by wifi connection in order to cope with a scarcity issue in internet connection service; (iv). Providing sufficient mobile technology cannot be done through mutual cooperation and active participation of ICT's actor like PT Telkom. Efforts have to be done to enhance the involvement of PT Telkom in planning development, including a better understanding about role sharing in ICT development.

CHAPTER 3
METHOD AND ANALYSIS MOBILE TECHNOLOGY TO PROMOTE A COMMUNICATIVE CITY IN BANDUNG METROPOLITAN AREA

This chapter is categorized into several sections, including a description of the research method, followed by analysis and discussion of the fact findings of the study to the governmental planning employees in the Bandung metropolitan area regarding use of mobile technology for capacity building and planning management. The closing section of this chapter discusses the relation of these findings with planning theories.

Research Method to Study the Challenge to Promote a Communicative City in Bandung Metropolitan Area

This research study can be categorized as an applied and explanatory project which utilizes qualitative methods (Kumar, 2005). It utilizes techniques and methods to gather information about various aspects of ICT uses in the case study, especially how ICT could support daily working activities of governmental planning employees in the Bandung metropolitan area to strengthen its planning function. In the context of inquiry mode, sets of questions posed to various participant groups related to the local planning and government developed to understand ICT current and potential usage (Heeks, 2006). The rationale for this approach is as follow:

- Such representative respondents can supply useful data about the current state of ICT and the city, especially in addressing daily activities that can enhance access to utilize resources under current development mechanisms and under governmental organizational structure.
- The current situation involves pluralistic stakeholders with different levels of authority dealing with conflicts in regencies/cities as a consequence of decades-old regional autonomy policy (Planning authority lies in regencies/cities, but it is supposed to address the regional constellation issues).
- The challenge was to find respondents with particular sets of characteristics. This included: 1). Workers who are using ICT products (hardware, software, and connection service) to support their daily activities; 2). Governmental planning employees who know how planning is made, operate, maintain, and revise; 3). Governmental planning employees who are required by regulation to work in offices separate from where they live;

To select suitable representative respondents some preliminary studies were conducted: 1). Mapping of governmental planning employees roles in terms of doing spatial planning within metropolitan area; 2). Interviewing selected governmental planning employees about their current activities in doing spatial planning nowadays; 3). Interviewing ICT practitioners in order to find out the progress of ICT development; 4). Interviewing metropolitan citizens, especially suburban residents who typically commute to urban city centers and who might transform their commuting pattern with the emergence of ICT; 5). Interviewing governmental planning employees in planning government related offices and information communication offices within Bandung metropolitan to identify levels of ICT usage in support of their work activities; and finally 6). Interviewing these same governmental planning employees in planning government related offices about their level of acceptance and their valuation about ICT usage to support their daily planning activities. In general, preliminary studies and main research are can be seen in Figure 3.1. below.

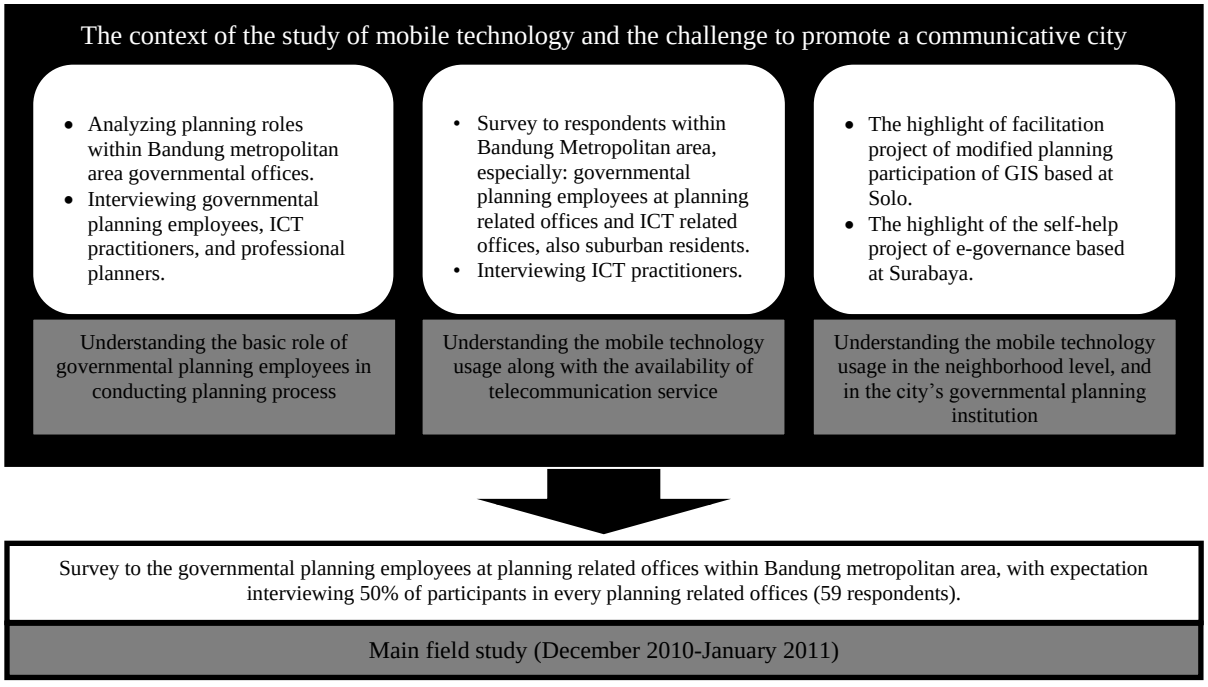

Figure 3-1. Preliminary studies as the context to the main research on mobile technology to the governmental planning employees in Bandung metropolitan area

To formulate research, there are four key questions to answer:

- What and who? To represent the general mobile technology usages of metropolitan citizen and who are governmental planning employees who deal with planning process daily as their working activities. This includes understanding their potentials as capacity building for better planning management.

- When and where? To represent the influence of mobile technology to support daily working activities, including understanding job-housing mismatch phenomenon.

- In what ways? To represent the potentials of mobile technology usage to support planning management based on the current planning process. This includes understanding the planning process content, such as data handling, planning scenario, and connection service.

- How? To represent the potentials of mobile technology usage to promote a communicative city as stimulation for better planning management, including enhancing coordination and expanding planning stakeholders.

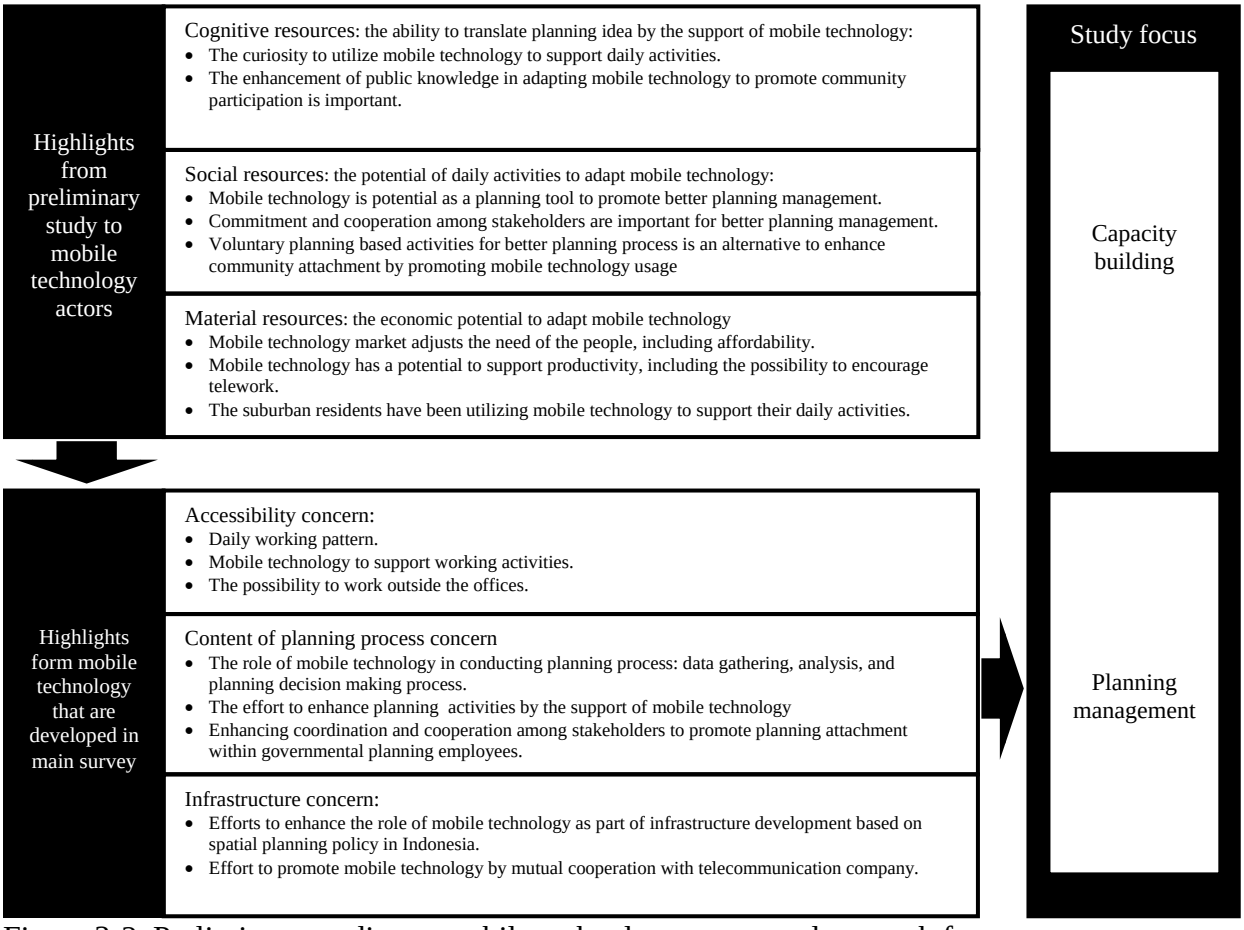

Figure 3-2. Preliminary studies to mobile technology actors and research focus

The research is constructed upon preliminary studies that have been done through various methods, such as: desk study (stakeholder mapping), structured interview type (to selected governmental planning employees and ICT practitioners), multiple choice and structured question type (to governmental planning employees and information communication related offices and the telecommunication company). Since the main research tries to follow up the preliminary studies, the type of qualitative research is done by considering: 1). The research focus, which is the fundamental research in understanding the role of ICT as a planning tool to promote a communicative cities in developing countries with the case study in Indonesia; 2). Working activities of the respondents, represented by planners who work as government employees at the provincial and local level[1]; 3). The technical difficulty in exploring information with governmental planning employees through suitable surveys to achieve the expected research output; So, in the main research more focus is placed on exploring confirmation about the role of ICT in promoting communicative city represented by the level of acceptance about the role of ICT, especially in terms of capacity building of governmental planning employees in performing better planning management. Such level of acceptance is stated through a scoring system which is developed from the Likert scale concept. This approach is tailored to the research question with the expected output (http://www.socialresearchmethods.net/kb/measure.php).[2]

[1] Governmental planning employees act as key persons in their offices in doing day-to-day planning activities. So, compared to other government employees, they tend to be busier than others. This situation also occurs in the Bandung metropolitan area.

[2] The scoring system are can be categorized into: 1). strongly disagreed; 2). Disagreed; 3). Not sure; 4). Agreed; and 5). Strongly Agree. The higher the level of acceptance or agreement the higher the score it would be. I quantify strongly disagreed= (-5), disagreed= (-3), not clear= 1, agreed= 3, and strongly agreed= 5. For some questions I also use category high-medium-low, and quantify them high=5, medium=3, and low=1. The level of acceptance of every particular theme in questionnaire is aggregated within 59 respondents.

In this case, the Likert scale method is adapted in order to confirm or know as a summative approach to the latest enhancement of the effort of ICT (hardware, software, and connection service) to the Bandung metropolitan area. As a justification, there are studies that have been conducted by adapting the Likert scale.[34]

Analysis of Mobile Technology to Promote a Communicative City in Bandung Metropolitan Area

In line with the investigation to answer the research question, the analysis is categorized into four items. Those are: the characteristic of mobile technology users, the influence of mobile technology to support working activities as planners, the basic role of ICT and mobile technology in planning performance, and finally, the description of mobile technology to

[3] The Likert scale and effort to promote capacity building. The Likert scale is used in social research especially to describe friendship patterns, social networks, work relationships, and social distance in general (Berg, 2001: 165-168). The Likert scale is also used in organizational assessment system to help administrators make decisions about whether or not their organization is ready to move into the distributed work environment in order to achieve organizational development and to enable people to accomplish working process objectives (Campbell & Grantham, 2002). Hence, the enhancement of ICT to support daily working activities is an appropriate setting in which to use the Likert scale, for instance to study online connection with kin around the world as a representation of sense of online connection (Chen, Boase & Wellman, 2002), and even the adaptation of spatial application development in dealing with a wide range of participants and related information (Davies, 2003). An objective of implementing the Likert scale is to prepare suitable valuation for strategic alignment (Luftman, 2003). Some scholars use the Likert scale for identifying access to destination, for instance in describing the phenomenon of determining residential choices (Kim & Jones, 2005) which is related to the effort to compliment or to substitute physical access with virtual access. This idea is also supported by the usage of the Likert scale in analyzing the intensity of computer usage to enhance productivity (Selwyn, 2006: 277), and also to measure success in providing suitable telecommunication network through enhancing qualified planning employees in telecommunication technology for better planning and management (Chong & Chong, 2009). Other scholars worked on the study in enhancing mobility through ICT with the Likert scale method in the context of organization communication and sustainable development (Lauring & Klitmoller, 2010). Regarding capacity building and social capital some scholars studied the enhancement of development achievement in the context of social capital with indications of homeownerships, and the willingness to participate in community activities (Carpenter, Dienere & Takahashi, 2004: 540). The Likert scale can be used to understand the level of acceptance in terms of enhancing quality criteria for particular assessment (Ssewanyana & Busler in Marshall & Taylor, 2007: 57), or even to evaluate the level of accessibility safety to connect with urban green space in the context of enhancing sustainable urban development (Stake, 2010). Along with other statistical analysis, factor analysis can be used to evaluate the impact factor for particular aspect of development (Vicente & Lopez, 2010).

[4] The Likert scale and effort to promote better planning management. Scholars use the Likert scale as a strategic way to measure level of acceptance in order to evaluate e-government implementation to look for better solutions (Theodorou, 2006), see also the Likert scale to contribute scenario planning to link between future and strategy (Lindgren & Bandhold, 2003). On the other hand, the Likert scale can be used to formulate a strategic agenda for ICT policy by considering governmental, social, and legal issues by studying the achievement in mobile learning (Annamalai, Yososutikno & Thoe, 2011).

promote a better communicative city. In terms of variables, mobile technology variables consist of hardware, software, and internet connection service. Other variables that construct capacity building and planning management are: planning activities, telecommunication networks, daily activities, daily travel issues, thematic issues related to enhancing virtual access, and planning document material issues.[5] See Figure 3-3. for illustration.

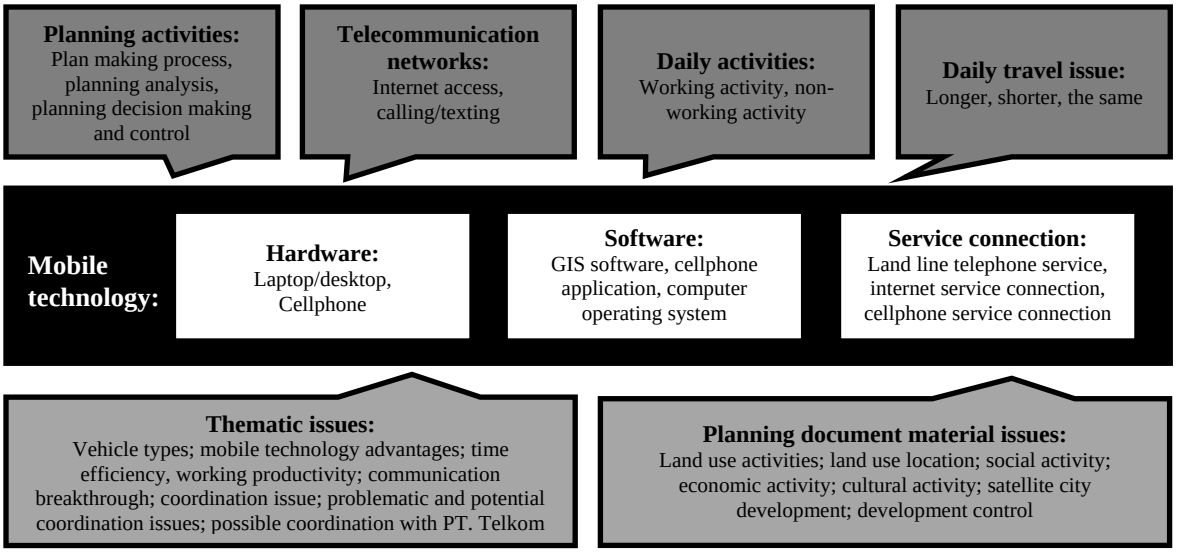

Figure 3-3. Variables of mobile technology usage to promote a communicative city

Based on the variables of mobile technology usage to promote a communicative city, the discussion of capacity building is categorized into: 1). The discussion of the characteristic of mobile technology usage to understand the potential to promote working attachment; and 2). To understand the importance of mobile technology in supporting working activities and dealing with job-housing mismatch phenomenon. Hence, the discussion of planning management is categorized into: 1). The discussion of the basic role of mobile technology in handling information and in enhancing planning performance based on the framework from the planning guidance in Indonesia ; and 2). Mobile technology to promote a communicative city, considering governmental role in planning coordination, dealing with spatial attachment issues

[5] Planning document material issues derive from planning guidance in Indonesia (Law No. 26/2007).

and enhancing planning management based on the framework from the planning guidance in Indonesia. See Figure 3-4. for illustration.

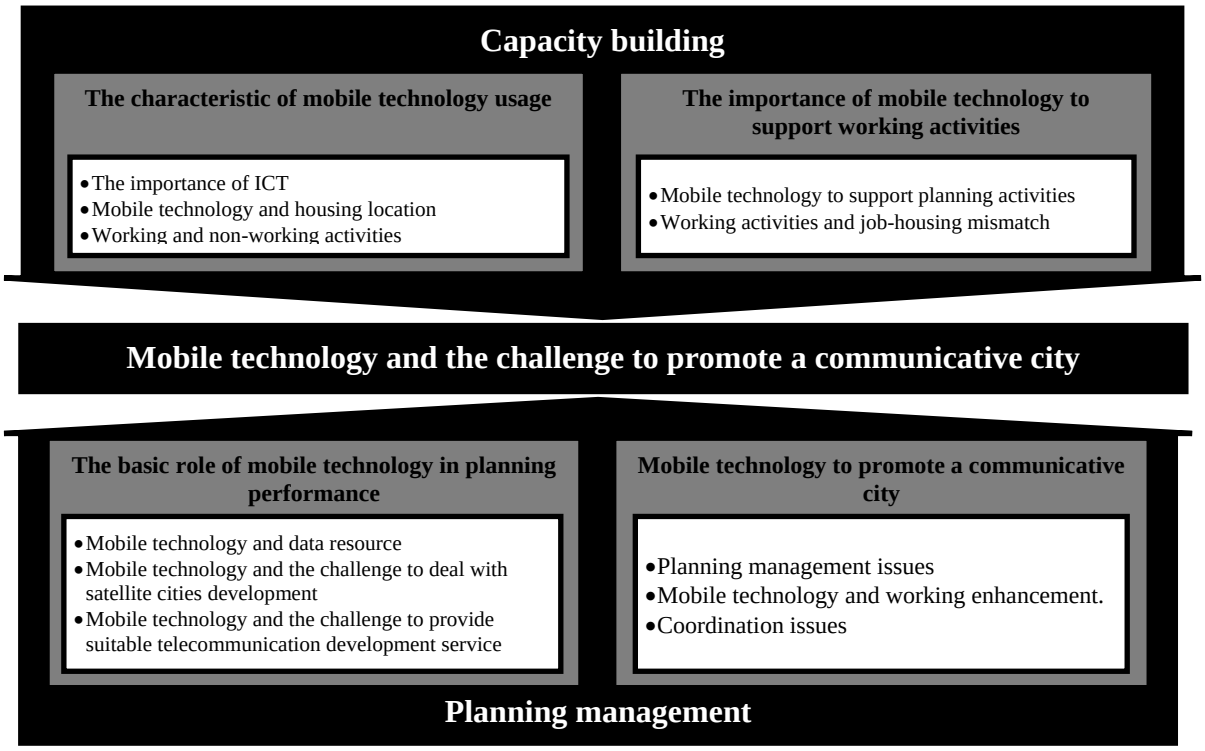

Figure 3-4. Categorizing points of discussion based on capacity building and planning management

Capacity Building: The Characteristic of Mobile Technology Usage

The importance of ICT

Most governmental planning employees agreed that mobile technology as a representation of ICT is important to support their daily planning activities. The highest scores come from planning institutions at the provincial level, such as the Office of Program Development and Control (score 32) as the governmental office that deals with annual project implementation in all regions within West Java Province; the Office of Housing and Settlement (score 30) as the governmental office that deals with all strategic region development in West Java with the spirit of economic competitiveness and considering environmental concern; and the Office of Data Center, Research and Development (score 23) as the governmental office that deals with annual

program accountability for the Governor of West Java Province and provides updated information as basic information for the entire planning program in West Java Province. At the local government level, Local Government Planning of Sumedang Regency (score 23) is a less developed regency compared to others within the Bandung metropolitan area but is looking for regional competitiveness as the center of higher education (Jatinangor region). On the other hand the Office of Spatial Planning and Housing Settlement Bandung City (score 22) deals with precise planning information and traceable records for planning permission.

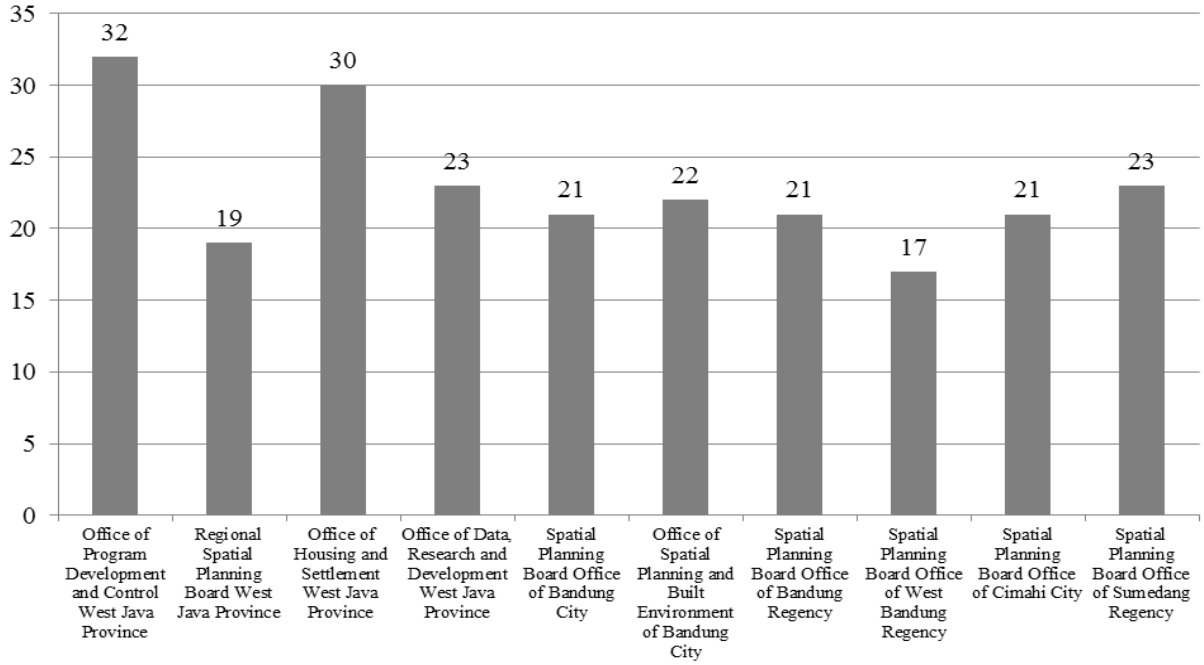

Figure 3-5. Level of acceptance of the importance of ICT to support planning process (Source: analysis, 2011)

Mobile technology and housing location

Most governmental planning employees live in the inner suburban (Gedebage and Ujungberung regions) or in the satellite cities of Bandung metropolitan area. Few of them live in the city center, especially those who work in spatial planning related office in Bandung. However, for governmental planning employees who work in Sumedang and West Bandung, they live closer to work. This is a consequence of affordability in terms of home ownership.

Due to the high land prices in the city center, the direction of the new housing settlement development is in suburban areas, especially surrounding satellite cities.[6]

Mobile technology in the context of working and non-working activities

Most respondents (score 221) agreed that mobile technology such as hardware, especially the ownership of laptop/desktop computers (score 243), followed by software (score 213), especially computer operating systems (score 241), and service connection (score 217), especially internet connection (score 255) are useful to support their working activities compared to their non-working activities. It is understandable because working activities are mostly done by laptop/desktop computers with legal software for usage and data protection, and sufficient service connection for data sharing and data gathering. For non-working activities, participants agreed that the most important element is connection service (score 196), especially internet connection service (score 212), followed by computer operating system variable (score 194) in the software element, and an availability of laptop/desktop computer (score 196) in the hardware element. It appears that the eagerness for online attachment has become important for non-working activities, since internet connection service got the highest score. They do not need the latest laptop/desktop computer to promote non-working activities. This makes the ownership of a laptop/desktop computer of less priority comparable to other variables. Operating system legality is important to ensure data security especially for online activities.

[6] Based on Bandung metropolitan development, satellite cities consist of: Cipeundeuy-Cikalong Wetan, Cicalengka-Cileunyi-Rancaekek, Majalaya, Banjaran-Dayeuhkolot-Bojongsoang-Baleendah, Soreang-Kutawaringin-Ketapang, Cililin (Bandung Regency); Padalarang-Ngamprah, Lembang (West Bandung Regency), and Jatinangor (Sumedang Regency). Notes, Gedebage and Ujungberung (Bandung) are considered as inner suburban for Bandung city context, but they are not considered as satellite cities in the Bandung metropolitan area context.

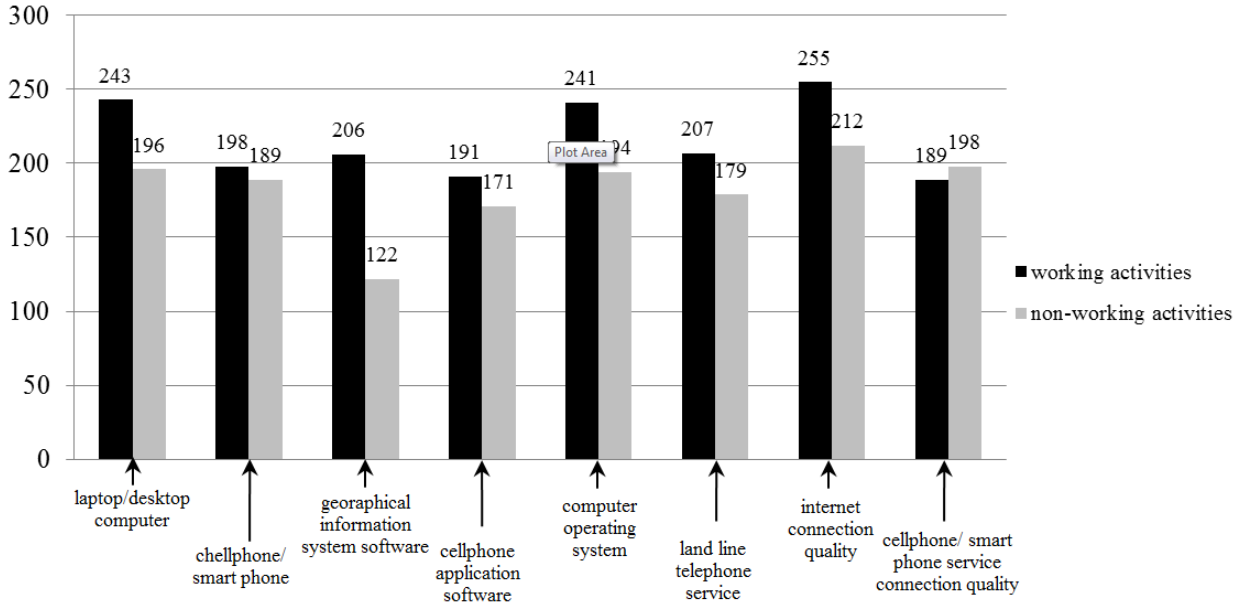

Figure 3-6. Mobile technology for working and non-working activities (Source: analysis, 2011).

Capacity Building: The Importance of Mobile Technology to Support Working Activities

Mobile technology to support planning activities

Working at home. Since many intend to work at homes, most of them agreed that mobile technology usage is important to support their planning activities, especially with the support of the availability of laptop/desktop computer (score 227) as hardware element (score 205), computer operating system (score 223) as software element (score 196), and support by good quality of cellphone/smart phone which they can use as modem (score 189) as connection service element (score 171).

Working at the office. In terms of their working productivity at their offices, respondents believe that a land line phone is very useful to increase their job quality (23%), while a cellphone is very useful to speed up job completion (23%) and to get good coordination (22%). They also think that internet service is useful to get more information to support their daily job activities. But the second highest users of land line phones (22%) said that there is no

implication with their productivity, and only few of cellphone users (15%) and internet service (13%) users said that there is no impact on their productivity at their offices.

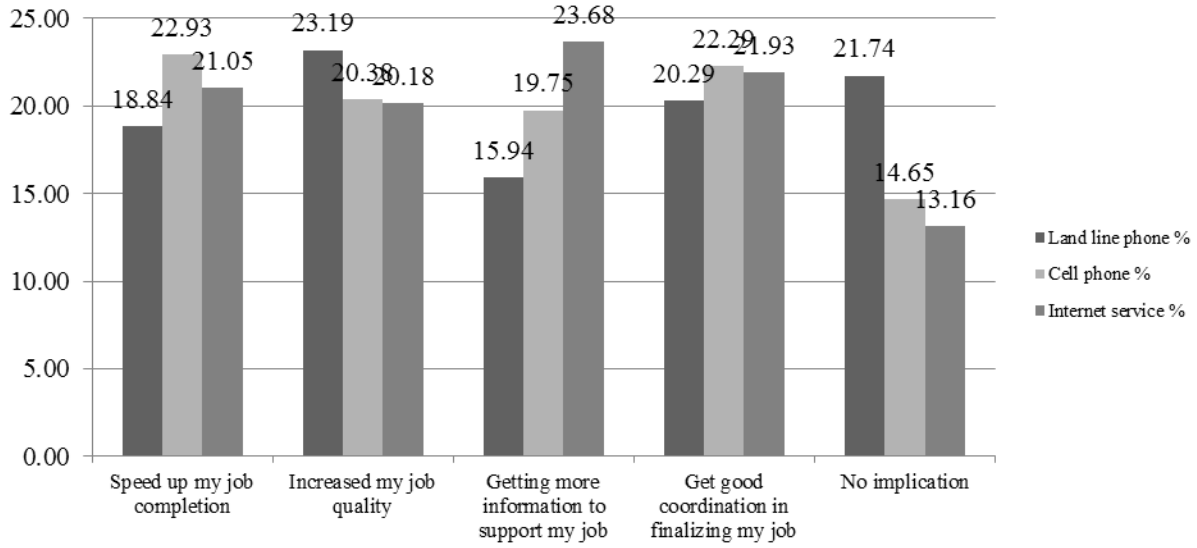

Figure 3-7. The advantages of land line phone, cellphone and internet service (Source: analysis, 2011).

Mobile technology and data gathering. In support of the planning process, most respondents agreed that hardware (score 196), and especially the availability of a laptop/desktop computer is the most important element when they are doing planning activities at their offices (score 205) or at their homes (score 181). Most of them also agreed that computer operating system (scores 188 and 184) is an important variable when they are doing data gathering. However, in terms of connection service, they rank internet connection service quality variable (score 197) as the most important variable when they are doing data gathering at their offices and land line telephone service variable (score 164) while they are doing data gathering at their homes.

Mobile technology and data analysis. Most respondents agreed that hardware (scores 205 and 139), especially the availability of laptop/desktop computer (scores 223 and 207), is the most important element when they are doing data analysis at their offices and their homes,

followed by connection service element (scores 192 and 176) especially internet service connection quality (scores 219 and 189). In terms of software (score 187), they rank computer operating system (scores 204 and 188) as the most important variable when they are doing analysis at their offices and at their homes.

Mobile technology and data synthesis or planning formulation activities. Most of governmental planning employees agreed that hardware (scores 208 and 193) is the most important element when they want to do data synthesis or planning formulation activities at the office and home, especially with the availability of a laptop/desktop computer (scores 223 and 207). Second, they agreed that connection service is the second important element (scores 202 and 190), especially internet service connection quality (scores 223 and 215). In terms of software (scores 187 and 184), they agreed that an availability of computer operating system is the most important variables when they want to do data synthesis or planning formulation activities at their offices and at their homes.

Mobile technology and planning decision making activities. Most respondents agreed that hardware (scores 191 and 174) is the most important element when making planning decisions at the office and at home, especially with the availability of a laptop/desktop computer (scores 205 and 197). Second, they agreed that connection service ranks second (scores 203 and 190) when they are making planning decision at the office and at home, especially land line telephone service (scores 209 and 194). Conversely, they said that computer operating system (scores 191 and 199) is the most important variable in terms of software.

Working activities and job-housing mismatch phenomenon

Mobile technology and transportation mode. After governmental planning employees adapted mobile technology to support their working activities most of them agreed that there is no change in transportation mode, especially those who use private cars (score

207). On the other hand, evidence suggests that increased mobile technology use has been accompanied by a drop in use of public transportation which consists of bus or small public urban transportation (scores 207 to 199), para transit which consists of ojeg or becak or delman (scores 203 to 191), bicycle (scores 191 and 178), and pedestrian (scores 193 to 187). However, there is an increase of those who use motorcycle/moped (scores 199 to 203), not surprising because it can maneuver around a hectic transportation during working days, but it could create induced travel during working days.

Advantages of mobile technology to planning activities. In terms of advantages in using land line phone, cellphone, and internet service, governmental planning employees rank their advantages as follow:

- Advantages in using land line phone: time efficiency (28%) is the most important factor, followed by transportation cost efficiency (27%), to support working activity and economic productivity (24%), and to provide more time for activities outside working activities, such as social networking, leisure, or side job (21%).
- Advantages in using cellphone: to provide more time for activities outside working activities (26%) is the most important factor, followed by to support working activity and economic productivity, transportation cost efficiency (both 25%), and time efficiency (24%).
- Advantages in using internet service: to provide more time for activities outside working activities is the most important factor (27%), followed by support of working activity and economic productivity (26%), time efficiency (24%), and transportation cost efficiency (23%).

Mobile technology and daily working travel. In the context of changes in daily job-housing travel after governmental planning employees supported by mobile technology usage, it can be concluded that most governmental planning employees agreed (50% to 55%) that there are no changes in travel distant and travel time after they use land line phone, cellphone, and internet connection service. However, a portion of respondents (around 37% to 42%) said that their travel distance and travel time are getting shorter; only few of them said that their travels are getting longer (5% to 11%).

Mobile technology and transport cost issue. In the context of changes in transport cost after governmental planning employees are supported by mobile technology usage, it can be concluded that the most governmental planning employees agreed that the usage of land line phone and internet service do not influence their transport cost (53% and 46%) but their cellphone usage has increased transport cost (44%). This is an indication of the influence of mobile technology usage to enhance daily activity on one side, but this effort encourages respondents to increase daily travel (induced travel) which could lead to a more dense traffic.

Mobile technology and time efficiency issue. Regarding special implication on time efficiency of the usage of land line phone, cellphone, and internet service to support planning activities, it can be concluded as follow:

- Most land line phone users said that there is no implication (22%), but some of them said that it makes them late leaving for work (18%), they tend to do part of work at home instead of doing it at the office (17%), late returning home (15%), tend to work at home instead of working at the office (9%), and earlier returning home (8%).
- Most cellphone users said that they may return home earlier (17%), followed by a tendency to work at home instead of working at the office (16%), earlier leaving for work (16%), tendency to work at home instead of working at the office (15%), late leaving for work (12%), late returning home (12%), and only few of them said there is no implication (11%).
- Most internet service users said that they tend to work at home instead of working at the office (19%), tend to do a part of their work at home instead of doing it at the office (16%), leave for work earlier (15%), leave for work later or return home later (13%), no implication (13%), and only few of them said make them late returning home (11%).

Mobile technology and daily activities issue. Regarding the mobile technology usage to cope with the issue of overload job, especially in doing planning activities at the office, doing non-working activities, or to find side job possibilities, it can be concluded that:

- Most land line phone users tend to increase the possibility of a side job (score 165), then they tend to do planning activities at the office (score 161), and doing non-working activities (score 159).

- Most cellphone users tend to increase the possibility of a side job or non-working activities (both with scores 197), and only few of them use cellphone to conduct planning activities at the office (score 189).

- Most internet service users tend to do planning activities at the office (score 195), and then they tend to get side jobs (score 185), and only few of them use internet connections to do non-working activities (score 173).

Planning Management: The Basic Role of Mobile Technology in Planning Performance

Mobile technology and data resource

In terms of data availability for the planning process and telecommunication types such as internet access and calling, texting, sending data activities, it is clear that calling, texting, and sending data activities is the most important element (scores 204 compared to 197) when they doing their activities at their offices, especially to make a call using cellphone/smart phone (score 229). On the other hand, calling, texting, sending data activities are the most important element (scores 207 compared to 189) when they are doing such activities at their homes, especially to make a call using cellphone/smart phone (score 225).

Mobile technology and the challenge to deal with satellite cities development

Mobile technology to optimize satellite cities. Most governmental planning employees agreed that mobile technology is supportive of a new satellite city, Padalarang-Ngamprah (score 193). This is the new capital city of Bandung Barat regency and has a new residential area with a focus on high tech settlement (Kota Baru Bumi Parahyangan, or Sundanesse/Parahyangan New Town), followed by Cipeundeuy-Cikalong Wetan (score 191) as industrial area, Cicalengka-Cileunyi-Rancaekek (score 189) as a new residential area for Bandung metropolitan area and transit town for regional transportation system (Jakarta-Bandung-Cirebon), Jatinangor (score 187) as a higher education center, Cililin (score 181) as an agricultural town, Lembang and Majalaya (both with scores 179) as a recreation and industrial area, Banjaran-Dayeuhkolot-Bojongsoang-Baleendah (score 171) as an economic center and

flood disaster area, and Soreang-Kutawaringin-Ketapang (score 149) as a civil center and economic center of Bandung Regency.

Commuting problem. Related to the satellite cities function within Bandung metropolitan area and their development trend, most governmental planning employees agreed that Cicalengka-Cileunyi-Rancaekek is the city which contributes to the daily dense traffic to Bandung city center area (score 207), followed by Soreang-Kutawaringin-Ketapang (score 205), Cililin (score 192), Lembang (score 187), Ujungberung, Majalaya, and Banjaran-Dayeuhkolot-Bojongsoang-Baleendah (score 179), Cipeundeuy-Cikalong Wetan (score 173), Padalarang-Ngamprah (score 171), Gedebage and Jatinangor (score 161). It can be seen that the cities with more self-sustained functions are more independent, such as Padalarang-Ngamprah as a civic center, residential area, and economic center for West Bandung Regency; Gedebage as a new primary center of Bandung city that has new residential area (Bumi Adipura), a sports center and governmental offices in Provincial level; and Jatinangor as a higher education center (not only in provincial level, but also in national center).

Satellite cities development issue. There is a ranking of the level of importance from governmental planning employees to cope with a conflicted urban development strategy of Bandung metropolitan area which create problems in daily traffic and responsible for a reduction of green open space. Such ranking can be concluded as follows:

- Developing satellite cities in suburban Bandung metropolitan area as self-contained cities for their surrounding area serving as local centers (score 213).
- Developing arterial roads and collector roads which connect city centers, primary centers, secondary centers, and satellite cities (score 211).
- The development of new residential areas in suburban Bandung metropolitan area (score 211).
- Governmental planning employees could not work at home during day time, because they are required to go to their office, even if the job can be done in their home (score 199).

- The development of apartment in Bandung city centers and suburban Bandung metropolitan area (score 193).
- It is hard to organize working travel because government could not move working centers closer to the new residential centers in suburban areas (score 191).
- Self-provided job workers especially those who work in service sector are more flexible in reducing daily travel by working at home (score 190).
- The development of commercial centers in Bandung city center (score 185).

Mobile technology and the challenge to provide suitable telecommunication development service

Suitable ICT development service. Regarding a need to develop suitable ICT development service throughout satellite cities within Bandung metropolitan area, most governmental planning employees agreed that Majalaya is in the highest rank (score 207); followed by Lembang (score 201); Gedebage along with Banjaran-Dayeuhkolot-Bojongsoang-Baleendah (score 199); Jatinangor; Soreang-Kutawaringin-Ketapang (score 198); Cicalengka-Cileunyi-Rancaekek along with Cililin (score 187); Ujungberung; Cipeundeuy-Cikalong Wetan along with Padalarang-Ngamprah (score 183).

ICT and planning reinforcement. To optimize planning development and control most governmental planning employees agreed that a role of ICT in Bandung metropolitan area development must be to optimize planning licensing or planning permission (score 208), followed by optimizing imposition of sanctions (score 200), to optimize zoning regulations (score 196), and only few of them said to optimize the provision of incentive and disincentive (score 188).

Planning Management: Mobile Technology to Promote a Communicative City as Stimulation for Better Planning Management

Planning management issues

Mobile technology and planning. In the context of a degree of acceptance of mobile technology in the planning process at the regional level (provincial and metropolitan) and local level (regencies and decentralized cities), most governmental planning employees agreed that an availability of laptop/desktop computer (score 249) of hardware element is the most important variable, followed by geographical information system software (score 249) of software element, and internet service connection quality variable (score 235) of connection service element. Furthermore, most governmental planning employees agreed that those variables often create problematic issues (scores 175, 191, and 209).

Mobile technology provision issue. The issue explores the preparedness of governmental institution in terms of encouraging mobile technology usage represented by what kind of mobile technology product should be funded and mobile technology products should be provided. Most governmental planning employees agreed that availability of reliable laptop/desktop computer (hardware element) is the most important variable to be funded and provided by their institutions (scores 235 and 241), also internet service connection quality (connection service element) as the second important variable to be funded by their institutions. However, in terms of software, a geographical information system is the most important variable to be funded (score 225) and computer operating system software is the most important variable to be provided (score 251) by their institutions.

Mobile technology to promote planning arrangement in metropolitan level. In the context of the planning system in Indonesia, there is a terminology provided by the Regional Planning Coordination Board (Badan Koordinasi Penataan Ruang Daerah=BKPRD) to ensure

that the local spatial plan is in line with the regional and national spatial plan scenario. I developed a question that asks whether mobile technology could optimize BKPRD function by enhancing a quality of spatial plan element which consists of five aspects: type of land use activities, land use location (including land use change), social activity and its implication, economic activity and its implication, cultural activities and their implication. From my field survey I found that coordination through sending texts using cellphone/ smart phone service is the most appropriate variable to intensify coordination in terms of type of land use activities (score 215) and land use location (score 215). Most governmental planning employees preferred to make a phone call using cellphone/ smart phone to coordinate issues related to social activity and its implication (score 211) also cultural activities and its implication (score 205). In terms of enhancing coordination on economic activities and its implication, most governmental planning employees preferred to use coordination through official air mail letters (score 205), maybe this is related to specific private sectors activities that has to be described in printed documents to be evaluate by related spatial offices.

Mobile technology as a part of spatial structure arrangement. To check a degree of acceptance of governmental planning employees to planning guidance in Indonesia (Law No. 26/2007), it was found that most governmental planning employees agreed to put telecommunication as part of the national spatial plan (score 221) that has to be adapted and developed in regional and local level.

Mobile technology as a part of spatial pattern arrangement issue. In the context spatial policy in Indonesia, it is agreed that telecommunication service is a part of the spatial structure arrangement. It is beneficial in optimizing spatial pattern arrangements, especially in maintaining land allocation of protection areas and cultivation areas within Bandung

metropolitan area. In this case, most governmental planning employees agreed that there is a challenge to enhance telecommunication service as a part of spatial pattern arrangement to support environmental preservation activity (score 220). This is understandable because some academicians have begun to develop ICT-based districts (for instance Bandung high-tech valley and recently Walini ICT district near Bandung-Jakarta toll road). This is also a reflection of the fact that telecommunication service could also cope with the latest concern in urban development in Indonesia, namely a decrease of urban open space and green space, although it is already stated in planning law that every city has to conserve 30% of their land for green space.

Mobile technology and working attachment

Mobile technology could support daily planning activities while governmental planning employees work at their offices and at their homes. Most governmental planning employees indicated support for mobile technology when doing plan making processes at their offices (score 204) and doing spatial analysis at homes (score 175). In detail, the most important variable to be supported by mobile technology is data editing (score 208) in the plan making process element while they are working at their offices, and data entry (score 179) of plan making process elements while they are working at their homes. In terms of planning analysis, most governmental planning employees agreed that GIS analysis or conventional land suitability analysis (score 195) is the most important variable while they are working at their offices and statistical analysis software (score 189) while they are working at their homes. In terms of planning decision making and the plan control element, most governmental planning employees agreed that data synthesis or providing a planning scenario is the most important variable while they are working at their offices (score 203) and control mechanism formulation while they are working at their homes (score 175).

Mobile technology and the effort to reduce daily travel. It is expected that the emergence of mobile technology in Bandung metropolitan area could reduce daily travel between suburban areas and the city center. In this case, most governmental planning employees agreed that daily travel can be reduced through two-way communication, by encouraging working at home with the support of telecommunication services, especially encouraging the usage of cellphone and internet service, and also by providing public facilities, especially department store, health facilities, and education facilities closer to their residential area (score 209).

Mobile Technology Coordination Issues

Face-to-face meetings are the first issue here. It was found out that the role of face-to-face meetings is still important although the planning process is already supported by mobile technology. However, most governmental planning employees agreed that both non-face-to-face meetings and face-to-face meetings could be reduced to once a month (36% and 40%). Furthermore, most governmental planning employees agreed that data compilation, data analysis, and planning formulation can be done through non-face-to-face coordination by the support of mobile technology (scores 178, 203 and 200).

Related to the current spatial plan in the Bandung metropolitan area (regional and local level), most governmental planning employees agreed that the role of mobile technology to intensify coordination could be accomplished by sending texts and make calls using cellphone/ smart phone service (scores 217 and 211), and the less important is coordination through online internet chatting (score 185).

As a tool to achieve communication breakthrough, most governmental planning employees agreed that mobile technology is important to coordinate among planning activities within the Bandung metropolitan area, and especially to enhance communication among heads

of planning divisions in regencies or decentralized cities within Bandung metropolitan area and of the planning division in West Java Province (score 219). It can be interpreted that they use mobile technology under current development procedure (Law No. 32/2004 about to regional governance). Only a few of them agreed that telecommunication service is important to enhance communication among planning employees of planning divisions in regencies or decentralized cities within Bandung metropolitan area with the related planning office in West Java Province (score 189).

In terms of planning coordination to enhance planning participation, most governmental planning employees agreed that communication with telecommunication service companies has to be improved (score 217) by enhancing communication with the public in the Bandung metropolitan area (score 193). It is understandable because the telecommunication company, PT Telkom, is the largest telecommunication company and is critical for providing suitable connection service along with a better connection quality and a reasonable price. Furthermore, governmental planning employees' opinions indicate that they believe through better connection service they can reduce face-to-face meetings and intensify non-face-to-face coordination through cellphone/ smart phone (score 223). Once again, only few governmental planning employees agreed that coordination can be done through internet chatting (score 177).

On the other hand, adapting mobile technology to support Bandung metropolitan development performance could also create a problem. A main problem is associated with administrative accountability if they shift from a face-to-face culture to a non-face-to-face culture. However, most governmental planning employees agreed that the most important variable is that they have conflicts because of the easy access of mobile technology and software availability to obtain side jobs (score 219), and administrative accountability is the

second important variable (score 209). In addition, only a few of them felt that a conflict a rose because not all governmental planning employees like to use mobile technology for planning coordination (score 189). It means that they do not have seen any obstacle to adapting mobile technology to support their daily working activities.

Effort to include telecommunication company as planning actor. Most governmental planning employees agreed that PT Telkom as the largest state owned enterprise has to be encouraged especially to provide internet service development plans side-by-side with planning related office within Bandung metropolitan area (score 214). Only a few governmental planning employees said that the land line phone development plan has to be encouraged (score 186).

Better coordination among telecommunication related offices. In conjunction with enhancing cooperation with PT Telkom, there is a ranking of governmental planning employees opinion in terms of planning coordination in the level Bandung metropolitan area, especially related to a different mindset between PT Telkom as telecommunication service providers with the mission of Bandung Metropolitan Development Plan are can be concluded as follow:

- There is a different mindset, because PT. Telkom has concerns with private interests while Bandung Metropolitan Development Plan is concerned with public interests.
- There is a similar mission in terms of providing public service but PT Telkom emphasizes more specific targets and timelines.

Since there is a different organizational structure and planning mechanism between the planning related offices and PT Telkom, there must be a better way to develop coordination with governmental institutions within the Bandung metropolitan area. In relation to communication and information, in the government institutional body, there is an office of information and communication which has not been suitably coordinated with planning related offices with regard to mobile technology as a tool to support planning processes. To deal with

this situation, most governmental planning employees agreed that to encourage telecommunication service as a means to optimize Bandung metropolitan development can be done by synchronizing program implementation, and coordination in implementing CSR of PT Telkom in line with the planning objective of Bandung metropolitan plan, encouraging coordination in sharing information, and coordination in defining development targets (score 201). Furthermore, a ranking was created to show governmental planning employees opinions related to enhancing coordination, involvement, and participation of PT. Telkom as well as Information and Communication Office (Provincial level or regencies level or decentralized cities level). Most governmental planning employees agreed that it is better to enhance the role of the information and communication office in provincial or regencies or decentralized cities level in planning process. Then as a next step, key employers must develop cooperation with PT. Telkom as the largest telecommunication service in Indonesia with headquarters and a research and development office in Bandung city.

Related to a formulation of suitable cooperation to encourage telecommunication service as means to optimize spatial plan in Bandung metropolitan area that are likely to develop are:

- Developing a special price for cellphone and internet connection during working hours in order to enhance the quality of planning related services to the public towards professional work (dealing effectively with overload and overtime work).
- Providing data storage for planning information which can be accessed by the level of authority of governmental planning employee, and providing planning simulation of planning scenario including funding alternatives which can be accessed by the level of authority of government employee.

In terms of developing an ICT-transportation based system to reduce transportation problem, most governmental planning employees agreed that the most feasible method is through traffic monitoring (score 225), followed by road system operation and maintenance control including road quality information (score 197). In addition, to support local and regional

competitiveness most governmental planning employees agree to propose a particular development strategy, such as:

- Providing or empowering existing website for West Java Province as well as regencies and decentralized cities centers within Bandung metropolitan area to share the strengths of their development centers (score 215).
- Developing cooperation to conduct structured ICT related training in order to socialize ICT knowledge (score 210).
- Providing or empowering the existing website of West Java Province as well as regencies and decentralized city centers within Bandung metropolitan area to share the plan as well as planning control (including sanction), followed by providing ICT related training especially to create and to enhance the competitiveness of development centers (score 209).
- Providing a labor information system to promote the competitiveness of development centers (score 208).

Fact Findings of Mobile Technology and the Challenge to Promote a Communicative City in Bandung Metropolitan Area

This sub section categorizes the findings from the survey into five profiles: the characteristic of telecommunication users, the influence of mobile technology to support working activities as planners, the basic role of ICT and mobile technology in planning performance, the description of the influence of mobile technology to promote a communicative city, and ended with the comparison of the case study to the planning theory.

The Characteristic of Mobile Technology Users

Mobile technology ownership. The most important thing about promoting a communicative city is the support of mobile technology, and the support cannot be completed if the governmental planning employees do not have mobile technology. Furthermore, knowledge regarding use of such mobile technology to promote day-to-day working activities is the second most important requirement to promote a communicative city.

ICT ownership as a sign of informatization to implement democratic e-governance. From an e-governance point of view, Anttiroiko said that the challenge of implementing

democratic e-governance is transformation in managing information. Anttiroiko said that the indication of the possibility to implement democratic e-governance is "informatization". Informatization refers to unprecedented growth in the speed and quantity of information production and distribution and the increased role of ICT-assisted knowledge processes, systems, and networks in society (Anttiroiko, 2009). In accordance with the informatization, the mobile technology ownership can be seen as a governmental planning employees' capital to informatization towards democratic e-governance. It can be concluded from the level of acceptance about the importance of ICT to support working activities in those institutions that deal with detail planning is high.

Knowledge management to enhance informatization process. Besides the ownership of ICT, it was found out that most governmental planning employees are willing to do work at their homes, and they agreed that the use of mobile technology can support their working activities. This conclusion can be seen in the context of knowledge management in e-government (Carstens, Bean, & Barlow, 2009) noted that knowledge management strategy is needed and has to be continuously developed as a requirement to implement e-government. Carstens, Bean, and Barlow identify several knowledge types, such as: "use knowledge"-the type of tool support to acquire, refine, index, store, retrieve, disseminate, and present knowledge; "store knowledge"-the personnel who has access to the internal and external information sources, **"**capture knowledge"-the experimental investigation of alternative navigation structures to produce benefits, and "create knowledge"-the personnel who plays knowledge roles within the organization (Carstens et al., 2009: 2361-2367). In the Bandung case, the ownership of ICT to support working activities can be seen as "use knowledge" and "create knowledge" at the same time. It is interesting, because theoretically the sequence

should be to “create knowledge” first, followed by “capture knowledge”, “store knowledge”, and “use knowledge”. So, the capacity building for governmental planning employees is needed to restructure the knowledge in promoting a communicative city which is connected to the usage of ICT in managing information and adapting an e-governance concept for better spatial development organization.

The Influence of Mobile Technology to Support Working Activities

In line with the analysis that has been done, the following discussion is divided into ICT to support the planning process and job-housing mismatch phenomenon.

Mobile technology to support planning activity (data, analysis, planning formulation)

Technological consideration. It is true that governmental planning employees have a strong attachment to the office location. Although they have been supported by mobile technology, they still do not reduce working activities during workdays. However, it can be shown that they can work at homes to finish working projects. For a particular reason, the mobile technology that has been a part of their working style does not cause them to go home earlier and spend more time at home doing work online. A sense of pecuniary and time cost is indicated in a different way, such as finding side jobs and using the internet as their data source and hardware and software of mobile technology to conduct data compilation, analysis, and planning formulation. There appears to be no intention to relocate their homes to places near their offices. On the other hand, as governmental planning employees they have been advocating mobile technology as virtual infrastructure to intensify growth centers within the Bandung metropolitan area, such as in the outer suburban areas in the western part for industry (Cipeundeuy) and a new town (Padalarang), and in the southern area for a civic center and commercial center (Soreang). It is plain to see that governmental planning employees at planning related offices are not performing ICT-based working activities, because they have

strong attachment to working location. However they are willing to conduct some working activities at home. In this case, the strong attachment to working location can be transform into more flexible attachment but has to be adjusted to the current policy of civil service regulation (Government Regulation No. 53/2010).

Job-housing mismatch phenomenon

Issue of transformation from job-housing mismatch to job-housing balance. Since this research did not calculate job-housing balance quantitatively, it can be indicated that there is no implication of mobile technology usage in transforming job-housing mismatch to job-housing balance, because most respondents said that there are no change in terms of daily travel distant and travel time. They cope with daily dense traffic and increased mobility through the use of small vehicles such as a motorcycle for daily working activities

Issue of job-housing balance as transportation policy. A significant finding is that the ICT usage tends to decrease the usage of public transportation. While the usage of private cars is still the same, respondents tend to use a motorcycle for their daily working travel. It is reasonable to assume that a motorcycle makes them more accessible, offers cheaper fuel, a cheaper annual tax, and a special installment for governmental planning employees to finance their motorcycle through a five year installment loan plan.

Job-housing mismatch in the context of deconcentration concept. The data derived from the surveys generated the following conclusions: 1). Only respondents who work at Cimahi Planning Board had houses close to the office while most respondents live far away from their offices; 2). For Bandung metropolitan area there is no specific transportation policy to alleviate job-housing mismatch by particular regulation to daily travel of civil servants; 3). There are efforts to regulate land use plan in urban center, inner suburban, and outer suburban Bandung metropolitan area that can impact this issue. However, the first thing would be to

clarify the planning scenario encouraging a compact city for the city center and encouraging smart growth for the suburban areas. Second, is to continue the mission of planning scenario at the local level, and includes PT Telkom as ICT service stakeholder into the planning process; 4). Since planning is an integrate part of local government policy, the planning process has to be seen as an integrate part of the spatial plan in a regional and national context; 5). Regarding market forces, it can be concluded from the preliminary survey of governmental planning employees that the private sector tends to invest economic activities in urban city centers, and this makes urban city centers special since it offers the kind of services that cannot be replaced by the nearby public services in suburban area; 6). Since there is the possibility of governmental planning employees to do their work at home, it is possible to encourage a method to cope with job-housing balance.

The Basic Role of ICT and Mobile Technology in Planning Performance

Mobile technology and data resource. The findings showed that the usage of cellphone is important in dealing with data resources whenever governmental planning employees worked at the office or at home. This showed the importance of better connection service and affordable connection service. The basic function of mobile technology cannot be developed without sufficient connection service to acquire, refine, index, store, retrieve, disseminate, and present planning information. Another related issue is the need to define the quality of data that can be used to promote planning performance and the mobile technology software to manage data.[7]

[7] Mobile technology software is related to software licensing for data security reasons. The case of GIS data loss by a virus attack in Cimahi city showed the importance of software licensing. Furthermore, I appreciate of what has been done by governmental planning employees in Cimahi city to start to use open source software since 2010. However, not all software is available in open source, especially planning related software such as GIS software.

Issue of local government intervention. There is no other way except to enhance the role of the eleven satellite cities as self-contained cities to be used as growth centers within Bandung metropolitan area to reduce the dependency on the city center, and to support this by optimizing the usage of ICT, especially in providing suitable connection service for land line phone, cellphone, and internet connection. Telecommunications companies suggest that they can provide data sharing and other online content development to create ICT-based economic development and also to create the possibility for those who have strong attachment to office location to do a part of their works at homes.

Issue of application of land use regulation. The respondents of the governmental planning employees suggest intensive land use types for the urban center, and provide suitable economic activity centers at satellite cities. Although the current situation suggests that most growth centers in suburban areas are not ICT-based economic development, they can be supported by ICT in terms of product or service marketing, ICT-based economic activities can enhance the regional competitiveness of Bandung metropolitan area in efforts to make the Bandung metropolitan area a national growth center.

ICT and planning reinforcement. It can be concluded that all respondents agreed with adapting Planning Guideline (Law No. 26/2007) in planning reinforcement. So, the ICT usage is used to promote the implementation of planning reinforcement based on Planning Guideline, especially in implementing spatial utilization control as efforts to render planning order through: establishing zoning regulation, permitting a regulation system, monitoring an incentive and disincentive system, and imposition of sanctions. The willingness to adapt ICT as spatial utilization control can be seen as an important part of promoting a communicative city. This is because clear information and interactive processes in spatial utilization control are keys to

better planning management. Furthermore, to ensure that these is well implemented planning supervision as a part of spatial development in Indonesia, it must be accompanied by the enhanced capacity of governmental planning employees in planning related offices.

The Influence of Mobile Technology to Promote a Communicative City as Stimulation for Better Planning Management

ICT provision issue to promote planning process. Basically the influence of mobile technology to promote a communicative city can be seen by the degree of acceptance of reliable hardware, trusted software, and sufficient connection services are used to promote planning process. To ensure that planning process can be enhanced by the support of mobile technology, it is time for the government to think about the provision issue in providing suitable ICT service, because it has been found that most respondents agree that a laptop/computer is the most important hardware to be provided by the institution. The second would be provision of trusted and updated GIS software, followed by the need to get suitable internet connection service. So, it is important to set aside some governmental budget to accommodate the ICT provision issue. Another possible scenario is to look for the mutual cooperation with the third parties to make this happen, such as with a telecommunication company or with related a business company.

ICT and working enhancement. In terms of the enhancement of planning activities, ICT is intended to promote communicative activities during planning process. By ICT usage, the sense of governmental planning employees belonging to the proposed plan can be encouraged since they have been informed and invited to participate in the planning process. This participation can be seen as a way to accommodate the diverse roles and the interdependence among functions of governmental planning employees within the governance system, where diversity and interdependence are the requirement to encourage communicative

planning (Booher & Innes, 2002: 221-236) and e-governance (Anttiroiko, 2009). The communicative action among governmental planning employees also can be seen as the entry point for consensus building in facing a particular planning problem. For instance, it can be used as a way to cope with the different priorities among different governmental tiers (national, province, and city/regency level).

ICT and coordination issue. This is a continuation about the role of ICT in enhancing communicative action within governance system. Basically, the coordination issue is to make sure that the entire planning participants are included during the planning process. In this case, respondents agreed that some coordination activities during the planning process can be done without face-to-face meetings with the support of mobile technology. Respondents can use the features in mobile technology in preparing or conducting planning coordination, such as through short message service, telephone call (using land line phone or cellphone) or even using internet service. However, ICT-based activities to conduct communicative planning action must be justified under current governance system, to make sure that there will not be any problems in terms of administrative accountability. This can be seen as a highlight of the emergence of rational planning activity that has to deal with system and life world, as noted from Habermas by Verma and Shin (Verma & Shin, 2004: 131-140).

Enhancing planning participations. Besides dealing with internal planning participants within governance systems, ICT can also promote communicative actions for external governance systems, to cope with public and private concerns and the possible mutual cooperation in pursuing planning process. The most important coordination with external institutions is with PT Telkom, the largest communication company to look for further mutual cooperation, especially in ensuring ICT development and also the enhancement of ICT in

promoting capacity building for governmental planning employees enhancing planning performance. The possible mutual cooperation is to provide ICT hardware or cellphone and internet service for governmental planning employees. Furthermore, the government institution is to provide customized planning services which can promote a communicative city, such providing data storage service, or enhancing an interactive website to get the feedback for planning arrangements, or even for promotion (tourism based or possible investment plan).

The Case Study in Association with the Planning Theory

This part describes the case study in association with the characteristic of collaborative planning, the limits to communicative planning, network power in collaborative planning, communicative action and the network society, effort in implementing a sustainable development concept in cooperation with city officials, planning for complex metropolitan regions for a better future, democratic e-governance, urban form issues in an information age, and ICT perception to promote urban development. At the end of chapter 4, there is a description of the effort to redefine a communicative city in Indonesia as a response to the preliminary studies, actual research, along with the related planning theories.

The Case Study in association with the Perspective of Collaborative Planning

Healey notes that collaborative planning is the transformation in planning implementation from product oriented or spatial blue prints orientation to a negotiated process among participating actors (Healey, 2003: 103). The idea of planning as process in the Bandung metropolitan area can be seen in the eagerness to adapt mobile technology in promoting better coordination in discussing detail planning arrangement, and to promote the involvement of other important party like telecommunication company into planning arrangement.

Since collaboration is the focus of the planning process, Healey said that the capacity of and competence of local government is of paramount importance to make the planning process work (Healey, 2003: 103). From this case study, the willingness of governmental planning employees to dedicate time doing planning process outside their offices shows the potential planning capital to make communicative planning possible; even if they have to use their own mobile technology as a planning tool to make it happen.

Healey also touched on the fact that governance activities that employ collaborative planning will shape the institutional environment according to economic, social, and environmental forces (Healey, 2003: 104). In the Bandung case, this indication is shown by the level of acceptance in promoting a new urban spatial arrangement through the support of mobile technology, since it covers spatial allocation for social, cultural, economic, likewise defense and security.

In terms of sustainability, Healey said that collaborative planning has to search for better governance process to enhance place quality as a policy focus (Healey, 2003: 109). It can be interpreted that the urban problem in Bandung metropolitan area as shown from the preliminary study relates to the unclear planning objective in managing suburban areas, and reflects upon the search for better governance process in planning management.

The Case Study in association with the Limits to Communicative Planning

Huxley said that the issues in adapting communicative planning are mainly related to how power is exercised to cope with inequality in everyday planning practice (Huxley, 2000: 369). My interpretation is that the challenge to promote a communicative city with the support of mobile technology cannot be done without the willingness to adapt the advance technology in mobile technology as a planning tool to promote spatial development organization, especially to enhance capacity building for better planning supervision, as well as to enhance planning

performance (based on Planning Guideline in Indonesia, Law No. 26/2007). It was discovered that currently there is no detail regulation at the city or regency level to interpret the linkage with the national policy on Planning Guideline (Law No. 26/2007) and Telecommunication Development (Law No. 11/2008 about information and electronic transaction). Furthermore, the ability of governmental planning employees to enhance cooperation with PT Telkom can be seen as the reflection of what has been said by Huxley as communication action in transformation of society (Huxley, 2000: 371).

In conclusion, Huxley also noted several ethical issues in conducting communicative planning (Huxley, 2000: 376). It is clear from the social environment in the Bandung metropolitan area that the effort to promote mobile technology to promote planning performance is a new trend, since all the spatial development organizations, such as: planning regulation, planning supervision, planning performance, and planning control, have been conducted traditionally on the basis of face-to-face communication.

The Case Study in association with Network Power in Collaborative Planning

Booher and Innes discussed the enabling network power in collaborative planning (Booher & Innes, 2002: 221-236). Such an idea can be interpreted as an entry point to my research, in terms of enhancing mobile technology to promote communicative planning. The ownership of mobile technology (hardware, software, and connection service) can be seen as technological based planning tool to enable network power. Booher and Innes identified three types of network power, namely: diversity, interdependence, and authentic dialogue (Booher & Innes, 2002: 226). The adaptation of the diversity concept is reflected in the importance of mobile technology to perform better spatial pattern performance by engaging various actors in enhancing social activity, cultural activity, economic activity, and defense and security activity over the metropolitan land use.

The effort to perform spatial structure arrangement and spatial pattern arrangement and to enlarge the basic role of ICT in planning performance can be seen as an effort to address the interdependence concept, since better spatial development organization in Bandung metropolitan area cannot be well implemented without the understanding of diverse participating actors in the spatial development organization under the governance system.

Finally, mobile technology as a means of implementing ICT in planning arrangements can be seen as a best planning tool to enhance authentic dialogue. Authentic dialogue definition (Booher & Innes, 2002: 226) enables accurate and trusted communication flow among participating actors.

The Case Study in association with Communicative Action and the Network Society

In their research to study the concept of communicative action (Habermas in Verma & Shin, 2004) and network society (Castells in Verma & Shin, 2004), Verma and Shin found out that there is self-examination in promoting communicative action in the network society. Self-examination is initiated by the consciousness about the meaning of system and the transformation of the citizen to client status with various concerns. The consciousness of the clients to perform self-examination cannot be avoided but can be done by restructuring the role of the clients in the system (Verma & Shin, 2004: 133). By promoting the usage of ICT, especially mobile technology, the planning process can be done in a transparent and accountable manner. For instance, in my case, the respondents believe that the mobile technology could promote the role of satellite cities within the Bandung metropolitan area.

The Case Study in association with the Effort in Implementing Sustainable Development Concept to City Officials

Promoting a communicative city is not complete without an adapting suitable spatial development spirit. Sustainable development is a development spirit that has to be adapted in a

communicative city since it covers the concern about environmental limitations, economic viability, and ensuring civil society. However, as Zeemering said, it is not easy to implement a sustainable development concept that must be carried out by city officials, especially in engaging citizen participation to cope with a sustainability plan (Zeemering, 2009: 252). In the Bandung case, it was found out that governmental planning employees agreed that ICT which is represented by mobile technology already has been supporting planning processes. So, citizen engagement can be implemented if the governmental planning employees are prepared with suitable knowledge in the use of mobile technology to promote communicative planning through planning arrangements (including spatial structure arrangement, and spatial pattern arrangement), urban competitiveness from the point of view of economic development (developing economic activity in terms of spatial pattern performance), and distribution of social equity (in developing suitable infrastructure as metropolitan development within spatial structure performance). The resistance of participating actors in a governance system to changing the traditional spatial development organization is still the overriding challenge in promoting sustainable development based governance system.

The Case Study in association with Planning for Complex Metropolitan Regions for a Better Future

According to Abbott, not all indicators in planning for complex metropolitan regions can be accounted for in a research design such as mine, especially related to the external uncertainty that arise from the external environment such as the effect of the national economy on a metropolitan plan (Abbott, 2009: 505). However, if external uncertainty is adapted by the central government into national spatial arrangement, as a consequence, revision of planning arrangement in metropolitan and city/regency level have to be evaluated based on the change or evaluation in national level.

Chance uncertainties that can occur during plan preparation and implementation and natural disasters (Abbott, 2009: 505) can be better prepared since the respondents are worried about ICT software as requirement to conduct better planning process towards a communicative city. ICT software consists of the availability of sufficient GIS software, computer operation system, and cellphone application. Through GIS software, such uncertainties can be identified earlier, and an early warning system can be delivered through cellphone and online service. Sufficient ICT software is also important to deal with what Abbott calls causal uncertainties which is related to physical, ecological, and social change processes (Abbott, 2009: 505). The frequent data updating, including historical data, may support the prediction of such causal uncertainties.

Abbott refers to "organizational uncertainties" which are related to the future intentions, policies, plans and actions of organizations in the planning management, and "value uncertainties" which are related to the concerns of people who carry out the metropolitan planning management (Abbott, 2009: 505). These uncertainties in Bandung metropolitan area can be translated into whether the governmental planning employees are willing to transform their traditional methods in planning management from the traditional face-to-face coordination or if they are willing to promote the support of mobile technology so that planning management will be more communicative, transparent and effective. AS noted above, the remaining constraint is whether the national and regional regulations on civil servant performance can accommodate such transformation in planning management through a modification of the working characteristic to performance based service.

The Case Study in association with Democratic E-Governance

Anttiroiko said that governmental planning employees play important roles in facilitating public and private interests to be accommodated in planning formulation. The

interesting part about democratic e-governance is that the governmental planning employee has to be able to use suitable technology for mediation purpose (Anttiroiko, 2009). It is the best chance for mobile technology to play an important role as a planning tool to enhance the role of the governmental planning employee in promoting planning management with the concept of e-governance. Basically, my research supports the importance of e-governance implementation to cope with complex metropolitan development in the Bandung metropolitan area. In this case, the ownership of ICT (hardware, software, and connection service) by most governmental planning employees can be seen currently as a voluntary aspect from government to support day-to-day planning activities. My research found that governmental planning employees need support in funding to provide for their ICT needs in support of their working activities as planners.

The Case Study in association with Urban Form Issues in Information Age

Based on the interpretation of Audirac's concept about conceptualizing the emergence of ICT towards urban form in information age, the emergence of ICT development in Indonesia is not just as an extension of communication and transportation innovation (deconcentration concept in Audirac, 2002: 212-226). It also tends to serve as an economic restructuring approach that emphasizes a fundamental change in the organization of production brought about by sociotechnological paradigm in the context of world economy (Audirac, 2002: 212-226). Here are the explanations of the nine profiles of economic restructuring from Audirac for Bandung metropolitan area. These include:

The conceptualization of city and region. The complex planning challenge is faced by the Bandung metropolitan area, as a national economic center it has to promote industrial center, like in West Bandung and South Bandung. For food security reasons, agricultural land in southern part must be maintained, as is the case with the land conservation in the northern part

of Bandung. In return, it is time for ICT and mobile technology to take part in planning arrangement in Bandung metropolitan area as virtual infrastructure and planning tool to encourage planning management transformation by initiating performance based governance.

As Audirac explained about planning scale seen in larger context, the planning performance at the city and regency level within Bandung metropolitan area has to be seen in regional context, namely in a metropolitan context, West Java Province context, and national context to maintain national planning integrity.

Regarding urban digital space, where digital connectivity is key to promoting regional competitiveness, opportunities for Bandung city as a national economic center, a pilot project of a creative city, and the availability of PT Telkom which is willing to provide customized telecommunication service offer a chance to promote regional economic competitiveness through the support of ICT.

In terms of research tradition in economic restructuring school, it is in line with the idea of Audirac that usually is done by qualitative research. It is understandable that by qualitative research, the various concerns of participating actors are can be well explained, such as the concerns of governmental planning employees at planning related offices, ICT practitioners, telecommunication company, planners, and urban residents. In addition, the concerns are can be linked to enhance the current spatial development organization policy, or even to modify such policy in order to promote change for a better future like the idea of Zeemering (Zeemering, 2009: 247-273). In addition, my qualitative research can be used as an initiation of the transformation of governance system on spatial development organization by introducing democratic e-governance system like the idea of Anttiroiko (Anttiroiko, 2009).

Regarding social equity issues. It can be concluded that job-housing mismatch of governmental planning employees is not a matter of travel distant and travel. It has a strong relation with casualization of labor flex timers and socioeconomic stratification, where for a particular reason people have to decide to reside in suburban area where their office location mostly in urban city center. They cannot instantly relocate their office location to suburban area because they do not have such a choice. On the other hand, they are not able to move their house near their offices because of lack of affordable housing in that area.

It is interesting to learn about the reflection of political economy, where planners have to understand better about the regime of regulation as well as city as growth machines. The ownership of mobile technology and the willingness to use those to promote productivity in day-to-day working activities are great opportunity for metropolitan governance to promote a communicative city to enhance civic engagement for better planning arrangement.

Regarding planning challenge, the situation in Bandung metropolitan area is in line with the idea of Audirac that said interjuridictional planning management is a challenge for urban form in information age. Audirac reminded that the concern of interjuridictional planning management is to anticipate the impact of information age, such as induced travel, or in the larger sociotechnological life is the transformation from space of place to the space of flow (Castells, 2004) which could influence the urban land use development.

Information age landscape is the last profile of economic restructuring which is highly connected to the planning challenge. A polycentric urban region which is completed by distribution of urban function with the support of sufficient ICT infrastructure can be seen as the best solution for Bandung metropolitan area that has to be covered by the governance system. The interviews showed that Bandung metropolitan area has been developing through particular

spatial structure and pattern arrangement. However, the drawback is in the insufficiency of physical infrastructure. It is expected that the insufficient in physical infrastructure can be complimented or substituted by ICT infrastructure.

The Case Study in association with ICT Perception to Promote Urban Development

Basically, the discussion of ICT perception to promote urban development (Cohen-Blankshtain et al., 2004: 2647-2667) is in accordance with the discussion of implementing sustainable development by city officials (Zeemering, 2009: 247-273), economic restructuring from Audirac (Audirac, 2002: 212-226), and continuation about the meaning of information in a communicative city (Innes, 1998: 52-63) to planning performance. Zeemering said that before ICT is adapted to alleviate urban development problems, it has to be identified about the perception of the city, especially in terms of functions, problems, and expectation of the future. The case study of Bandung metropolitan area shows that the development challenges come from the variety of perceptions of the city. Governmental planning employees within Bandung metropolitan area agree about the Bandung metropolitan plan, including the function of cities and regencies within Bandung metropolitan area. However, at the city and regency levels, they have different priorities in translating functions as well as development problem into a development plan. This is influenced by their future expectation under the spirit of regional autonomy policy and how to carry out the governance system and the capacity building level of the governmental planning employees.

CHAPTER 4
MOBILE TECHNOLOGY AND THE CHALLENGE TO PROMOTE A COMMUNICATIVE CITY IN BANDUNG METROPOLITAN AREA

This chapter addresses three main points. The first, the section covers lessons learned from other communicative cities in Indonesia. There are two case studies, namely the public facilitation project in Solo city, known as Solo City program in Central Java Province. The second case study is the self-help governance project promoting better planning management in Surabaya in East Java Province. The second section examines how the Solo and Surabaya cases contribute to modeling the communicative city in Bandung through the support of mobile technology. Finally, it redefines the communicative city based on the preliminary studies, the main survey, and the context of efforts in implementing mobile technology with diverse planning scale in terms of planning coverage and the spirit of planning method (facilitation and self-help types).

Lessons Learned of the Communicative City in Indonesia

The Communicative City Lesson from the Facilitation Project of Public Consultation Process in Solo City, Central Java Province

Solo was selected for lessons learned for Bandung metropolitan area case study because of the facilitation project that has been done by international agencies, in association with the communicative action by the ICT usage, and the echo of the project to the international community.

Project History. Solo Kota Kita ("Solo" our city) is a project initiated in March 2009 by two international agencies (USAID/SERASI and UN-HABITAT) to promote citizen participation at the neighborhood (kelurahan) level[1]. The backbone of this participatory project

[1] The project information is taken from the website of Solo Kota Kita (www.solokotakita.org) that has been developed by the Yayasan Kota Kita Surakarta (2009).

is the group of Community Facilitators, supported by architecture students' workers from University Sebelas Maret. The Architecture Department of University Sebelas Maret (previously known as Universitas Negeri Sebelas Maret) prepares its students to have field experience in the "bottom-up" planning process. The volunteerism of the involved students included participation in day-to-day activities to support local development planning and these students are especially useful facilitators between local residents and community leaders.

One component of the Solo project is the creation of fifty-one mini atlases, (one for each neighborhood) to map the needs of urban residents. This data will be used in participatory budgeting (Musyawarah Perencanaan Pembangunan Dearah=MUSRENBANG). This has been supported by Solo's mayor, Joko Widodo, who previously worked as a local furniture businessman. The mini atlases identify social and economic problems. The atlas will permit the MUSRENBANG participants to have accurate information available to determine the development priorities in their neighborhoods. This activity enhances public engagement by linking the needs of the people and development implementation priorities of the Solo government.

Project Methodology. Basically, the methodology of the project is an ordinary planning process, beginning with data collection, analysis, and description. But a special feature is combining secondary and actual data which show the needs of local residents utilizing GIS software. When completed, the thematic GIS maps will be distributed to the local residents and also uploaded on the Solo website. Through these atlases, economic conditions, along with the various needs of local residents, can be seen clearly. Through the use of ICT software, the collected data becomes traceable and updateable. In addition, the mini atlases are printed and distributed to neighborhood leaders to be corrected and updated by their member residents to

eliminate errors. The keys for the success of this project are the financial support from the international agencies, a reliable community facilitator, dedicated student assistants, and a strong mayor who supports this effort.

Power as facilitation factor

Communicative actions. The cyclical interactive communication among competing stakeholders is the key to the success of this project. The strong leadership at the top governmental structure through Mayor Widodo filters down to the Camat, the Head of the Kecamatan (a governmental structure that is a district within a city), and then continues to the lower level of the Kelurahan (neighborhood) governed by the Lurah. The community facilitators and students work to identify the needs of local residents and to promote harmonious coordinatioin between the Head of Neighborhood (Rukun Warga=RW), and the Head of the Sub-Neighborhood (Rukun Tetangga=RT). The facilitation within this project compliments the current power structure to promote public participation and to ensure that planning issues are incorporated into the planning document.

The influence of communicative actions to promote planning activities. The power to promote consensus building lies in frequent face-to-face participatory planning and is supported by online interactive facilitation progress through a website (www.solokotakita.org) that is frequently updated with the output from each meeting which has been accepted by the community facilitators and local officer at the subsidiary level (Kelurahan).

The basic role of communicative actions to planning activities. The uniqueness of this facilitation project revolves around the following: 1). The effectiveness of organization such as committed face-to-face meetings, committed maps, describing development issues and public needs in mini atlases; 2). the information can be used as basic material for development

planning, such as land use allocation, infrastructure system development, and the local people as participated actors.

The communicative actions to promote better planning management. By the strong leadership on the part of top governmental officers such as Mayor Widodo, and the full support of facilitator teams, this has made the current governmental organizational structure become engaged through an enhanced MUSRENBANG budgeting mechanism after the donor project ended. One thing is certain; the interactive information demand from the project will still be available online. People will still learn how the facilitation project was carried out, and the possibility of implementing it in other locations.

Legitimacy as facilitation factor

Communicative actions. The facilitation project generated intense community attachment in developing budgeting planning mechanism. First, the official and administrative-procedural steps have been conducted by government officers within Kota Solo, from the city level to the sub-neighborhood level. Secondly, the participatory development planning budgeting process has been done by the local residents and the facilitators. So, the consensus building between top down and bottom up planning process has been a meaningful lesson about the connectedness in the annual city's development program.

The influence of communicative actions to promote planning activities. It can be concluded that the Solo project is effective from the governmental organizational structure standpoint because the mechanism process can be done by the current leadership even though the productivity and the quality of process and its results have been increased by the facilitation process.

The basic role of communicative actions in planning activities. As data development, especially related to the budget information, becomes accessible and can be evaluated by the

local residents with the support of skillful facilitators, this ensures that community inputs are right on the track in terms of supporting the city of Solo development mission.

Development planning mechanism and governmental organizational structure. The Solo project can be seen as a creative bottom up development planning activity which seeks to overcome the current rigid development mechanism and governmental organizational structure. The consultative process encompassed by MUSRENBANG offers an improvement in quality and can be done on time or even faster than before.

Urgency as facilitation factor

Communicative actions. It can be seen that the Solo project tries to reorganize the relationship between the bureaucratic development process and the actual needs of the community. It accommodates the expectations of the minority in a communicative actions manner. For instance, it accommodates the needs of the poor, the relocation of slum dwellers and the squatters with the direct monitoring not only by community facilitators but also by the mayor himself who sets the mission of the Solo development program and makes certain the community understands the benefit to them of these programs.

The influence of communicative actions to promote planning activities. Access among stakeholders can be enhanced through face-to-face community meetings side-by-side with interactive online communication. A sense of project target and deadlines can be controlled and traced more easily within the annual development schedule process. This project can be seen as an example of promoting community attachment as part of a communicative city indicator at the neighborhood level. Hence, the Solo project also implements the efforts to address concerns of a

disadvantaged group of the community (the poor), and enhances the role of community organizer at the neighborhood and sub-neighborhood levels.[2]

The basic role of communicative actions to planning activities. The Solo project implements facilitation project by combining simple participatory planning in geographic information system (PPGIS), existing cultural coordination "gotong royong", and the usage of social media (website and Facebook page). Neighborhood-based planning participation is done by following the four simple steps: 1). Participating in "gotong royong" where all residents in Solo benefit from keeping the neighborhood safe and clean; 2). Creating a Facebook page that links to the Solo Kota Kita website to stay connected with one another; 3). Downloading a mini atlas from www.solokotakita.org to be printed and discussing development assets and issues at the neighborhood level with other community members; 4). Participating in a MUSRENBANG meeting where the consensus building process is used.[3] Towards a communicative city, this can be seen as effort in finding appropriate communication patterns by combining ICT-based planning approach with traditional participatory planning approach.[4]

The communicative actions to promote better planning management. Printed versions of mini atlases of all areas within administrative territory of Solo are seen as reflections of a planning process translating public need that has been confirmed through face-to-face participatory meeting with a "gotong royong" spirit. This leads to the efforts in promoting better

[2] The first communicative city indicator: "Community attachment is encouraged by existing communication patterns which is covered by the policies"; The second communicative city indicator: "Communication along with community organizer is an important factor to develop interaction network among citizens with diverse background in order to understand and to accomplish conflict (Jeffres, 2010: 100).

[3] The Solo facilitation project steps are taken from Solo Kota Kita facilitation manual which can be found in www.solokotakita.org.

[4] The sixth indicator of communicative city: "The tradition and history of urban community has to be considered in choosing appropriate communication patterns in order to cope with diverse residents and generations." (Jeffres, 2010: 100).

planning management through: 1). The availability of the participatory planning process that has been documented online; 2). The availability of printed consensus building of planning project at the neighborhood level that can be counted as administrative accountability from the annual governmental planning procedure side. Again, the Solo project showed the effort in implementing communicative city by the support of ICT to stimulate community attachment in neighborhood level, and it is expected to promote local economic development.

The Communicative City Lesson through Self-Help Governance Project in Surabaya City

In conjunction with the authorization of regional governance (Law No. 32/2004) and financial balance (Law No. 33/2004), Surabaya as the capital city of East Java Province[5] has been charged to implement such national policies to the more applicable budgetary system at the local level. The challenge for Surabaya and other cities in Indonesia is to find the suitable planning approach in terms of public accountability which is in line with the current development planning mechanisms and the governmental organizational structure. A suitable planning approach is needed to connect city's vision which is interpreted in several developmental goals that must be connected with the people's need and the availability of annual governmental local budget revenues and expenditure (Anggaran Pendapatan dan Belanja Dearah=APBD). It requires criteria and indicators that connect public need, developmental goals, and the limitations of annual governmental budget revenues and expenditures. Since there is a limited amount of governmental budget, the list of public needs has to be chosen based on the urgency by prioritizing the development activities that could promote public prosperity. This is a sign of the need for communicative action to stimulate consensus building in terms of formulating annual city's development.

[5] Surabaya has a function in national context as collection and distribution center for east Indonesia region.

In 2006, the Government of Indonesia authorized a guideline for financial management through Regulation of Ministry of Internal Affair No. 13/2006. However, in terms of annual development planning formulation, there was difficulty in translating public needs into project-based actions. The challenges include: 1). Creating logical framework from long term development plan (Rencana Pengembangan Jangka Panjang=RPJP), to medium term development plan (Rencana Pengembangan Jangka Menengah =RPJM) and short term development plan (Rencana Kerja Pembangunan Daerah=RKPD); 2). Creating the project by providing a reasonable connection with the related development policy (social type, or economic type, or physical/infrastructure type); 3). Indicating the location of the project in the administrative boundary; 4). Ensuring development equity in deciding location, time, and budget amount;

As a response to this situation, Surabaya began to initiate the concept of government resource management system a year after the national policy authorized the new guidelines (2007). They initiated a new vision of good governance and public accountability by considering three concerns in city's development planning: 1). Translating the development mission statement into annual project activity; 2). Quantifying and standardizing the annual development projects in terms of site/location, development activity area (social, economic, or spatial/infrastructure); 3). Formulating how the annual development project would be carried out (self-help project or conducted by the third party through direct appointment or bidding process); 4). Good governance efforts in quantifying the success of development projects through achievement formula that compare between plan and implementation in terms of budget

spending and project. A description of the project is taken from the project initiator, Agus Imam Sonhaji[6];

In the context of planning practice, the initiation of this self-help government resource management system is actually a communicative action among governmental planning employees in a collaborative manner to achieve consensus building under current development mechanism and organizational structure. So, this creative communication action will not have a problem related to administrative accountability. However, based on the information from the initiator, since this project was first implemented, there has been resistance from the governance system, especially from those who want to keep the planning process in a traditional manner, because the initiation of the new innovative project into current system will cause self-restructuring in the system in response to the change.[7]

Project History. Actually this is not a project, but simply a creative process that has been done by the local government of Surabaya in response to the technical problems in developing a budgetary mechanism system and in regulating the concerns of local government units (satuan kerja pemerintahan daerah=SKPD). Problems that arise are: a). The long process of budget timetable establishment; b). The unstandardized expenditure item unit price; c). The difficulty in recapitalizing per account of budget expenditure; d). The difficulty of controlling project proposals including the evaluation process;

[6] The successful of Surabaya self-help governance project is recognized by the Ministry of Internal Affair. By the support of the Ministry of Internal Affair, the implementation team of Surabaya self-help project is assigned to give the training regarding government resource management system (GRMS) for Bandung's governmental planning employees at the Bandung Planning Board in April 2010. The inventor of GRMS, Agus Imam Sonhaji developed his own blog to share the story of GRMS at the Surabaya city (aisonhaji.wordpress.com).

[7] Since the planning documents are available in softcopy and easily to be traced, the online and electronic-based system can be used to promote good governance by reducing possibility of corruption in regional autonomy era.

The focus of the Surabaya project was to empower governmental planning employees in implementing e-budgeting system especially in facilitating the budgetary team to develop an annual budget at the city level. In a local government development planning context, e-budgeting is intended to enhance the quality of local budget revenues and expenditures (APBD=Anggaran Pendapatan dan Belanja Daerah) which runs on the same track with local government mid-term development plan (RPJMD=Rencana Pembangunan Jangka Menengah Daerah). The advantages of this project are: a). A transparent budgetary system process; b). Quick and timely manner of preparation; c). The budget preparation process is in accordance with the needs of activity units; d). The clear chronological budgetary system; e). Reliable and traceable reports. E-budgeting is an indication of the transformation from manual budgeting process to an electronic budgeting process, especially through online-based project proposal submission, online-based project proposal revision submission, direct online editing/justifying project proposal submission, and real time project documentation (project report can be printed directly);

Project Methodology. To create breakthrough in the current bureaucratic development planning mechanism, a creative middle management governmental planning employees adapted the idea of ERP (enterprise resource planning) benchmarking system that attempts to integrate all departments and functions across an entity of organizations with a single electronic system to present the entire diverse concerns of existing divisions. The basic measurement of GRMS is on efficiency and effectiveness in terms of connecting suppliers' partners, the company, and customers:

- Efficiency: to cope with the decrease of inventory; to decrease total employees; and to decrease time usage to get valuable information. Efficiency leads to how the working unit executes the project which is calculated from the percentage of how the remaining project

budget that has been implemented through good or services provider compares with the upper limit budget of the project

- Effectiveness: to cope with the increase of service level; and to increase budgetary control. Effectiveness leads to how the working unit executes the project which is calculated from the percentage of budget usage with the amount of budget package which is initiated in e-project application.

In terms of budgetary process in local government context, GRMS is a kind of ERP implementation for public sector with diverse public concerns. Basically, it is a resource management system that integrates the activities of government bureaucracy from upstream to downstream (in the context of governmental spending) that has been developed by the (administrative or decentralized) city of Surabaya in order to support financial management.

It can be translated that the concept tried to perform e-city planning. A methodology of GRMS consists of five steps:

- E-budgeting performance, focuses on performance based budgeting. An objective is to standardize cast, data consolidation and speed.
- E-project, focuses on planning detail activity planning. An objective is to provide detail and accuracy of plan.
- E-procurement, focuses on electronic or online based procurement. An objective is to provide transparency in terms of information sharing of budgeting cycle process.
- E-delivery, focuses on contract administration and finance. An objective is to provide contract accuracy, bureaucracy cut and data update, and real time based on activities.
- E-controlling, focuses on output control and schedule. An objective is to provide progress control and schedule attainment.
- E-performance, focuses on performance and measurement. An objective is to show the achievement, likewise to give reward for motivation.

In the process of GRMS formulation, a strategic planning approach is carried out to find strengths, weaknesses, opportunities, and threats to the project in the context of Surabaya. These are:

Strength: Surabaya has suitable Internet network infrastructure, servers (Web, Mail, Proxy, and Data), and a stable institutional and strong leadership support (e-Leadership is good). The lesson learned from the self-help governance project can be shared to other regency/city to promote good governance with regional autonomy spirit. Hence, to promote internships for planner students as well as governmental planning employees from other regencies/cities to introduce the electronic-based planning process to be understood, revised, and developed.

Weakness: Capacity building issue to operate, maintain, and to develop the GRMS that has to be followed by the suitable ICT-infrastructure (computer, software, and service connection) to record and access all planning documents based on the level of authority of local governmental planning employees.[8] Other issue is the willingness of governmental planning employees as personnel who would like to develop their knowledge in ICT-based working activities.

Opportunity: It is easier to control project implementation, not only in local government level but also in provincial level. This is important to control whether the advisory-typed project from the provincial level is beneficial and useful for the local government. In return, the implementation control may lead to continue the same project for the future or to eliminate or to revise the direction of the project. For instance, a determination must be made as to which one is better in dealing with local development issue, whether infrastructure development project, or conducting research project, or promoting free health and education service.[9]

[8] The planning documents such as: all planning projects in softcopy-based record to accompany the printed documents, also the record in terms of bidding process. So, if there is any violation in terms of bidding procedure and possibility for mark-up budget, it can be easily to be traced, by the project investigator (local government auditing board or Badan Pemeriksa Keuangan Daerah=BPKP).

[9] To get public recognition, because the public could see easily the development project, it is usually development project tend to implement infrastructure development project (especially after 1998 where the reformation era occurred), such as: road system maintenance and development, public building development. While, the product of study-based project it is just a paper or softcopy where layperson could not see the significant for the public.

Threat: the change in regional development policy from the central level which affects development implementation in local level. For instance the change in the local government budget based on national support (general allocation fund or Dana Alokasi Umum=DAU and special allocation fund or Dana Alokasi Khusus=DAK). So, although local government has been successful in categorizing development project priorities based on public need and local development planning mission would be futile because it could not be implemented because of budget limitation.[10]

Based on a SWOT analysis, the six steps idea of government resources management system (GRMS) process were adjusted in Surabaya and the current governmental development mechanism system. These include:

The implementation is gradual of the most basic and local government units (SKPD) related intent, when it first started e-Budgeting, and e-Procurement, had developed its other chains. In this case, the rationality in proposing development project, especially infrastructure type project will determine which institution will take responsibility.[11]

Completing all MIS (management information system) in the chain of local financial management and procurement, so that all parties feel the benefit. For instance the proposed project to promote small and medium enterprise center can be conducted by the synergy among

[10] To promote good governance and national development acceleration, recently the Government of Indonesia developed an Economic Development Master Plan of Indonesia (Master Plan Perencanaan Pembangunan Indonesia=MP3I) which is not stated in national policy. So, when MP3I is implemented, justification has to be made by the existing regional and local regulation especially regional and urban plan. It may contradict with the effort to conserve 30% open space for every regency/city with effort to promote economic development in regency/city level.

[11] For instance: the construction project of public school whether under management of Local Government Education Office (Dinas Pendidikan) or Housing and Settlement Office (Kantor Dinas Cipta Karya). The logic is if the logical framework is to promote public education as a consequence of compulsory education for basic education (wajib belajar 6 tahun) it will be managed under Local Government Education Office. If the logical framework is to response the government policy to promote suburban development by providing local public service to reduce commuting to the city center it will be managed under the Housing and Settlement Office.

diverse local government institutions. For instance: road system network project by Housing and Settlement Office; local economic development training by Trading and Industrial Office and Local Education Office; technical advisory training to promote local economic institution by Local Cooperative Office (Kantor Koperasi). So, the success of small and medium enterprise centers can be claimed as the achievement of the synergy among related local governmental offices.

Perform coercion to use Instruction Mayor and Mayor Regulations as reference policy. This is to develop the linkage between development mission statement with the proposed project to be funded and implemented. For instance: developing urban forest project is to encourage the existence of urban open space as a consequence that every city has to provide 30% of developable area for urban open space.

To standardize a procedure of administrative and technical support for information security with ISO 27001: ISMS (Information Security Management System). In practice this is to reduce budget leakage until 25% and overlap project.[12]

Continue persuasive measures on key components of the bureaucracy that are still resistant and show evidence of effective implementation of GRMS supported continuous learning. To promote that annual administrative accountability report of the Mayor is derived from the GRMS. The achievements of local governmental offices are not based on the number and the budget amount of project undertaken, but based on implementing development priority from local government policy.

[12] For instance: urban planning project in the city level can be funded by the local government budget, or by national funding if the location has particular function in national level; The accessibility to access or to revise and edit the proposed project in online budgeting system is justified based on the authority level of related office.

Giving appreciation to all parties in local governmental bodies who perform well in terms of GRMS implementation, e.g. with the implementation of the Surabaya Performance Award to those who succeed in implementing project based on committed time, budget, project completion, and impact to the community (the development project is utilized and has economic impact).

Authority as governance factor

Communicative actions. The Surabaya project enables a sense of enhancing planning management performance in terms of productivity and time as compared to the current development mechanism and governmental organizational structure. Local government units serve as a hub in Surabaya GRMS network. The database budgeting system plays a communicative planning action role by providing progress data on the planning process. The budgeting system process information is shared by all local government institutions to get feedback and revision in terms of choosing the project types, including goods and services supplier, consultation service, and procurement service. The uniqueness is that each step of the planning process has been recorded digitally. Still, the implemented planning programs must still be recorded in printed version under the current rules of administrative accountability.

The influence of communicative actions to promote planning activities. The Surabaya project focuses on enhancing day-to-day planning activity by using existing access such as face-to-face meeting and physical access. The positive aspect of this self-funded project is that it has encouraged other development actors such as the education community and PT. Telkom to participate in expanding the idea of a government-based resource management system. The vocational high school has been encouraged by the public university (Institut Teknologi Sepuluh November) to become an ICT center. To extend the idea of this project, PT. Telkom has been

facilitating suitable networks at the sub-neighborhood level (RT=Rumah Tangga). Currently Surabaya has a communicative planning hub at the subsidiarity level (sub-neighborhood).

The basic role of communicative actions to planning activities. The main resource of the project is the strong political leadership that is working hand in hand with technical leaders[13] in every local government unit (SKPD), and who are supported by highly motivated young planning employees to develop the system. The project is maximizing the usage of the existing ICT hardware, such as office computers, and existing internet connection service to promote the attachment of local governmental employees into the budgetary system process. This can be seen as an example of communicative action looking to consensus building in terms of executing suitable annual development project.

The communicative actions to promote better planning management. The Surabaya project is the lesson learned in combining procedural and bureaucratic development mechanism system which is more hierarchical and takes time. The functional network system has been developed to banish a bureaucracy system but yet is still working under current development mechanism policy. This can be seen as an example of utilizing computer software or application as a representation of ICT usage to support local government roles, focus on local government policy, and answer the public need.

Institutional commitment as governance factor

Communicative actions. In terms of institutional commitment, the usage of the Surabaya's self-help governance project is to carry out the annual development budgetary process to become embedded into daily working activities in their local government units. The local government units were encouraged to do so, because by combining daily working activities

[13] Technical leader refers to the governmental employee who has responsibility to manage all budgetary system process.

with GRMS project there would be a synergy between the local government units' mission and city's mission. In addition, the consensus building can be done immediately after evaluating the proposed project (available in both printed and digital version) through discussion among local government institutions related to the conflicted development proposal.

The influence of communicative actions to promote planning activities. The relationship among local government units as the GRMS online budgetary system process is institutionalized at city level by authorizing mayor's regulation (peraturan walikota) or mayor's decree (surat keputusan walikota) to do so, and by statement of policy in a manual of duties and authorities of local governmental units. The planning network becomes the official coordination group in a structured relationship according to the local government organizational structure. Furthermore, such planning coordination may lead to detail development matters such as program and annual development activities including their dimensions (price units, location, and length of time).

The basic role of communicative actions to planning activities. The main development policy (which is stated in local development vision and mission) such as long term medium and short term development policy[14] in city level becomes a committed policy that is implemented into development policy in every local government unit[15] and translated into program and annual development activities. The collection of development activities from every local government unit is the action of development policy in the year to come.[16]

[14] Local long term development policy (rencana pembangunan jangka panjang daerah=RPJPD), local medium term development policy (rencana pembangunan janga menengah daerah=RPJMD), and short term development policy (Rencana Kerja Pembangunan Daerah=RKPD).

[15] It will be included in strategic plan of every local governmental institution (Rencana Strategis Dinas).

[16] It usually local governmental institution is developed based on the common concern of particular institution, without explicitly considering local development policy. For instance: the Trading and Industry Office will

The communicative actions to promote better planning management. The Surabaya project becomes a manageable budgetary system. The approach is officially supported by local regulation to promote governmental planning employees performance, because the linkage between normative local development policy, such as vision and mission of the city's development can be easily seen by the annual project as an implication of development priority in the city level and committed to be implemented by every local governmental institution. Finally, the city's development outcome can be described in annual development achievements of the mayor (annual accountability information report of the mayor, or laporan keterangan pertanggung jawaban walikota=LKPJ Walikota) which will be communicated in front of the house of representatives at the city level.

Capability as governance factor

Communicative actions. The Surabaya project implementation can lead to local governmental transformation in terms of human resource development, since GRMS concept basically adapted an interactive planning process. The right personnel in the right place will occur as a consequence of self-examination of city's governance system.

The influence of communicative actions to promote planning activities. The existing ICT hardware (the usage of laptop or desktop computer), software (e-procurement and e-budgeting), and internet service connection (simply by utilizing Telkom speedy internet service from land line telephone in every local governmental units) are suitable enough to implement this self-help governance project because the project does not emphasize the usage of high-end ICT products but rather the simplest ICT software that can run on any basic hardware computer system. For instance, it can be developed using Excel (under Microsoft Office), uploaded and

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prioritize on trading and industry development without considering the position of trading and industry development in the city or provincial level.

shared online, but the level of accessibility of information, revisions, edits, and updates will be based on the level of authority of the local government units under local planning board office and program preparation division in mayor's office.

The basic role of communicative actions to planning activities. In terms of project requirement, the self-help governance project needs knowledgeable employees[17] to run the program, appropriate ICT hardware (laptop or desktop computer along with the computer server and data storage), software (GRMS application), and internet connection service. The uniqueness of the project is that there is a self-learning process, especially among younger generation governmental planning employees.

The communicative actions to promote better planning management. By adapting the GRMS project, the uncertainty for business activities can be reduced since the annual program is clearly defined as efforts to achieve city's mission. The clarity of the city's government in responding to environmental concerns is also evident. Since Surabaya is a capital city of East Java Province, implementing of GRMS can be used to strengthen local-regional-national economic activity centers within Metropolitan Surabaya (known as Gerbangkertosusila-Gresik, Bangkalan, Mojokerto, Surabaya, Sidoarjo, and Lamongan) and East Java Province.

Organizational support as governance factor

Communicative actions. The project inspires the idea of thinking out of the box in terms of communicative actions as a reflection of the rigidity of the bureaucracy system, because in regular conditions there are no differences among the diligent and low motivated employees under the current civil servant regulation system (see also the new regulation on civil servant:

[17] For instance they categorized as governmental employees at the rank IIIa or Pangkat Penata Muda (graduated from higher education), especially those who certified as local governmental budget executor (Diklat sertifikasi fungsional pelaksana anggaran which is organized by the Institutional Policy of Government's Procurement (Lembaga Kebijakan Pengadaan Barang dan Jasa Pemerintah=LKPP, www.lkpp.go.id).

Government Regulation No. 53/2010). However, through this project, the working environment will be more conducive in terms of productivity and public service because it considers competencies in day-to-day working activities.

The influence of communicative actions to promote planning activities. The successfulness of the self-help governance project has been encouraging other local government units to have access for data sharing in terms of development planning. Furthermore, this has been influencing telecommunication companies like PT Telkom to support the suitable virtual telecommunication access not only to support this self-help governance project but to other potential users to the public.

The basic role of communicative actions to planning activities. The implication of the self-help governance project is the emergence of a new governmental division that deals with e-procurement as allowed under Presidential Regulation No. 54/2010 about procurement service unit (national level). This authorization occurred after Surabaya initiated its e-procurement units.[18]

The communicative actions to promote better planning management. Local government publishes local regulations signed by the mayor to enhance motivation through rewards as an implementation of competencies based budgetary system. In 2009 the Bandung city government invited the Surabaya GRMS team to train its Office of Planning Board, and in 2010 an e-procurement unit was added as a unit in Bandung city's Planning Board Office.

Table 4-1. The highlight of facilitation factors and governance factors

Aspects	Lesson Learned from the Facilitation Factors in Solo	Lesson Learned from the Governance Factor in Surabaya
Actor	International agencies, community facilitators and dedicated students	Dedicated local governmental planning employees

[18] The Ministry of Internal Affair has been recognized the GRMS project of Surabaya is the best lesson learned in terms of innovative project to implement Presidential Regulation No. 54/2010 in the city level.

Table 4-1. continued

Aspects	Lesson Learned from the Facilitation Factors in Solo	Lesson Learned from the Governance Factor in Surabaya
Focus	Consultation on local development planning	Development planning formulation process
Scope	Neighborhood level	Neighborhood level in terms of overall city development
Project characteristic	Project based activities based on international support	Embedded to annual development planning process
Response to change	Has to be continued by local actors and self-funded activities	Resistance to change, but slowly adapted by the system, since it encourages motivation and performance-based activities

Planning Response to Support a Communicative City in Bandung Metropolitan Development

This section examines the lesson learned from Solo and the self-help governance project of Surabaya as they apply to the Bandung metropolitan area. The discussion begins by a description of existing conditions in Bandung, the highlight of lessons learned and the proposal for a planning response which is categorized based on research focus, namely capacity building and planning management. A synthesis of these conclusions is available in Tables 4-1. to 4-6.

Table 4-2. The synthesis of existing internal factors in Bandung metropolitan area

Features	Strength	Weakness
Communicative actions	Diverse community in diverse administrative territories within Bandung metropolitan area	Diverse community leads to diverse concerns, diverse development issues, challenge, and planning priorities.
The influence of communicative actions to promote planning activities	The communicative is embedded in ICT development as part of spatial structure arrangement, where the focus is still on physical infrastructure. The mobile technology is used to support working activities outside working place	Although communicative action is initiated by the usage of mobile technology. However, it has not been implemented to reduce physical travel
The basic role of communicative actions to planning activities	The ownership of ICT and planning capability, the availability of suitable ICT service (PT Telkom) to be involved in planning development	The ownership of ICT has not been used to optimize planning activities, and the availability of PT Telkom has not been optimized in the planning process.
The communicative actions to promote better planning management	The availability of local government units in every regencies and cities and provincial levels; The availability of Provincial Planning Board Office to guide planning process in Bandung metropolitan area level and in regencies as well as cities level	No particular coordination and mutual cooperation among local government and PT Telkom in terms of planning development (only in normative term, not in operable activities)

They highlight the lessons learned from Solo and Surabaya; the existing internal factors in the Bandung metropolitan area; the synthesis factors in Solo; the synthesis of existing facilitation factors in the Bandung metropolitan area in association with the facilitation factors in Solo; the synthesis of governance factors in Surabaya; the synthesis of existing governance factors in the Bandung metropolitan area in association with governance factors in Surabaya; see Tables 4-1. to 4-6.

Table 4-3. The synthesis of facilitation factors of Solo

Features	Strength	Weakness
Communicative actions	The Integrated development planning program has been implemented in neighborhood level	The spirit is in the participatory planning process not in adapting the planning policy in local level where land allocation is used as attachment to all development programs, since land is constant in stock. For Indonesia condition, development program direction may change, when there is replacement of political leader like city's mayor.
The influence of communicative actions to promote planning activities	It is done by activating the head of local government units, especially Local Planning Board Office as centers in developing coordination and development plan synergies within Solo	The project focuses more on activating the role of Local Planning Board Office. On the other side, there is also Office of Information and Communication which is not mentioned in this project scheme that supposed to be included for the continuity of the project.
he basic role of communicative actions in planning activities	Skillful community facilitator and dedicated students; The extension used of GIS in describing land use and socio-economic condition	Project based activities Skillful community facilitator and dedicated students have to be funded; the continuity of the project has to be maintained.
The communicative actions to promote better planning management	There is a strong leadership from the top level and implemented until neighborhood level	The project is implemented in one administrative city. While Bandung metropolitan area consists of 3 regencies and 2 cities with diverse level of urban complexity.

Table 4-4. The synthesis of existing facilitation factors in Bandung metropolitan area

Features	Strength	Weakness
Communicative actions	The availability of Public and Private Universities with diverse scientific knowledge; the availability of Research center of PT Telkom; the availability of diverse NGOs communities and diverse consultancy firms	The entire facilitation stakeholders have not been optimized into integrated development program; it has not been found the suitable method to synergize all knowledgeable stakeholders.
The influence of communicative actions to promote planning activities	Expanding the possibility of special service from PT Telkom and the support of communicative development function of Information and Communication Offices	The cooperation with PT Telkom is still in normative level, not in operational level which may lead to sustainable mutual planning cooperation

Table 4-4. continued

Features	Strength	Weakness
The basic role of communicative actions to planning activities	Network service and customize service from PT Telkom; The availability of university and consultancy firms	The resource has not been utilized in optimal way in the context of regional planning development and neighborhood level.
The communicative actions to promote better planning management	Mutual cooperation with public university and the availability of corporate social responsibility (CSR) of PT Telkom are can be encouraged and developed through particular memorandum of understanding	The cooperation is still not integrated in terms of planning process with the support of ICT; The CSR activities is still not integrated with the effort on enhancing the role of satellite cities and the enhancement of planning performance of local government within Bandung metropolitan area.

Table 4-5. The synthesis of governance factors in Surabaya

Features	Strength	Weakness
Communicative actions	It creates a new working atmosphere, togetherness working based on strong leadership and clear technical working direction, with traceable interactive communicative actions.	It does not mention the governmental planning employee group who cannot deal with ICT matters. It is important to identify the level of resistance within governance system.
The influence of communicative actions to promote planning activities	Surabaya has better quality of physical infrastructure compared to Bandung metropolitan area and so is the span of control in the sense of geographical coverage.	The project is implemented under one administrative city with integrated city development mission. Whereas Bandung metropolitan area consists of several administrative territories with diverse concerns.
The basic role of communicative actions to planning activities	The project is using existing network system in handling development planning objects	It does not show the specific used under regional and detail spatial plan context. For instance the used of GIS to translate GRMS program in spatial context.
The communicative actions to promote better planning management	there is an official local government regulation to implement the project	The changing paradigm in national level could influence the established local government development guidance.

Table 4-6. The synthesis of existing governance factors in Bandung metropolitan area

Features	Strength	Weakness
Communicative actions	Bandung metropolitan area has various employment activities from urban to rural oriented activities. From ICT-based to non-ICT-based activities; since the people adapt ICT very well in their daily life, it is possible to encourage ICT-based activity to complement or replace non-ICT-based activities.	Difficulty in settling the different concerns and different development priorities in local government units in every regency and city.
The basic role of	Most governmental planning	The knowledge in ICT usage is important to

Table 4-6. continued

Features	Strength	Weakness
communicative actions to planning activities	employees have hardware, software, and connection service of ICT product. The usage of ICT to support working activities is a way in terms of enabling strategy using existing ICT capital (ownerships); PT Telkom as telecommunication operator service could facilitate more in supporting ICT infrastructure and customize typed of product package.	enhance the private and local governments' ownership of ICT to support planning process; The skillful planner, university students, and telecommunication service provider have not been consolidated to support communicative planning action for better spatial development organization in Bandung metropolitan area.
The communicative actions to promote better planning management	It is possible to develop a regulation in developing ICT roles in supporting planning activities within Bandung metropolitan area along with the need to enhance regional development synergy as an implementation of Bandung metropolitan area as national activity center that has to have particular mission to reach national competitiveness.	There is still no official mutual cooperation regarding Bandung metropolitan area spatial development by the support of ICT with the stakeholders, especially with university, telecommunication service provider, and other related and promising development actors.

Planning response by Adapting Facilitation Factor and Governance Factor from the Lessons Learned. This section adjusts the facilitation factors from Solo, the governance factors from Surabaya as supplement and stimulant to enhance the internal factors in Bandung metropolitan area, see Tables 4-7. to 4-10. below.

Table 4-7. Planning response in association with communicative actions

Adapting Facilitation Factor	Accompanying formal and official relationship among local government units (SKPD) with facilitation process by the active involvement of stakeholder outside governmental planning employees, such as dedicated students, planning consultant, and ICT practitioners.
Adapting Governance Factor	Developing GRMS typed for every local government within Bandung metropolitan area, added with adjustment software to create regional development synergy. Notes, the effort to internalized GRMS typed project has been done by Bandung city recently, on December 2010.
Adjusting Internal Factor	Government resource management system (GRMS) for Bandung metropolitan area has to be based on land use as development planning attachment in creating development synergy. The role of the Office of West Java Planning Board along with the Office of Housing and Settlement are important to make sure regional development synergy in Bandung metropolitan area and West Java Province level. Again, enhancing communicative action with the support of mobile technology to settling down the planning problems along planning process is important.

Table 4-8. Planning response to the influence of communicative actions to promote planning activities

Adapting Facilitation Factor	Activating the head of local government units as hubs in developing coordination and development plan synergies within Bandung metropolitan area.
Adapting Governance Factor	Activating the head of local government units as hubs who play important part in data sharing for planning formulation and development planning formulation with the support of suitable connection service from PT Telkom to encourage communicative planning actions.
Adjusting Internal Factor	Not only the head of local government units that has to play as hubs in developing coordination and development plan synergies but also community leaders that hold position as neighborhood leaders have to take part in the planning process by the support of ICT, especially in development control mechanism. Data sharing and communicative actions have to be defined further based on planning issues by considering data security and public concerns.

Table 4-9. Planning response in association with the basic role of communicative actions to planning activities

Adapting Facilitation Factor	Skillful community facilitator and dedicated students; The extension used of GIS in describing land use and socio economic condition.
Adapting Governance Factor	Making local development objective as resource in creating development synergy, and ways to set budgetary mechanism system in local government and Bandung metropolitan and West Java Province context.
Adjusting Internal Factor	Skillful community facilitator and dedicated students are can be done through sustainable cooperation with the universities and research center that use every neighborhood as planning studio and planning practices with particular mission that have been formulated by the local government; The extension used of GIS in describing land use and socio economic condition

Table 4-10. Planning response in association with the communicative actions to promote better planning management

Adapting Facilitation Factor	Strong leaderships until neighborhood level are doing active communicative actions until neighborhood level.
Adapting Governance Factor	Development planning mechanism has to be covered by local regulation which focuses on local government units' competencies and official mechanism to create motivation and creativity in achieving Bandung metropolitan area development mission.
Adjusting Internal Factor	Enhancing the strong leadership until neighborhood level. This can be done by the support from the universities in developing planning knowledge, and the support from the local government and provincial government in establishing the needed regulation as a continuation of national policy on development planning as well as planning process. The communicative action is promoted in two-way communication, face-to-face communicative actions and also web or online based communicative actions which operate in complementary manners.

Redefine Communicative City in Indonesia

I would like to reflect the effort to create the communicative city based on my case study and supported by the preliminary survey to mobile technology actors and the effort of implementing mobile technology development at the neighborhood level (Solo case) and city level (Surabaya case). Based on Jeffres, a communicative city is defined as "a community whose environment facilitates development of a communication system that integrates its residents into a dynamic whole, that enables its citizens to get involved in civic activities and participate in a variety of roles, and makes possible a balance between mobility and stability" (Jeffres, 2010: 100). I elaborate Jeffres's communicative city definition as follows:

A community: It refers to urban and metropolitan residents in the larger context. However, a community in limited scope refers to the governmental planning employees who work in civil service as a forefront in planning decision maker who could facilitate involvement and participation of urban and metropolitan residents in planning process.

Facilitation of development: It refers to the entire effort to support planning development. In the case of my Bandung study, facilitation is intended to support planning processes in city and at the metropolitan level. The facilitation is made possible by mobile technology with the support of appropriate technology and particular planning methods. The mobile technology itself is possible to be used by the city and metropolitan residents to promote their daily activities including the implementation of planning management. Bandung metropolitan area residents can participate in planning management by encouraging spatial based planning with use of mobile technology.

Communication system: It refers to the effort to get and deliver planning information through the proper planning procedure using particular media. In this case, suitable mobile

technology has the potential to serve as an effective tool to get and deliver planning information because of its ability to update information and provide information archives to link planning formulation, implementation, monitoring-control, and planning evaluation.

A dynamic whole: It leads to the multiple concerns of mobile technology actors in the city level context which are influenced by the emergence of mobile technology development. In the city context, their multiple concerns are dynamic, considering their experiences in the past, responding the current development issues, and their efforts to shape the future trend.

The citizens: It refers to the urban and metropolitan residents, especially in doing their daily activities which could be supported by the emergence of mobile technology. In addition, citizens could be influenced directly or indirectly by the emergence of mobile technology development. The urban citizen may acts as an agent of change in terms of adapting mobile technology usage and they in turn can pass on the mobile technology usage to the rural residents.

Involvement in civic activities: It refers to the transformation of public involvement by the support of mobile technology. In the context of planning process, the expectation to create public involvement becomes higher with the emergence of mobile technology as a planning tool to facilitate communication and coordination.

Participation in a variety of roles: It leads to the expectation of more public participation for better planning process by the support of mobile technology based on the role of planning stakeholders especially to address the implementation of sustainable development at the city level and considering the role of governmental planning employees as the forefront in planning decision making process.

Possible balance between mobility and stability: It leads to the effort in implementing of mobile technology wisely which could create the enlargement[19] of the mobile technology usage which in turn could enhance mobility. The mobile technology usage does not always create productivity, and could create new problems, such as induced travel or online fraud or addiction to unproductive online activities, such as too much playing online games or spending a lot of time in accessing social media. In this case, the role of governmental planning employees is important to enhance public awareness in adapting mobile technology wisely.

Hence, here are my interpretations of six indicator of communicative city definition by Jeffres (Jeffres, 2010: 100):

First indicator: "Existing communication patterns and policies would foster community attachment." The emergence of electronic transaction and information policy (Law No. 11/2008) as extension of regional autonomy in Indonesia (Law No. 32/2004) is an effort to enhance urban planning effort by the support of mobile technology. However, the challenge here is to integrate the policy in national, regional, and city/regency level in adapting mobile technology as planning to promote communication and coordination as stimulation for better planning process. Mobile technology actors showed that there are possibilities to utilize mobile technology for better planning process. In addition, the efforts of implementing mobile technology in neighborhood context (Solo case) and city context (Surabaya case) showed the possibility of community attachment and governmental planning employees' attachment by the support of mobile technology.

Second indicator: "Communication should link together citizens with different backgrounds in an age where conflict is often the case and people interact most often with those

[19] Hislop uses term spillover in implementing information and communication technology (Hislop, 2008).

who look like them." This indicator leads to the challenge of achieving the communicative city by enhancing community attachments for all stakeholders. In my case, the effort of community attachment is potentially conducted in a limited community such as governmental planning employees. In the context of implementing mobile technology based on planning scale, the Solo case showed the effort in enhancing community attachment in neighborhood level. The same thing happens in Surabaya case, where the effort in enhancing planning attachment occurred at the governmental employees in city level.

Third indicator: "Communication vehicles, patterns, and policies should help the most disadvantaged members of the community." This indicator represents the effort of expanding the mobile technology usage in order to provide sufficient communication vehicle and patterns which are covered by the policies to minority. In addition, this indicator has not been found in my case study. However, indirectly, it is expected that the mobile technology ownership by the governmental planning employees and the suburban residents could support them to get more possibility to get advantages by the mobile technology usage. For instance, there is a cellphone for online donation and to provide more job information or job creation.

Fourth indicator: "Community patterns should support and stimulate economic activity in our cities." This indicator represents the possibility of mobile technology to enhance economic activity. Actually, this indicator has been adapted in implementing urban activity centers at the urban planning and metropolitan development planning documents, not only by mentioning the function of each urban activity centers, but also followed by the need to enhance urban infrastructure including telecommunication network system. However, the challenge in implementing this communicative city indicator is to stimulate all development stakeholders to

participate in planning process by the support of mobile technology. So, the consensus building can be reached by the enhancement of public participation.

Fifth indicator: "The communication system should support cultural organizations and artists in our communities." The statement cannot be related directly from my research. However, by enhancing capacity building of governmental planning employees and planning management, especially developing urban creativity (Bandung City is a pilot project for Creative City in Asia Pacific since 2008), communication system open for cultural organizations and artists to participate in implementing a communicative city. The openness for public participation is in line with the idea of communicative planning. Lapintie said that openness in communicative planning is a requirement to manage the asymmetry information (Lapintie, 2010). So, by managing information to promote particular planning objectives, such as a creative city, public participation can be promoted. In other words, this indicator represents that communicative city should promote urban creativity and innovation towards urban competitiveness at a global scale which is mainly influenced by creative and innovative members of the urban community who can enhance competitiveness because of their valuable, rare, imperfectly imitable, and non-substitutable activities.[20]

Sixth indicator: "Communication patterns should socialize new residents and generations in the community's traditions and history." This leads to the implementation of mobile technology as a tool to promote communication patterns that have to take into account local conditions, especially traditions and history. In my case, it is shown that the adaptation of mobile technology as a planning tool has to take into account the transformation of the state of the art of daily planning activity from face-to-face planning based activity to online or virtual

[20] The terms of valuable, rare imperfectly, imitable, non-substitutable are taken from the discussion of information and communication technology and competitiveness (D'Atri, Ferrara, George&Spagnoletti, 2011).

planning based activity. In addition, the successfulness of the enhancement in implementing mobile technology as a planning tool can be learned from the Solo case by combining the brotherhood spirit (semangat gotong royong) into modified planning participation of geographical information system. The Surabaya case showed that the enhancement of planning activity can be reached by adding new working principles that are performance based.

CHAPTER 5
CONCLUDING REMARKS OF MOBILE TECHNOLOGY AND THE CHALLENGE TO PROMOTE A COMMUNICATIVE CITY IN BANDUNG METROPOLITAN AREA

There are two important terms that I have defined in my study, one of which is mobile technology and communicative city. Mobile technology is the representation of information and communication technology development which is divided into hardware (desktop computer or laptop, land line phone, and cellphone), software (geographical information system, software application for cellphone, and computer operating system), and connection service (land line phone, cellphone, and internet connection service). The communicative city is defined as a way to enhance community attachment by the support of mobile technology to support better planning management.

Responding to the communicative city definition (Jeffres, 2010: 100) is an Indonesian context, a challenge is to promote the communicative city is can be initialized by the use of mobile technology in the limited community which is represented at the governmental planning employees within Bandung metropolitan area as keys to provide better planning management. By the support of mobile technology as a new communication system in planning coordination, it is expected that they can facilitate better planning management at the metropolitan level with multiple concerns of every cities and regencies within Bandung metropolitan area. In terms of developing mobile technology usage within metropolitan development context, the preparedness of governmental planning employees for coordinating and conducting the content of planning process will lead to the encouragement of metropolitan citizen to take part in planning process based on their variety of roles through the communication channel. The improved accessibility with support of the mobile technology could promote governmental planning employees and mutual cooperation with the metropolitan citizens to achieve the common goal of planning development under the spirit unity and diversity of regional autonomy policy in Indonesia.

My research question gets at this challenge, namely "how does mobile technology, represented by hardware, software, and internet connections, influence capacity building of the governmental planning employees and stimulating planning management by promoting communicative city?" The answer my research suggests is that to a certain extent mobile technology has been utilized and has influenced the working activities. In addition, there are additional potentials to utilize mobile technology as a planning tool to stimulate better planning management. To demonstrate this, I categorized my findings into the characteristic of mobile technology usage and the influence of mobile technology to daily working activities, the basic role of mobile technology in planning performance, and the influence of mobile technology to promote a communicative city. I provide some recommendations drawn from the observations of governmental planning employees within Bandung metropolitan area through the preliminary survey to the mobile technology actors. There are also some reflections based on a survey of governmental planning employees within Bandung metropolitan area with the support of the preliminary survey to the mobile technology actors and the effort of implementing mobile technology development in the context of planning scale in neighborhood level (Solo case) and city level (Surabaya case).

Conclusion of Mobile Technology to the Challenge to Promote a Communicative City in Bandung Metropolitan Area

I categorize my conclusion into the conclusion of mobile technology users, the influence of mobile technology to daily working activities, the basic role of mobile technology in planning performance, and the influence of mobile technology to promote a communicative city.

Conclusion of Mobile Technology Users

Governmental planning employees at planning related offices are not mobile technology-based workers. Most of them use mobile technology as a representation of information and

communication technology (ICT) to support their daily activities, such as plan making process, planning analysis, planning decision making processes and planning control. In general, their homes are not adjacent to the location to the offices, although they can use mobile technology to promote telecommuting; they are categorized as workers who have strong attachment because by the civil service regulation they have to come to their offices during the weekdays. In addition, through the support of mobile technology, they can do some work activities as governmental planners at home. These findings indicated a willingness to work outside the offices to employ the advantages of mobile technology in terms of productivity. The most important finding in terms of planning process is that they can undertake planning activity like data compilation, data analysis, synthesis, and planning scenario making in the more communicative manner through telecommunication service, like sending texts (short message service), making phone calls through cellphone or land line phone, or browsing internet to find supported planning data.

Conclusion of the Influence of Mobile Technology to Support Working Activities

Essentially, the governmental planning employees are restricted by regulation to their work locations. They cannot reduce working travel during the weekdays due to the regulation on civil service rules. In terms of ICT usage it was found that hardware, software, and connections services of ICT are important to support day-to-day working activities at their offices and at their homes. Because mobile technology created time efficiency in doing daily activities, consequently encouraging new travel demands, especially by motorcycle.[1] The usage of cellphones has increased transport costs, because it creates new travel demands as an implication of working efficiency that participants get from the ICT usage. However, they said that ICT is

[1] It is easy to buy motorcycle in Indonesia with one to five years plan. The cheapest down payment for moped is around 250,000 rupiahs or equal to roughly $30.

important in terms of time efficiency and encouraging working productivity, such as doing some of planning process at their offices and ICT can also be used to find side jobs.

Conclusion of the Basic Role of ICT in Planning Management

The implementation of imposed planning management can be supported by mobile technology. The basic role of mobile technology could be used as a planning tool to deal with planning scenarios, such as to reformulate the sufficient economic activities reflected by metropolitan development concept by encouraging mobile technology to promote creative economy, or to promote working at home to reduce daily traffic. On the other hand, mobile technology is a meaningful planning tool to encourage community attachment by providing software applications to discuss plan making process and to anticipate planning deviation including traffic problem.

Conclusion of the Influence of ICT and Mobile Technology to Promote Communicative City as a Stimulation to Perform Better Planning Management

It is important to develop planning in order to address the current urban issues and the negative impact of mobile technology usage such as induced travel. Since mobile technology has advantages in supporting better planning coordination, mobile technology can best be used in terms of the implementation of planning performance and planning control at the local level to drive them in the right direction. Such activities can be supported by mobile technology since it can expand planning participation with the public, and can create more communicative planning processes which is supported not only by the ownership of mobile technology of governmental planning employees, but also by the willingness of PT Telkom to provide customized telecommunication services.[2] Another possibility is to link the efforts to create economic

[2] PT Telkom is possible to provide particular telecommunication service to facilitate development plan in provincial as well as regency and city level.

competitiveness with the availability of corporate social responsibility of PT Telkom, which can be used not only to provide job opportunity for small and medium enterprises but also to provide potential incentives to governmental planning employees' telecommunication connection services.

Recommendation of Mobile Technology to the Challenge to Promote a Communicative City in Bandung Metropolitan Area

This section provides some possible planning responses as research recommendation to Bandung metropolitan development in the context of Indonesian metropolitan development in the national, regional, and local (regency and city) context. As the result of my research synthesis, the possible planning response is developed by considering some key words in terms of current planning development in Indonesia, such as: a). For national context, the key words are national regulation and standard operating procedure; b). For regional context, the key words are translating national regulation into regional cooperation and regional synergy and prescribing the suitable planning object in the regional context that has to be enacted/followed by the regencies/cities level; c). For local level, the key words are: the long lasting interactive communicative action planning to loosen the rigidity of current bureaucracy system. Here are the possible planning responses on mobile technology users to drive activities of people based on governmental tiers in Indonesia.

The government of Indonesia (central government). There is a need to formulate a suitable national regulation towards a changing orientation in day-to-day work based on best services, best planning performance, and targeted planning , such as categorizing the characteristic of planning activities that can be accomplished outside the offices or at home including the type of planning data and analysis and planning decision making process. Also,

there is a need to reformulate the policy of housing provision[3] for governmental planning employees as a tool to regulate job-housing mismatch, such as to regulate the schedule of daily working travel (home-office travel) with planning activities that can be done at home or at a planning object (field survey). Finally, there is a need to formulate suitable regional and detail planning guidance that includes some options in encouraging the participation of PT Telkom as the biggest telecommunication service provider in Indonesia, for instance: the cooperation in providing affordable mobile technology service (cellphone and internet) for governmental planning employees, or data management system (data storage).

West Java Province and Metropolitan management. At the provincial and metropolitan levels, there is a need to initiate a suitable regional regulation towards a changing orientation in day-to-day work based on best services, better planning performance, and targeted work. This complements the regional autonomy policy, civil service regulation policy, spatial planning guidance policy, and the information and electronic transaction policy. The same spirit should be adapted to enhance the metropolitan planning scenario, such as the role of satellite cities as growth centers within metropolitan area by ICT-based activities to complement non-ICT-based activities towards global competitiveness. Finally, there is value to encourage active participation of PT Telkom in order to enrich the planning process and implementation especially in terms of providing suitable virtual infrastructure system within a regional spatial structure plan, as a way to optimize the growth centers within West Java Province. The encouragement of PT. Telkom is to enhance active communication among stakeholders not only in information sharing, but also to look for consensus building and to study the implementation

[3] It is recommended to enrich the role of Advisory Agency of Civil Servants Housing Savings (BAPERTARUM) and the Ministry of Housing.

of housing provision to governmental planning employees as entry point to regulate job-housing mismatch through residence choice location.

Regencies and Cities Levels. At the regency and the city levels, the task is to translate in detail the suitable regional regulation towards a changing orientation in day-to-day work based on best services, better planning performance, and targeted work. This translation effort should be based on the characteristic of duties and responsibilities at the local government units and the functions of regency/city in local and regional level. A second measure is the development of ICT-based and non-ICT-based policies to enhance the performance of growth centers (rural or/and urban development orientation) in local and considering regional cooperation within West Java Province, especially to promote economic competitiveness at the regional level. Also, there is a need to translate the active participation of PT Telkom into coordination in the planning process towards synergy between physical infrastructure development network and telecommunication development network and coordination in enhancing local economic development to perform better planning implementation and planning control through various annual working scheme that in line with the mechanism of local development (budgetary) program. Finally, in the regional and detail plan making process, the concern of housing development for governmental planning employees must be developed and maintained as a tool to reduce job-housing mismatch.

The following applications of mobile technology can support the daily work routine at varying governmental levels.

The government of Indonesia. To enable the usage of virtual infrastructure to be able to work anywhere in order to enhance the possibility of telecommuting as a reflection of a synergy

between development guidance of national spatial plan (Law No. 26/2008) and the policy of ICT related development (Law No. 11/2008 about Information and Electronic Transaction)

West Java Province and metropolitan scale. To enrich the material of a regional spatial structure plan by the regional development option to promote telecommunication network in line (to compliment or even to substitute) the physical infrastructure network as the regional development backbone. The material about the telecommunication network development is not just in a normative level, but an operable concept for the regional context, such as ICT-based transportation, ICT-based public service, ICT-induced travel anticipation, and ICT-intensive district.

Regencies/cities level. To enrich (revolutionary change) the material of regional spatial plan and detail spatial plan to use ICT to promote better planning implementation and control by considering the level of development and regency/city function, such as: the detail plan of suitable ICT-based transportation, ICT-based public service, ICT-induced travel anticipation, and the possibility of ICT-intensive district for rural area; suburban area; likewise urban city center. Besides, special concern about the traffic management has to be increased in order to anticipate and plan for increased use of the motorcycle.

Here are the possible planning responses on the basic role of mobile technology in planning arrangement based on governmental tiers in Indonesia.

The government of Indonesia: a). To accompany the spatial function in terms of national, regional, and local growth center (as material of National Spatial Plan) with the support of ICT to promote competitiveness; b). To initiate e-government as a key of planning 'new resource' in line with the effort on good governance concept. Policy that has to be encouraged: ICT to promote growth centers; ICT to compliment/substitute regional infrastructure; to develop ICT-

based growth centers at various levels with various functions/services; c). To initiate the regulation regarding ICT knowledge in order to optimize the usage of ICT in terms of providing better productivity, better accessibility (including addressing job-housing mismatch), and expanding options for employment activities;

West Java Province and metropolitan scale: a). To translate the transformation of spatial function in terms of national, regional, and local growth center (as material of regional spatial plan) with the support of ICT to promote regional and local competitiveness in line with the economic base of the regions within West Java Province; b). The translation of e-government initiation at provincial and metropolitan levels can be made by optimizing their annual development planning activities with the support of ICT including e-procurement and developing an official interactive website for information sharing, monitoring and evaluation of planning implementation. The capital city of West Java and the capital city of regencies and cities play as hubs of e-governance; c). To promote the regulation of ICT knowledge in order to optimize the usage of ICT in terms of providing better productivity, better accessibility (including addressing the job-housing mismatch), and expanding options for employment activities; d). To optimize the working coordination (including sharing role by avoiding overlap duties) of planning related offices, information and communication offices, and PT Telkom as the biggest telecommunication service provider in enhancing the role of ICT in regional spatial development; e). To initiate the cooperation with private sector in terms of creative economy to enhance competitiveness in rural and urban area within West Java Province in implementing the current regional planning strategy;

Regencies/cities level: a). To develop the translation of the transformation of spatial function in terms of growth centers within regency/city (as material of regency/city spatial plan

and detail spatial plan) with the support of ICT to promote regional and local competitiveness in line with the economic based of the regency or city in the context of West Java structural spatial plan; b). To optimize the official website of every regency and city and connect it to the ICT hardware in kecamatan (districts) level with a support of connection service from PT Telkom (the connection service could use existing land line phone); c). To initiate and develop online public service to reduce face-to-face oriented public service. The initiation and development of such public service could be complimented with the official website. The online empowerment is can be made by transforming a one way communication website into interactive website to encourage community attachment as a representation of an attempt of communicative city; d). To enable the cellphone and internet service usages as attempts in enhancing the public service, and to get interactive input from the residents as part of encouraging public participation. In other words, cellphone and internet is not the best ICT product to provide sufficient information for detail spatial plan material. For instance, most official data on social and economic are in regency/city level, while detail spatial plan needs data in neighborhood level; e). The ICT usage and implementation cannot be separated from the efforts to enhance the education (especially for young generation), implement appropriate technology (teknologi tepat guna) create economic activities and small and medium economic cooperation activities; and promote sustainable development at the local level, especially considering the limitation of the availability of developable land and conserving protection area; f). The organization of capital social responsibility of telecommunication companies and facilitation projects based on regency/city planning object in the context of West Java Province can be seen to formulate better local development planning process;

The following application of mobile technology can enhance planning management at varying governmental levels.

The government of Indonesia: a). To categorize the type of targeted work and type of public services that can be done at the office or outside the office in dealing with planning process; b). To compliment a regulation of national coordination board of planning in cooperation with Indonesia Association of Planner in encouraging facilitation factors and governance factor; c). To provide the memorandum of understanding and guidance to enhance the mutual cooperation with telecommunication service in terms of planning process, including optimizing the structured implementation of capital social responsibility of PT Telkom and the implementation of e-government;

West Java Province and metropolitan scale: a). To translate at the provincial level the categorization of type of targeted work and type of public services that can be done at the offices or outside the office in dealing with the planning process. Such categorization of work is become macro policy at the provincial level to be implemented in regency and city within Bandung metropolitan area; b). To encourage a policy for the advisory members of the provincial coordination board of planning in cooperation with the regional section of Indonesia Association of Planning in encouraging facilitation factors and governance factors in provincial and local governmental level; c). To follow up the memorandum of understanding enhancing the mutual cooperation with telecommunication service in terms of planning process, including optimizing the structured implementation of capital social responsibility scheme of PT Telkom and the implementation of e-government;

Regencies/cities level: a). The translation of work at planning related offices in regency and city level could be: planning activity to provide public service and advisory, planning to

conduct plan making process and report mechanism, and planning to conduct administrative accountability. Furthermore, some planning activity type can be transferred to the kecamatan (district) and kelurahan (sub district) offices but controlled through suitable ICT services (suitable hardware, software, and connection service) with the regency's or city's planning board. Meanwhile, planning related to public service and advisory could be provided in one stop services office in every regency and city; b). To encourage young planners or planning students as agent of change to promote facilitation factors and governance factors. The young planner could be highly involved at the local planning process as a requirement of voluntary activity if they would like to become a member of Indonesia Association of Planner. Hence, planning students could be highly involved with a scheme of internship or a particular planning studio. Furthermore, as agents of change, young planning students give frequent and scheduled training sessions in enhancing the ICT usage for better neighborhood living; c). To strengthen the role of Communication and Information offices within Bandung metropolitan area in giving training and basic knowledge of ICT (hardware, software, and connection service). Not only could it enhance education quality but also could support the concept of appropriate technology implementation (teknologi tepat guna). In terms of education enhancement the material is suggested to be coordinated with education office, and in terms of appropriate technology implementation the material is suggested to be cooperated with trade office and koperasi (small and medium economic cooperative) office;

Reflection of Mobile Technology and the Challenge to Promote a Communicative City

I emphasize here that what is meant by promoting the communicative city is to enhance two-way communications among stakeholders in the context of urban development within

regional autonomy in Indonesia.[4] My reflections here are enriched by the effort of implementing mobile technology development in the context of planning scale in neighborhood level (Solo case) and city level (Surabaya case). In conjunction with the implementation of regional autonomy in Indonesia that prioritizes the diversity concerns of governance in city/regencies level and the unity in metropolitan, provincial and national level, I would like to provide my reflection in terms of: 1). The scope of planning management, namely metropolitan governance; 2). The adaptation of ICT development to cope with metropolitan governance, namely e-governance; 3). The effort of mobile technology usage to promote a communicative city in a sense of strategic planning and advocacy planning as response to the rigidity of spatial development organization that is based on comprehensive planning.

Lesson learned from the Bandung metropolitan area in terms of metropolitan governance. The communicative actions to stimulate better planning management and support by knowledgeable governmental planning employees are a challenge for metropolitan governance. In terms of metropolitan governance, cities and regencies with different functions and different development phases have to join in one governmental entity, where political compromise is needed to promote sustainable development in the regional context.

I conclude the reflections on metropolitan governance as follows:

Mobile technology users. The diverse community is an indication of the availability of spatial space with various hubs of activities within particular networks, perhaps social or economic network relations. The diverse planning objectives and current economic type have

[4] Regional autonomy in Indonesia leads to the effort of giving authority to the governmental system in the cities/regencies level which is covered by the principle of unity and diversity in national level. The regional autonomy in Indonesia based on the Law No. 32/2004 as a revision of Law No. 22/1999 and Law No. 5/1974.

been the keys to the political compromise that have to be covered by the governance in the metropolitan level to create regional synergy.

Mobile technology to support daily working activities. The emergence of ICT-based activity as a part of metropolitan residents' way of life has to be adapted as a new element in spatial concern as well as governance concern in regional context.

The basic role of ICT to promote planning arrangement. Understanding the current potential and problems in terms of spatial arrangement and the operationalization of governance system can be better understood by the usage of ICT. In terms of development trends and the needs of metropolitan stakeholders, ICT could facilitate some planning scenarios.

The influence of ICT to promote a communicative city. The ICT-based spatial data handling is more valuable (planning technical issues) by counting the stakeholder mapping that show their duties and authorities in governmental organizational structure (representation of political space). In return, this is enhances communicative attachment to enhance civic engagement in identifying issues for planning process and providing better planning management.

The lesson learned from the Solo and Surabaya cases apply to the Bandung metropolitan area in terms of e-governance concern. The combination of government resource management system (GRMS) approach by using thematic maps (like mini atlases in Solo) are can be used as an entry point in creating e-governance within metropolitan region, where consists of more than one administrative territory. Furthermore, the support of Provincial government and central government will strengthen such activities because of the function of Bandung metropolitan area as national activity centers. The success in adapting this idea could lead to the breakthrough

approach in controlling metropolitan development in Indonesia as said in National Medium Term Development Plan.

I conclude the reflections on e-governance concern as follows:

Mobile technology users. E-governance is just a tool to translate the need of the local residents to get better public service and better economic and social opportunity.

Mobile technology to support daily working activities. In terms of access, the successful of e-governance is initiated by the ability of governmental planning employees at planning related offices to use existing ICT product (hardware, software, and connection service) to enhance public service and to promote better planning process and coordination within a metropolitan area.

The basic role of ICT to promote planning arrangement. The ability of governmental planning employees and the support of knowledgeable metropolitan groups (academician, professional planners, planning student and ICT practitioners) are important to reformulate the local governance effort in conducting the planning process at regency and city level by considering their function and position in regional context.

The influence of ICT to promote a communicative city. The challenge in implementing e-governance is that the functional spatial functions along with political compromise in regency and city level have to be considered in the planning process and procedure, because of fundamental changes that might have occurred by the adaptation of ICT into planning and development planning process. Some possible changes are: the changes orientation in annual project activities which will transform from project oriented activities to viable implementation for better environment; competency based activities; or a high investment in ICT product at the beginning of startup stage of e-government implementation which will be followed by budget

efficiency that can be occurred by the usage of ICT; The intellectual property right has to be embedded in development planning platform since it is related to the usage of suitable ICT software. However, the creativity can be made by developing open source software to cope with intellectual property right issues; Finally, the ICT usage is cannot be separated of the trade mark that encourage the user to keep on buying the high-end products in a capitalized spirit.

Lesson learned from Bandung metropolitan area in terms of strategic planning concern. It is a challenge for metropolitan areas to create and develop strategic planning process in order to loosen insufficient physical infrastructure as well as concerns in terms of planning development. Efforts in adapting ICT to support planning development, especially planning mechanism and planning control is a reflection of enabling strategy that uses the ownership of ICT products and the sufficient connection service along with the involvement of telecommunication operator to support planning development.

I conclude the reflections on strategic planning concern as follows:

Mobile technology users. Understanding the people's activities in the local level and the way they deal with the current local spatial development mechanism are keys to formulate suitable strategic planning.

Mobile technology to support daily working activities. Telecommunication network and hubs can be used as tools to implement strategic planning to perform better of urban living.

The basic role of ICT to promote planning arrangement. ICT could facilitate the most vulnerable or sensitive aspects in order to promote better metropolitan development. For instance, describing the need of minority groups (poverty), or creative class, or small and medium enterprise group and link those issues into suitable strategic planning process.

The influence of ICT to promote a communicative city. Territorial ties are evident in the context of the planning process that is related to economic, social, cultural, and political habits. These territorial ties are valuable in promoting suitable strategic planning by providing sufficient mobile technology, such as hardware (laptop/desktop computer), software (GIS software, computer operating system, and application software), and connection service (for cellphone and internet). Inappropriate ICT product usages that are not in line with the level of territorial ties condition could create new problems. The strategic planning prescription for metropolitan areas like the Bandung metropolitan area is to promote the current ICT product to enrich planning process. Such action can be seen as the latest form of appropriate technology implementation (teknologi tepat guna) in an information age in terms of enabling planning strategy approach that encourage metropolitan residents to realize active participation using their own tools, namely ICT products.

Lesson learned from Bandung metropolitan area in terms of advocacy planning concern. Learning from the Solo and GRMS Surabaya case studies, the continuity of the concept in developing the support of ICT to planning development has to be examined. The recommendation is to create mutual cooperation with local universities for particular mission of Bandung metropolitan area development, and to enhance the cooperation with PT Telkom since they have diverse scheme for telecommunication service that could encourage the better planning development, including planning implementation and control that has been a major concerns from the stakeholder. The other thing that influences advocacy planning is the claim of knowledge and academic tribes that could make unsettling down development synergy.

I conclude the reflections on advocacy planning concern as follows:

Mobile technology users. The constraints in adapting the current people's need into current comprehensive planning demand consideration of a different planning approach to respond the need of the people.

Mobile technology to support daily working activities. Advocacy, facilitation, and consultancy can be done not only by face-to-face coordination and meeting, but could also be substituted by the enhancement of the creative usage of ICT products (hardware, software, and connection service). Through ICT products, advocacy planning could be implemented easier, and the process could be more transparent, and traceable.

The basic role of ICT to promote planning arrangement. The key aspect in advocacy planning is the transfer of knowledge, transfer of development system, and the continuity of breakthrough planning activities that can be facilitated by the ability of metropolitan stakeholders (governmental planning employees at planning related offices, academician, professional planners, planning student and ICT practitioners) in adapting current ICT development into the process. The success in adapting existing ICT product as appropriate technology implementation (teknologi tepat guna) can be used as lesson to other metropolitan development or other planning activities in different scale.

The influence of ICT to promote a communicative city. The adaptation of advocacy planning in terms of information age is related to perform the same perception of ICT usage in terms of planning as well as development planning process, whether it is used as means or end. On the one side, the differences in defining the ICT usage in the planning and development process are based on expertise tribes, for instance urban and regional planning tribes on one side and ICT (including electrical and informatics) practitioners' tribes in responding current metropolitan development challenges. So, the challenge in promoting communicative city as a

planning tool to stimulate better planning management is not just a matter of synergizing planning mindset within planners and governmental planning employees, but also in synergizing academic and practitioner's actors who deal with ICT development. However, on the other way around, the reformulation of the spirit of the facilitation project has to be identified, whether to continue the facilitation project by outside governmental bodies using their methods, human resources, and funding, or giving knowledge and technology transfer to the governmental bodies and let them develop and adapt the facilitation process to promote the better productivity of current planning and development planning mechanism which based on current sociocultural condition.

APPENDIX A
QUESTIONNAIRE TO GOVERNMENTAL PLANNING EMPLOYEES

Dear Participants/Respondents

The list of questions below is intended to fulfill my doctoral research, Ridwan Sutriadi (UFID 77187585) at the Department of Urban and Regional Planning, College of Design Construction and Planning, University of Florida.

Respondent Profile	
Age	
Sex	
Education	
Occupation/ Position	
Office Address	Address:
	Sub district:
	District:
	City:
Resident	Address:
	Sub District:
	District:
	City:

A. The Role of ICT in Bandung Metropolitan Area

1. Please show the degree of acceptance of role of these technological products to the plan making process in the regional level (provincial and metropolitan) and local level (regencies and decentralized cities) by checking your best answer in table below.

Technological products as tools for planning activities		SA	A	NS	DA	SD
hardware	Laptop/desktop computer					
	Cellphone/ smart phone					
software	Geographical information system software					
	Cellphone application					
	Computer operating system					
service	Land line telephone service					
	Internet service connection quality					
	Cellphone/ smart phone service connection quality					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

2. Please show the degree of acceptance of the most problematic issues of technological products in supporting plan making process by checking your best answer in table below.

Problems in technological products as tools for planning activities		SA	A	NS	D	SD
hardware	Laptop/desktop computer need to be replaced or upgraded					
	Cellphone/smart phone needs to be replaced or upgraded					
software	Geographical information system software version					
	Cellphone application version					
	Computer operating system					
service	Land line telephone service					
	Internet service connection quality					
	Cellphone/smart phone service connection quality					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

3. Please rank these technological products usage to support your daily working activity as governmental planner compared to your non-working activities by checking your best answer in table below.

Choices in technological products as tools for planning activities		Working activities			Non- working activities		
		H	M	L	H	M	L
hardware	Laptop/desktop computer						
	Cellphone/smart phone						
software	Geographical information system software						
	Cellphone application						
	Computer operating system						
service	Land line telephone service						
	Internet service connection quality						
	Cellphone/smart phone service connection quality						

Notes: H=high, M=medium; L=low.

4. Which one of these technological products is/are funded by your institution in order to support your work as governmental planner, especially in strengthening planning performance by checking your best answer in table below.

Choices in technological products as tools for planning activities		SA	A	NS	DA	SD
hardware	Laptop/desktop computer					
	Cellphone/smart phone					
software	Geographical information system software					
	Cellphone application					
	Computer operating system					
service	Land line telephone service					
	Internet service connection quality					
	Cellphone/smart phone service connection quality					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

5. If you have any choices, show the degree of acceptance of what kind of technological product which you will propose to be provided by your institution by checking your best answer in table below.

Choices in technological products as tools for planning activities		SA	A	NS	DA	SD
hardware	Laptop/desktop computer					
	Cellphone/smart phone					
software	Geographical information system software					
	Cellphone application					
	Computer operating system					
service	Land line telephone service					
	Internet service connection quality					
	Cellphone/smart phone service connection quality					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

6. Please show the degree of acceptance of the finest role of these technological products to support your job especially planning activity when you are not in the office by checking your best answer in table below.

Technological products as tools to Optimize Planning Activities		SA	A	NS	DA	SD
hardware	Laptop/desktop computer					
	Cellphone/smart phone					
software	Geographical information system software					
	Cellphone application					
	Computer operating system					
service	Land line telephone service					
	Internet service connection quality					

Table continued

Technological products as tools to Optimize Planning Activities		SA	A	NS	DA	SD
	Cellphone/smart phone service connection quality					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

7. Please show the degree of acceptance of the finest roles of these technological products in providing planning related data when you are in your office and when you are in your home by checking your best answer in table below.

Technological products as tools to Optimize Planning Activities		In your office			In your home		
		H	M	L	H	M	L
Internet access	To access internet using laptop computer						
	To access internet using desktop computer						
	To access internet using cellphone/smart phone						
Calling, texting, sending data activities	To make call using land line phone						
	To make call using cellphone/smart phone service						
	To send and receive data using facsimile						
	To send text using cellphone/smart phone service						
	To make video call using cellphone/smart phone service						
	To chat using yahoo messenger or Facebook or Skype						

Notes: H=high; M=medium; L=low.

8. Please rank what is/are the working activities in terms of planning activities when you are in your office and while you are at your homes by checking your best answer in table below.

Technological products as tools to optimize planning activities		Office activities			Home activities		
		H	M	L	H	M	L
plan making process	Data gathering						
	Data entry						
	Data editing						
Planning analysis	Statistical analysis						
	GIS analysis or conventional land suitability analysis						
	Descriptive analysis						
Planning decision making and control	Data synthesis: providing planning scenario						
	Decision making process						
	Dissemination planning information						
	Monitoring data						
	Control mechanism formulation						

Notes: H=high; M=medium; L=low.

9. Please rank the finest roles of these technological products in data gathering for planning activities by checking your best answer in table below.

Technological products as tools to optimize planning activities		In your office			In your home		
		H	M	L	H	M	L
hardware	Laptop/desktop computer						
	Cellphone/smart phone						
software	Geographical information system software						
	Cellphone application						
	Computer operating system						
service	Land line telephone service						
	Internet service connection quality						
	Cellphone/smart phone service connection quality						

Notes: H=high; M=medium; L=low.

10. Please rank the finest roles of these technological products in data analysis for planning activities by checking your best answer in table below.

Technological products as tools to optimize planning activities		In your office			In your home		
		H	M	L	H	M	L
hardware	Laptop/desktop computer						
	Cellphone/smart phone						
software	Geographical information system software						
	Cellphone application						
	Computer operating system						
service	Land line telephone service						
	Internet service connection quality						
	Cellphone/smart phone service connection quality						

Notes: H=high; M=medium; L=low.

11. Please rank the finest role of these technological products in data synthesis or planning formulation activities by checking your best answer in table below.

Technological products as tools to optimize planning activities		In your office			In your home		
		H	M	L	H	M	L
hardware	Laptop/desktop computer						
	Cellphone/smart phone						
software	Geographical information system software						
	Cellphone application						
	Computer operating system						
service	Land line telephone service						
	Internet service connection quality						
	Cellphone/smart phone service connection quality						

Notes: H=high; M=medium; L=low.

12. Please rank the finest roles of these technological products in planning decision making activities by checking your best answer in table below.

Technological products as tools to optimize planning activities		In your office			In your home		
		H	M	L	H	M	L
hardware	Laptop/desktop computer						
	Cellphone/smart phone						
software	Geographical information system software						
	Cellphone application						
	Computer operating system						
service	Land line telephone service						
	Internet service connection quality						
	Cellphone/smart phone service connection quality						

Notes: H=high; M=medium; L=low.

13. To keep in touch with your planning activities in your office, is your daily transportation to support your job activity has been influenced by telecommunication service? Please rank your preference by checking your best answer in table below.

Vehicle types	Before you are using cellphone and internet service			After you are using cellphone and internet service		
	H	M	L	H	M	L
Public transportation (bus or small public urban transportation).						
Para transit (ojeg or becak or delman)						

Table continued

Vehicle types	Before you are using cellphone and internet service			After you are using cellphone and internet service		
	H	M	L	H	M	L
Private car						
Motorcycle/moped						
Bicycle						
On foot/walking						

Notes: H=high, M=medium, L=low.

14. Please indicate the advantages of these telecommunication devices to planning activities by checking your best answer in table below.

Advantages	Land line phone	Cellphone	Internet service
Time efficiency			
Transportation cost efficiency			
To support working activity and economic productivity			
To provide more time for activities outside working activities (such as social networking, leisure, or side job)			
Other advantages (name it) …….			

15. Please indicate the advantages of telecommunication devices usage to your daily working travel in order to optimize your planning activity in your office by checking your best answer in table below.

Changes	Land line phone		Cellphone		Internet service	
	Travel distant	Travel time	Travel distant	Travel time	Travel distant	Travel time
Longer						
Shorter						
The same						

16. In terms of transport cost efficiency, please indicate the advantages of telecommunication devices usage to your daily working travel in order to optimize your planning activity in your office by checking your best answer in table below.

Transport cost	Land line phone	Cellphone	Internet service
Reduce			
Increase			
The same			

17. Please indicate an implication of telecommunication devices usage to your planning activity in your office by checking your best answer in table below.

Planning activity	Land line phone	Cellphone	Internet service
Speed up my job completion			
Increased my job quality			
Getting more information to support my job			
Get good coordination in finalizing my job			
No implication			

18. Please indicate an implication of telecommunication devices usage to your working time efficiency to support planning activities. Please check your best answer in table below.

Time efficiency	Land line phone	Cellphone	Internet service
Earlier to go to work			

Table continued

Time efficiency	Land line phone	Cellphone	Internet service
Late to go to work			
Earlier to go back home			
Late to go back home			
Tend to work at home instead of working in the office			
Tend to do a part of your work in home, instead of doing it in my office			
No implication			

19. Please rank the level of telecommunication devices usage among working activities (especially optimizing planning activities), non-working activities, and possibility to get side job by checking your best answer in table below.

Job overload issue	Land line phone			Cellphone			Internet service		
	H	M	L	H	M	L	H	M	L
Planning activities in your office									
Non-working activities									
Side job possibilities									

Notes: H=high, M=medium, L=low.

B. Integrating ICT and Bandung Metropolitan Area Spatial Plan

1. In the level Bandung metropolitan area today, please describe a type of planning activities which begin to be discussed without having face-to-face meeting. Please check your best answer in table below.

Number of meeting	Non-face-to-face meeting (using telecommunication devices)	Face-to-face meeting
1st per month		
2nd per month		
3rd per month		
4th per month		
5th per month		
>6th per month		

2. Please show the degree of acceptance of the planning process (Bandung metropolitan area level) which can be done by non-face-to-face coordination by the support of telecommunication devices. Please check your best answer in table below.

Planning stages	Data compilation		Analysis		Planning formulation	
	Only part of it	The whole part	Only part of it	The whole part	Only part of it	The whole part
Strongly agree						
Agree						
Not sure						
Disagree						
Strongly disagree						

3. Related to the Bandung metropolitan development, please rank the telecommunication devices roles in supporting plan meeting, in ongoing condition. Please check your best answer in table below.

No.	Communication types	intensity		
		high	medium	Low
1	Sending official airmail to the member of meeting			
2	Sending radiogram to the member of meeting			
3	To make call using land line phone			
4	To make call using cellphone/smart phone service			
5	To send and receive data using facsimile			
6	To send text using cellphone/smart phone service			
7	To make video call using cellphone/smart phone service			
8	To chat using yahoo messenger or Facebook or Skype			

Notes: H=high; M=medium; L=low.

4. Please show the degree of acceptance of the advantages of telecommunication devices usage in developing communication among planning related office to discuss about Bandung Metropolitan Development. Please check your best answer in table below.

No.	Communication breakthrough	SA	A	NS	D	SD
1	To enhance communication among employee in your division					
2	To enhance communication among head of division and subordinates in your division					
3	To enhance communication among head of planning division in regencies or decentralized cities within Bandung metropolitan area					
4	To enhance communication among employee of planning division in regencies or decentralized cities within Bandung metropolitan area					
5	to enhance communication among head of planning division in regencies or decentralized cities within Bandung metropolitan area and a head of planning division in West Java Province					
6	To enhance communication among employee of planning division in regencies or decentralized cities within Bandung metropolitan area with related planning office in West Java Province					
7	To enhance communication among planning division in regencies or decentralized cities within Bandung metropolitan area, related planning office in West Java Province, and related planning office in National level.					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

5. Please show the degree of acceptance of the advantages of telecommunication devices usage in developing communication among government employees and private sectors and a public. Please check your best answer in table below.

No.	Communication breakthrough with private and public	SA	A	NS	D	SD
1	Enhance communication with public in Bandung metropolitan area					
2	Enhance communication with private sector in Bandung metropolitan area					
3	Enhance communication with NGO's/CBO's in Bandung metropolitan area					
4	Enhance communication with telecommunication service companies					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

6. Please show the degree of acceptance your response in reducing face-to-face Bandung metropolitan development coordination by encouraging telecommunication devices usage. Please check your best answer in table below.

No.	Possibility to reduce face-to-face coordination	SA	A	NS	D	SD
1	Coordination through official air mail letters					
2	Coordination through radiogram					
3	Coordination through land line phone call					

Table continued

No.	Possibility to reduce face-to-face coordination	SA	A	NS	D	SD
4	Coordination through cellphone/smart phone call					
5	Coordination through facsimile					
6	Coordination through sending text using cellphone/smart phone service					
7	Coordination through video call using cellphone/smart phone service					
8	Coordination through chatting using yahoo messenger or Facebook or Skype					
9	Coordination through internet					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

7. In order to strengthen the role of coordination board of regional planning (Badan Koordinasi Penataan Ruang Daerah=BKPRD), please rank your response in forming annual coordination for planning implementation as feedback to Bandung Metropolitan Area Plan which has to be in line with spatial plan of regencies and decentralized cities within Bandung metropolitan area by checking your best answer in table below.

No.	Type of land use activities	SA	A	NS	D	SD
1	Coordination through official air mail letters					
2	Coordination through radiogram					
3	Coordination through land line phone call					
4	Coordination through cellphone/smart phone call					
5	Coordination through facsimile					
6	Coordination through sending text using cellphone/smart phone service					
7	Coordination through video call using cellphone/smart phone service					
8	Coordination through chatting using yahoo messenger or Facebook or Skype					
9	Coordination through internet					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

No.	Land use location (including land use change)	SA	A	NS	D	SD
1	Coordination through official air mail letters					
2	Coordination through radiogram					
3	Coordination through land line phone call					
4	Coordination through cellphone/smart phone call					
5	Coordination through facsimile					
6	Coordination through sending text using cellphone/smart phone service					
7	Coordination through video call using cellphone/smart phone service					
8	Coordination through chatting using yahoo messenger or facebook or Skype					
9	Coordination through internet					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

No.	Social activity and its implication	SA	A	NS	D	SD
1	Coordination through official air mail letters					
2	Coordination through radiogram					
3	Coordination through land line phone call					
4	Coordination through cellphone/smart phone call					
5	Coordination through facsimile					
6	Coordination through sending text using cellphone/smart phone service					
7	Coordination through video call using cellphone/smart phone service					
8	Coordination through chatting using yahoo messenger or Facebook or Skype					
9	Coordination through internet					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

No.	Economic activities and its implication	SA	A	NS	D	SD
1	Coordination through official air mail letters					
2	Coordination through radiogram					
3	Coordination through land line phone call					
4	Coordination through cellphone/smart phone call					
5	Coordination through facsimile					
6	Coordination through sending text using cellphone/smart phone service					
7	Coordination through video call using cellphone/smart phone service					
8	Coordination through chatting using yahoo messenger or Facebook or Skype					
9	Coordination through internet					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

No.	Cultural activities and its implication	SA	A	NS	D	SD
1	Coordination through official air mail letters					
2	Coordination through radiogram					
3	Coordination through land line phone call					
4	Coordination through cellphone/smart phone call					
5	Coordination through facsimile					
6	Coordination through sending text using cellphone/smart phone service					
7	Coordination through video call using cellphone/smart phone service					
8	Coordination through chatting using yahoo messenger or Facebook or Skype					
9	Coordination through internet					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

8. Please indicate your degree of acceptance in terms of conflicted issues in using telecommunication devices to support Bandung metropolitan development performance. Please check your best answer in table below.

No.	Problematic coordination using telecommunication devices	SA	A	NS	D	SD
1	Administrative accountability					
2	Not all government employees likes to use telecommunication devices for planning coordination					
3	Certain planning issues have to be coordinated through face-to-face meeting					
4	Getting more busy because you can be reached anywhere to talk about planning activities					
5	You have conflicted problem with your family because you can be reached out of day job to talk about planning activities					
6	You have more job to do because of the easy access of telecommunication devices and software availability					
7	You have conflicted problem to provide side job because of the easy access of telecommunication devices and software availability					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

C. The Possibility of ICT to Strengthen Planning Objective of Bandung Metropolitan Area Spatial Plan

1. In terms of urban development strategy, show your degree of acceptance about the development of these satellite cities in term of reducing the reliance to the Bandung city centers? Please check your best answer in table below.

No.	Efforts in optimizing satellite cities in Bandung metropolitan area	SA	A	NS	D	SD
1	Cipeundeuy-Cikalong Wetan					
2	Padalarang-Ngamprah					
3	Lembang					
4	Jatinangor					
5	Cicalengka-Cileunyi-Rancaekek					
6	Majalaya					
7	Banjaran-Dayeuhkolot-Bojongsoang-Baleendah					
8	Soreang-Kutawaringin-Ketapang					
9	Cililin					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

2. Indicate your degree of acceptance about the contribution of these areas to the dense traffic to the Bandung city centers because most Bandung people live in these areas. Please check your best answer in table below.

No.	Efforts in optimizing satellite cities in Bandung metropolitan area	SA	A	NS	D	SD
1	Gedebage					
2	Ujungberung					
3	Cipeundeuy-Cikalong Wetan					
4	Padalarang-Ngamprah					
5	Lembang					
6	Jatinangor					
7	Cicalengka-Cileunyi-Rancaekek					
8	Majalaya					
9	Banjaran-Dayeuhkolot-Bojongsoang-Baleendah					
10	Soreang-Kutawaringin-Ketapang					
11	Cililin					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

3. Indicate your degree of acceptance of the appropriateness of telecommunication services, especially land line phone service, cellphone service, and internet service in these areas. Please check your best answer in table below.

No.	Appropriateness of telecommunication service in satellite cities in Bandung metropolitan area	SA	A	NS	D	SD
1	Gedebage					
2	Ujungberung					
3	Cipeundeuy-Cikalong Wetan					
4	Padalarang-Ngamprah					
5	Lembang					
6	Jatinangor					
7	Cicalengka-Cileunyi-Rancaekek					
8	Majalaya					
9	Banjaran-Dayeuhkolot-Bojongsoang-Baleendah					
10	Soreang-Kutawaringin-Ketapang					
11	Cililin					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

4. Indicate your degree of acceptance in terms of conflicted urban development strategy of Bandung metropolitan area which create problems in daily traffic and responsible to a reduction of a green open space. Please check your best answer in table below.

No.	Efforts in optimizing satellite cities in Bandung metropolitan area	SA	A	NS	D	SD
1	Developing arterial roads and collector roads which connect city centers, primary centers, secondary centers, and satellite cities					
2	Developing satellite cities in suburban Bandung metropolitan area as self-contain cities for their surrounding area (as local centers)					
3	The development of commercial centers in Bandung city center					
4	The development of new residential areas in suburban Bandung metropolitan area					
5	The development of apartment in Bandung city centers and suburban Bandung metropolitan area					
6	It is hard to organize working travel because government could not move working centers closer to the new residential centers in suburban areas					
7	Government employees could not work at home during day time, because they have to go to their office, although job can be done in their home					
8	Self-provided job workers especially those who work in service sector are more flexible in reducing daily travel by working at home.					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

5. Please indicate your degree of acceptance about reducing travel to the Bandung city centers by checking your best answer in table below.

No.	Planning response to reduce travel to the Bandung city center	SA	A	NS	D	SD
1	To encourage working at home with the support of telecommunication services, especially encouraging the usage of cellphone and internet service					
2	To provide public facilities, especially department store, health facilities, and education facilities closer to the residential area.					
3	To maintain existing road system based on transportation policy in Bandung Metropolitan Area Plan					
4	To encourage the usage of public transportation					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

6. Based on Law No. 26/2007 about Planning Guidance, telecommunication network development has been considered as a part of network infrastructure system plan in spatial structure arrangement. Please indicate your degree of acceptance by checking your best answer in table below.

No.	Telecommunication network system consideration in spatial plan	SA	A	NS	D	SD
1	Telecommunication network system is a part of national spatial plan					
2	Telecommunication network system is a part of West Java Province spatial plan					
3	Telecommunication network system is a part of regional and cities spatial plan in Bandung metropolitan area					
4	Telecommunication network system is a part of detail spatial plan within Bandung metropolitan area					
5	Other (name it) …….....					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

7. Although telecommunication service is a part of spatial structure arrangement, it is beneficial in optimizing spatial pattern arrangement, especially in maintaining land allocation of protection area and cultivation area within Bandung metropolitan area. Please indicate your degree of acceptance concerning the possible problem in adapting telecommunication service to the elements of spatial pattern arrangement by checking your best answer in table below.

No.	The possible problem in adapting telecommunication service to the elements of spatial pattern arrangement	SA	A	NS	D	SD
1	To ensure environmental preservation activity					
2	To ensure social activity					
3	To ensure cultural activity					
4	To ensure economic activity					
5	To ensure defense and security activity					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

8. In terms of the role of telecommunication services in strengthening planning control, please indicate your degree of acceptance by checking your best answer in table below.

No.	Telecommunication service to ensure development control	SA	A	NS	D	SD
1	To optimize zoning regulation					
2	To optimize planning licensing or planning permission					
3	To optimize the provision of incentive and disincentive					
4	To optimize imposition of sanctions					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

9. In terms of developing telecommunication services for Bandung metropolitan area it is important to invite PT Telkom as the largest telecommunication company to take part in optimizing spatial plan of Bandung metropolitan area. Please indicate your degree of acceptance by checking your best answer in table below.

No.	The participation of PT Telkom in Bandung Metropolitan Area Plan	SA	A	NS	D	SD
1	Land line phone development plan					
2	Cellphone development plan					
3	Internet service development plan					
4	Other information and communication technology development plan					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

10. In terms of planning coordination in the level Bandung metropolitan area, do you think there is a different mindset between PT Telkom as telecommunication service providers with the mission of Bandung Metropolitan Development Plan? Please indicate your degree of acceptance by checking your best answer in table below.

No.	Bandung Metropolitan Development Plan and PT Telkom development mission	SA	A	NS	D	SD
1	There is a different mindset, because PT. Telkom has concerns with private interest while Bandung Metropolitan Development Plan is concern with public interest					
2	There is a similar mission in terms of providing public service but PT Telkom emphasizes on more specific target and timeline					
3	Other (name it)…….					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

11. What kind of coordination has been made in detail to encourage telecommunication service in optimizing Bandung Metropolitan Area Plan Information and Communication Office in Regencies or Decentralized Cities level and Information and Communication Office in Provincial Level (West Java Province) with PT. Telkom. Please indicate your degree of acceptance by checking your best answer in table below.

No.	Coordination among PT. Telkom and Related Governmental Offices	SA	A	NS	D	SD
1	Coordination in sharing information					

Table continued

No.	Coordination among PT. Telkom and Related Governmental Offices	SA	A	NS	D	SD
2	Coordination in defining development target					
3	Synchronized in program implementation					
4	Coordination in implementing CSR of PT. Telkom in line with the planning objective of Bandung metropolitan plan					
5	Other (name it) ……..…					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

12. In the context of planning process of Bandung Metropolitan Area Plan, please rank the difficulty in coordination, involvement, and participation of PT. Telkom as well as Information and Communication Office (Provincial level or Regencies level or decentralized cities level) that has been made by checking your best answer in table below.

No.	Coordination among Institutions	Planning compilation			Planning analysis			planning scenario			Planning control		
		H	M	L	H	M	L	H	M	L	H	M	L
1	PT. Telkom as the largest telecommunication service												
2	Information and communication office in provincial or regencies or decentralized cities level												

Notes: H=high, M=medium, L=low.

13. Please indicate your degree of acceptance about the possible collaboration among PT Telkom and local planning board in order to disseminate spatial plan in the metropolitan level (regional spatial plan) and local level (detail spatial plan) by checking your best answer in table below.

No.	The possible collaboration among local planning board and PT. Telkom: spatial plan performance	SA	A	NS	D	SD
1	Providing data storage for planning information which can be accessed by the level of authority of government employee					
2	Providing planning simulation of planning scenario including funding alternatives which can be accessed by the level of authority of government employee					
3	Developing special price for cellphone and internet connection during working hour in order to enhance the quality of planning related service to the public towards a professional works (to cope with overload and overtime work).					
4	Other (name it) ….....					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

14. Please indicate your degree of acceptance about the possible collaboration among PT Telkom and local government in order to deal with daily transportation problem by checking your best answer in table below.

No.	The possible collaboration among local planning board and PT. Telkom: transportation	SA	A	NS	D	SD
1	Traffic monitoring					
2	Road system operation and maintenance control (including road quality information)					
3	Other (name it) …….					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

15. Please indicate your degree of acceptance about the possible collaboration among PT Telkom and local government in order to encourage the competitiveness of development center (local, secondary, and primary development centers) by checking your best answer in table below.

No.	The possible collaboration among local planning board an telecommunication company (PT. Telkom): competitiveness	SA	A	NS	D	SD
1	Providing or empowering existing website for West Java Province as well as regencies and decentralized cities centers within Bandung metropolitan area to share their potencies of development centers					
2	Providing or empowering existing website of West Java Province as well as regencies and decentralized cities centers within Bandung metropolitan area to share the Bandung Metropolitan Area Plan as well as planning control (including sanction).					
3	Developing cooperation to conduct structured ICT related training in order to socialize ICT knowledge.					
4	Providing ICT related training especially to create and to enhance the competitiveness of development centers.					
5	Providing labor information system to promote the competitiveness of development centers.					
6	Other (name it) …….					

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

APPENDIX B
GENERAL INFORMATION OF PLANNING POLICY AND THE CASE STUDY

Spatial Development Organization in Indonesia

Based on Planning Law in Indonesia (Law No. 26/2007), spatial development organization in Indonesia is divided into four main categories, planning regulation, planning supervision, planning performance, and planning control. My study tends to focus on capacity building of government employees in terms of planning supervision, likewise planning management as a reflection of planning performance.

- Planning regulation. It is an effort to promulgate the jurisdictional base for central government, local government, and society in planning.
- Planning supervision. It is an effort to increase planning performance that is conducted by the central government, local government, and the society.
- Planning performance. It is an effort to achieve the goal of planning by performing planning management, spatial utilization, and control mechanism of spatial utilization.
- Planning control. It is an effort to ensure the planning management materializes in accord with the rule of regulation.

Planning Supervision in Indonesia

Basically planning supervision can be categorized into three main topics. These are:

- Regulation of planning is carried out by the enactment of legislations on planning including the planning guidance.
- The central government is performing planning supervision to provincial government, regency/city government and society.
- Planning supervision is executed through: Coordination on planning management; Regulation socialization and planning guidance socialization; Assistance, supervision, and consultation on planning implementation; Education and training; Research and development; Information system development and planning communication; Planning information dissemination to society; Consciousness development and society responsibility (public responsibility);

Planning Performance in Indonesia

Planning performance in Indonesia is divided into planning arrangement, planning utilization, and spatial utilization control. These include:

- Planning arrangement. It is a process to determine spatial structure and spatial pattern that cover collation and establishment of planning.
- Planning utilization. It is an effort to render space structure and space pattern corresponds to planning arrangement by collation and therewith performing program and its finances.
- Spatial utilization control. It is an effort to render planning order.

Planning Arrangement in Indonesia

In general, planning arrangement is divided into spatial structure arrangement and spatial pattern arrangement.

- Spatial structure arrangement is categorized into residence center system arrangement and facilitation network system arrangement. These include: Residence center system arrangement consists of regional system arrangement and urban internal system arrangement; Facilitation networks system arrangement consists of a transportation network system, an energy network system, a telecommunication network system, a waste and sanitation system, and a natural resources network system.
- Spatial pattern arrangement is categorized into the allocation for conservatory territory, and the allocation for cultivated territory. Both of them deal with particular land use allocation such as: spatial allocation for environment preservation activity, including preserving 30% of watershed area; Space allocation for social activity; Space allocation for cultural activity; Space allocation for economic activity; and Space allocation for defense and security activity.

Spatial Utilization Control in Indonesia

Spatial utilization control can be divided into four features; establishment of zoning regulation, permit regulation system, incentive and disincentive system, and sanction imposition. In Indonesia, zoning regulation is not a part of planning arrangement, but rather processes to make sure the planning arrangement is implemented in a correct way.

Planning Arrangement for Metropolitan Development in Indonesia

The planning process for metropolitan development follows the general planning process that has been described previously. However, in planning formulation, metropolitan

development is seen as a continuation of the understanding of the urban area, especially in terms of how the urban area has to be regulated in the context of urban territory planning and urban territory planning arrangement.

Urban area is defined as territory with the main activity non-agricultural and with area function formation as urban residence, concentration and distribution of government service, social service, and economy activities. In addition, the metropolitan area is defined as an urban area that in comprised of one self-supporting urban area or fundamental urban area with a suburban area with functional connection related to a regional infrastructure network system integrated with a total population at least a million inhabitants.

Metropolitan planning is carried out in an area that functionally has urban characteristics and consists of two or more regencies/cities in one or more provinces, where the size of urban area is in the form of a metropolitan area. In addition, a metropolitan planning arrangement must follow the instruction that: a). Metropolitan planning arrangements that consist of two or more regencies/cities on one or more provinces serves as coordination means in performing development with cross territory character; b). Metropolitan planning arrangement constitutes as coordination means in cross-territory development; c). Metropolitan planning which consists of two or more regencies/cities is performed through inter-regional cooperation.

General Information of Bandung Metropolitan Area, West Java Province, Indonesia

This section describes briefly about the Bandung metropolitan area. The description is based on the Regional Spatial Plan of Urban Area of Bandung Basin Draft Report, the Department of Public Work, 2010. This area consists of five local administrative boundaries; Bandung City, Cimahi City, Bandung Regency, West Bandung Regency (a new administrative territory in 2008 that previously was a part of Bandung Regency), and parts of Sumedang Regency. The Urban Area of Bandung Basin have been designated as a National Strategic Area

of Economic Interests, based on the following criteria: fast growing economic area, has leading sector to support national economic development, export potential region, and infrastructure network to support potential national economic activities. Regarding its function in a national context, the Urban Area of Bandung Basin covers 3,436.27km^2 and is preparing to be specifically regulated under presidential regulation (2005-present).

As a national activity center, West Java Regional Spatial Plan (RTRW of West Java Province) calls for the Bandung metropolitan area to promote development controls in the northern part (protection area), physical infrastructure development, and optimizing developable land and natural resources. In particular, Bandung metropolitan area has to impose the performance of metropolitan governance, especially in terms of: a). enhancing development cooperation among regencies and cities within Bandung metropolitan area and West Java Province; b). developing an appropriate coordination board of Bandung metropolitan area that consists of the central government, provincial government, and regencies-cities within Bandung metropolitan area; and c). developing synchronization of an interregional development program, in particular an integrated interurban infrastructure network system. Here are the issues of Bandung metropolitan area development based on Regional Spatial Plan of Urban Area of Bandung Basin Draft Report, the Department of Public Work, 2010.

Sociocultural: 1). Bandung metropolitan area has the potential to become a center of higher education and knowledge development center; 2). Bandung metropolitan area has a strong attraction for migrants as a consequence of economic activities, education facilities, and public services; 3). Bandung city and Cimahi city have a tremendous population growth and play as primary city; 4). Bandung metropolitan area has low education rate: not completed elementary

school (21,80%), elementary school (37,05%), junior high school (17,74%), senior high school (12,52%), vocational high school (5,64%); and Higher education (5,25%);

Table B-1. Bandung metropolitan area in the context of West Java Province and Indonesia

Measurement	Bandung metropolitan area	West Java Province	Indonesia
population	7,751.508.00	41,483.729.00	232,900,000.00
density (population/km2)	22.50	9,391.80	121.17
Area (km²)	3,436.00	44,170.00	1,922,570.00
gross regional domestic product 2007 (based on year 2000 basic price)	114,413,154.70	499,559,091.91	

Source: Regional Spatial Plan of Urban Area of Bandung Basin Draft Report, the Department of Public Work, 2010

Economic: 1). Bandung metropolitan area is an international and national center for the textile processing industry and textile products that stimulate creative industry. Such industry contributes 21% and 5% to gross regional domestic product of West Java Province and national gross regional domestic product. It also has 49.39% export value of industrial textile processing and 28.13% apparel products; 2). Bandung metropolitan area has a tremendous attraction for culinary tours and shopping tours; 3). Bandung metropolitan area has to promote a control mechanism system for the scatter economic growth and development centers; 4). Most industry is distributed throughout the city center area;

Environmental: 1). Bandung metropolitan area lies at the upstream Citarum watershed area that serves as: a). Raw water source for domestic need, and industrial need for Purwakarta, Karawang, and Bekasi regions; b). Water irrigation supply for agricultural (food) centers in Purwakarta, Karawang, and Bekasi regions; c). Main water supply for hydroelectric for Saguling, Cirata, and Jatiluhur, that covers Jakarta region; d). Flood control; 2). Bandung metropolitan area has 14.480 ha of flood prone area: a). Along Citarum River, such as Sapan, Andir, Majalaya, Ciparay, Manggahang, Baleendah, and Dayeuhkolot; b). outskirts of Bandung city, such as: Rancaekek, Buahbatu, Ujungberung, and Pameungpeuk districts;

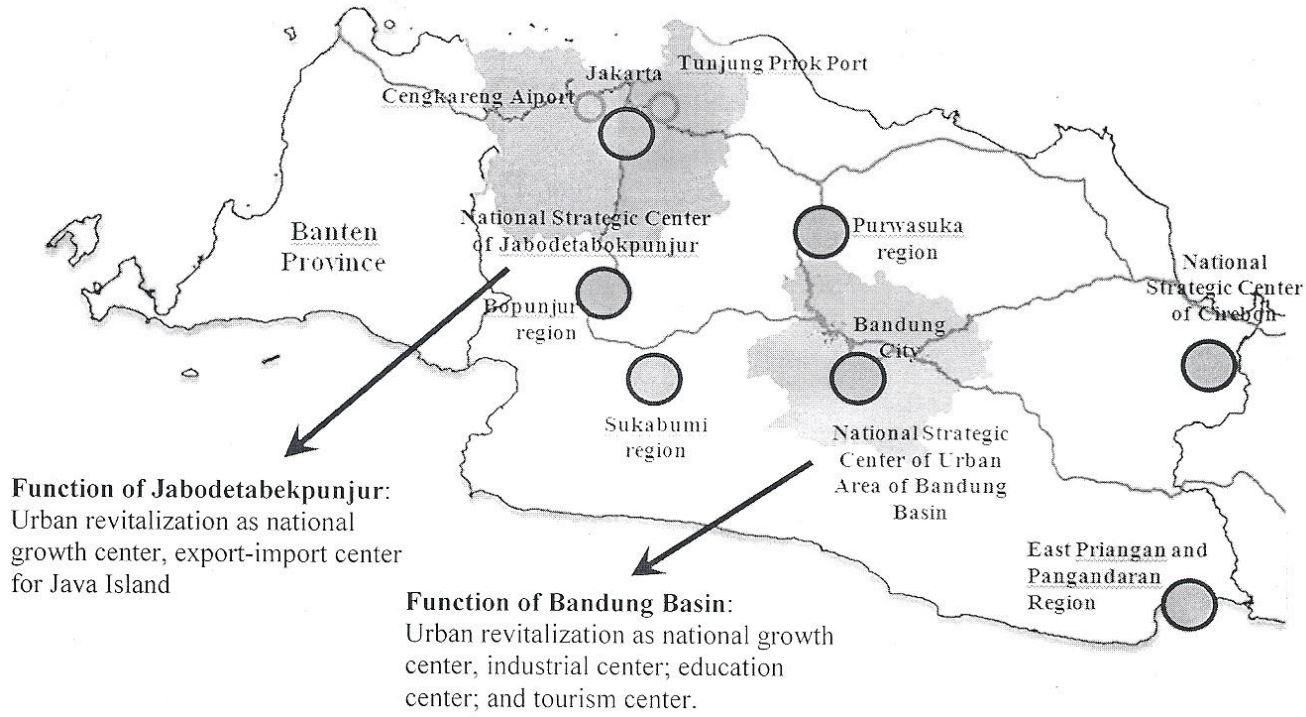

Figure B-1. National strategic center of urban area of Bandung basin in regional context (Source: Regional Spatial Plan of Urban Area of Bandung Basin Draft Report, the Ministry of Public Work, 2010).

Transportation system: 1). Imposition of transportation flow centralizes in Bandung city center area, because of daily commuting and the emergence of the Cipularang toll road that connects Bandung and Jakarta; 2). Based on origin and destination analysis, it was found out that dense traffic is located in the Bandung city center area and it also showed centralized dense traffic in the Bandung city center area; 3). The need to develop integrated mass rapid transit to serve daily traffic;

Development potential: 1). The Bandung metropolitan area is the backbone of West Java's regional economic development and also an element of national economic center; 2). Creative industry, trades, and tourism are leading sectors for regional economic development of Bandung metropolitan area;

According to the development of regional spatial plan of urban area of Bandung Basin the planning arrangement focus is as follows:

- Bandung metropolitan area needs a harmonious, balanced, and integrated development regulation in terms of socioeconomic and physical factors that can address disaster mitigation and climate change and lead toward sustainable development.

- Bandung metropolitan area needs a coordination board to integrate the entire program and planning implementation that could cover participating development actors at both the national and local levels.

- Bandung metropolitan area needs a development control especially in a region with insufficient carrying capacity in order to maintain the carrying capacity of the upstream Citarum watershed area, through: a). restricting the development to the north and south with low carrying capacity, because those areas are disaster prone area and areas with steep slopes (water preservation area); and b). Maintaining northern Bandung part and southern Bandung part as protection area.

- To adapt efficient urban development through: a). encouraging the development of satellite cities as counter magnets for an urban city center; b). creating integrated development of an industrial zone in order to control the scattered industrial development and also to control the usage of ground water and to reduce water pollution.

Table B-2. Land use of Bandung metropolitan area in the context of West Java Province and Indonesia (in ha)

Land use	I Kota Bandung	II Kota Cimahi	III Kabupaten Bandung Barat	IV Kabupaten Sumedang (5 kecamatan)	V Kabupaten Bandung	Urban Area of Bandung Basin
Forest	3.343	-	21670.878	2917.510	36010.817	60602.55
Wet land	423.081	584.338	17951.857	2560.492	44571.633	66091.4
Dry land	195.279	635.540	42735.681	11999.673	51998.052	107564.2
Vacant land	701.151	165.818	22472.045	123.061	22569.898	46031.97
Green open space	1132.604	66.531	24.836	143.318	97.989	1465.278
Built up area	14518.340	2609.585	18914.416	2718.971	19387.352	58148.66
Etc	7.877	12.403	4581.441	92.715	798.956	5493.392
Total area	16981.68	4074.215	128351.2	20555.74	175434.7	345397.5

Source: Map digitation analysis, 2007 in Regional Spatial Plan of urban area of Bandung Basin Draft Report, the Ministry of Public Work, 2010

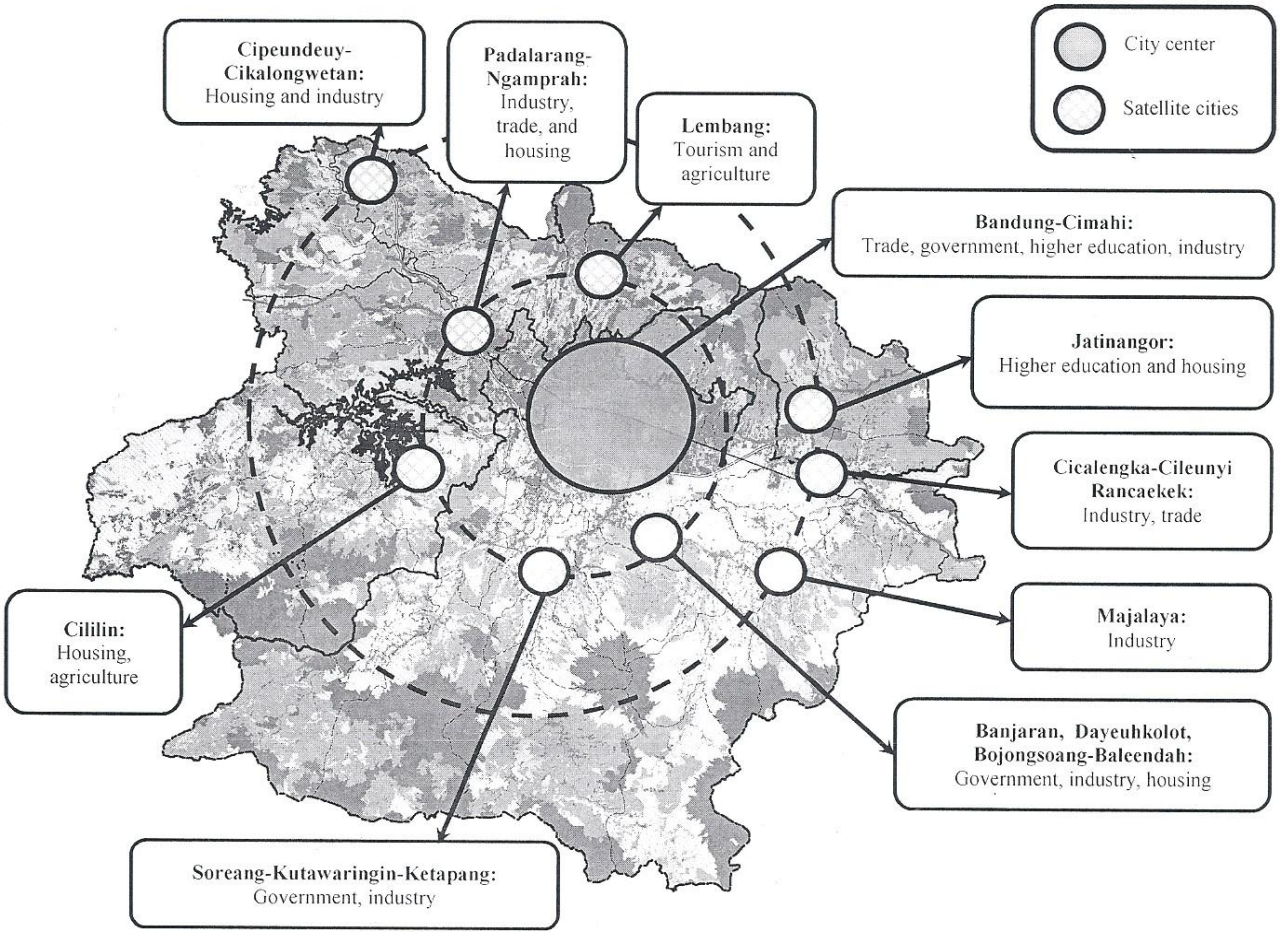

Figure B-2. System of cities of Bandung metropolitan area (Source: Regional Spatial Plan of Urban Area of Bandung Basin Draft Report, the Ministry of Public Work, 2010).

Telecommunication Service in Indonesia: PT Telekomunikasi Indonesia (PT. Telkom Indonesia)

Let me describe briefly PT Telkom contributions to ICT in Indonesia. As the largest telecommunication service operator in Indonesia, PT Telkom has been developing its services around the operations known as TIME (telecommunication, information, multimedia, and education-entertainment). TIME business in this company has performed telecommunication operations in the form of telephone (fixed wire line, fixed wireless and cellular), data and internet, network service and interconnection, and content/application. The business is run centrally through the main company and its affiliates. As of December 31, 2009, the number of subscribers has grown by 21.2% over the previous year to a total of 105.1 million. For telephone

only, TELKOM serves 8.4 million fixed wire line subscribers, 15.1 million fixed wireless subscribers, and 81.6 million cellular phone subscribers.

As of December 31, 2009, TELKOM is common share and is distributed to the Indonesian Government (52.4%) and public shareholders (47.53%). TELKOM is trades at the Indonesia Stock Exchange (BEI) to New York Stock Exchange (NYSE), the London Stock Exchange (LSE) and the Tokyo Stock Exchange (without registration). The price of TELKOM shares at BEI at end of December 2009 is Rp 9,450 (roughly equivalent to $1 US) with market capitalization value of TELKOM share at end of year 2009 reaching Rp 190.51 trillion ($20 billion US) or 9.43% of BEI market capitalization. Its corporate strategic goal is to improve infrastructure, expand the Next Generation Network (NGN) technology and improve synergy with TELKOM is Group line. So that the subscribers, both retail and corporate, can enjoy better quality, speed, reliability and customer service.[1] PT Telkom provides eight major service lines from wire line to wireless service, to telecommunication service and data sharing services. These include:

Fixed line. It is a service for land line phones for local and international connection with various services. There are at least ten services under the fixed line product: SLJJ, Telkom Global, Lokal, SLI Group I, SLI Group II, SLI Group III, SLI Group IV, SLI Group V, Inmarsat Group, and Special Service.

[1] On the same date, both the main and group members have been consolidated in TELKOM financial statement of the book year 2009. The nine members are PT Telekomunikasi Indonesia International (TII, formerly PT Ariawest International (AWI, 100% owned by TELKOM), PT Dayamitra Telekomunikasi (Mitratel, 100% owned by TELKOM), PT Pramindo Ikat Nusantara (Pramindo, 100% owned by TELKOM), PT Telekomunikasi Seluler (TELKOMsel, 65% owned by TELKOM), PT Multimedia Nusantara ("Metra", 100% owned by TELKOM), PT Infomedia Nusantara (Infomedia, 100% owned by TELKOM, through 49% ownership by Metra), PT Indonusa Telemedia (Indonusa, 100% owned by TELKOM, through 1.25% ownership by Metra), PT Graha Sarana Duta (GSD, 99.99% owned by TELKOM), and PT Napsindo Primatel International (Napsindo, 60% owned by TELKOM). To more focus on business, Metra has also owned other members such as Sigma and Finnet.

Speedy. It is a service to compliment fixed line for internet users. This service is the most reliable in Indonesia and optimizes land line phone and internet in a bundle plan for households and companies. There are at least sixteen types of services under Speedy product: Mail, Executive, Biz, Socilia, Load, Chat, Game, ID Webstar, Speedy Eye, Hotspot, VPN-IP, DinaAccess, Astinet, Hosting, Portwholesale, Telkomnet Premium, TENI, iVas.

Telkomsel. It is the most reliable cellphone connection service in Indonesia through pre-paid and planned service. People with uncertain income tend to sign up for pre-paid service. That is why the business of selling pre-paid vouchers has become a promising business in Indonesia. At least there are ten services handled by Telkomsel, such as: Kartu As, Halo Data, BB Enterprise Service, Promo BB Unlimited, BB Internet Service, Citibank Telkomsel Card, Halo Hybrid, Promo Kartu Halo, Perdana Flash Unlimited, and Telkomsel package (Paket Telkomsel).

Telkom solution. It is a service for business applications, especially for large enterprises that need particular connection service. Government needs are also accommodated through this service. Various governmental offices use this service; the Police Office, the National Army, Finance, banking, mining, trade, trading, manufacturing, and Telkom Solution House.

Flexi. It is an affordable wireless service that supplies intra city connection service. At present, this service is extended into inter-city wireless networks. However, the service quality is below that of Telkomsel. It includes Flexi cash, Flexi Milis, Flexi Classy, Flexi Combo, Conference, Flexi Muslim, Flexi Tone, Flexi Kompas.

Content and application. This service tends to promote online creative business activities, including data archives and data protection, and serves diverse potential users in Indonesian communities. There are at least nineteen types of service, such as: Delima, Melon, e-Payment,

Protectore, Voucher, Fulltrek, Teleconference, Kanal Bola, Nusantara OL, eBursa, Auction, Pesona Edu, Siap OL, Indigo Fellowship, Pasar Kreasi, Laciku, Indismart, Santri Indigo, Global Datakom, Kaspersky.

Contact center and directory service. This service is to promote online service activities, and developing data content for business companies. There are at least eight services under this rubric, such as: Yellow Pages, Mobile Content, Web Solution, Direct Mail, e-Yellow Pages, CD-Room, Data Content, and Call Center.

APPENDIX C
THE COMPILATION OF THE MAIN SURVEY TO GOVERNMENTAL PLANNING EMPLOYEES WITHIN BANDUNG METROPOLITAN AREA

A. The Role of ICT in Bandung Metropolitan Area

1. (A01). Please show the degree of acceptance of role of these technological products to the plan making process in the regional level (provincial and metropolitan) and local level (regencies and decentralized cities) by checking your best answer in table below.

Technological products as tools for planning activities		SA	A	NS	DA	SD	score
hardware	Laptop/desktop computer	40	15	4	0	0	249
	Cellphone/smart phone	17	28	14	0	0	183
software	Geographical information system software	37	21	1	0	0	249
	Cellphone application	14	24	20	1	0	159
	Computer operating system	29	28	2	0	0	231
service	Land line telephone service	21	30	7	0	1	197
	Internet service connection quality	32	24	3	0	0	235
	Cellphone/smart phone service connection quality	20	29	8	2	0	189

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

2. (A02). Please show the degree of acceptance of the most problematic issues of technological products in supporting plan making process by checking your best answer in table below.

Problems in technological products as tools for planning activities		SA	A	NS	D	SD	score
hardware	Laptop/desktop computer need to be replaced or upgraded	20	29	3	5	0	175
	Cellphone/smart phone needs to be replaced or upgraded	11	21	17	10	0	105
software	Geographical information system software version	22	30	3	4	0	191
	Cellphone application version	8	30	16	5	0	131
	Computer operating system	15	35	3	6	0	165
service	Land line telephone service	12	34	8	5	0	155
	Internet service connection quality	26	27	4	2	0	209
	Cellphone/smart phone service connection quality	15	25	11	8	0	137

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

A resume of an analysis of number 1 and number 2:

	meaningful for planning support system	create conflicted problem
Hardware	216	140.00
Software	213	162.33
connection service	207.00	167.00

3. (A03). Please rank these technological products usage to support your daily working activity as governmental planner compare to your non-working activities by checking your best answer in table below.

Choices in technological products as tools for planning activities		Working activities				Non- working activities			
		H	M	L	score	H	M	L	score
hardware	Laptop/desktop computer	38	16	5	243	19	32	5	196
	Cellphone/smart phone	17	33	14	198	22	25	4	189
software	Geographical information system software	23	28	7	206	6	22	26	122
	Cellphone application	17	32	10	191	13	31	13	171
	Computer operating system	33	25	1	241	19	31	6	194
service	Land line telephone service	21	32	6	207	14	34	7	179

Notes: H=high, M=medium; L=low.

Table continued

Choices in technological products as tools for planning activities		Working activities				Non- working activities			
		H	M	L	score	H	M	L	score
service	Internet service connection quality	41	16	2	255	26	26	4	212
	Cellphone/smart phone service connection quality	18	29	12	189	22	27	7	198

Notes: H=high, M=medium; L=low.

A resume of analysis:

	working activities	Non-working activities
hardware	221	193
software	213	162
connection service	217	196

4. (A04). Which one of these technological products is/are funded by your institution in order to support your work as governmental planner, especially in strengthening planning performance by checking your best answer in table below.

Choices in technological products as tools for planning activities		SA	A	NS	DA	SD	score
hardware	Laptop/desktop computer	36	19	3	0	1	235
	Cellphone/smart phone	6	22	19	7	7	59
software	Geographical information system software	28	27	4	0	0	225
	Cellphone application	14	19	15	7	4	101
	Computer operating system	30	20	4	4	0	202
service	Land line telephone service	24	23	11	1	0	197
	Internet service connection quality	33	21	5	0	0	233
	Cellphone/smart phone service connection quality	5	25	16	8	5	67

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

5. (A05). If you have any choices, show the degree of acceptance of what kind of technological product which you will propose to be provided by your institution by checking your best answer in table below.

Choices in technological products as tools for planning activities		SA	A	NS	DA	SD	score
hardware	Laptop/desktop computer	35	21	3	0	0	241
	Cellphone/smart phone	12	31	10	4	2	141
software	Geographical information system software	36	23	0	0	0	249
	Cellphone application	21	20	11	4	3	149
	Computer operating system	38	20	1	0	0	251
service	Land line telephone service	20	30	9	0	0	199
	Internet service connection quality	30	26	3	0	0	231
	Cellphone/smart phone service connection quality	14	23	15	4	2	132

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

6. (A06). Please show the degree of acceptance of the finest role of these technological products to support your job especially planning activity when you are not in the office by checking your best answer in table below.

Technological products as tools to Optimize Planning Activities		SA	A	NS	DA	SD	score
hardware	Laptop/desktop computer	31	23	3	0	0	227
	Cellphone/smart phone	19	29	10	0	2	182
software	Geographical information system software	23	30	2	1	3	189
	Cellphone application	12	35	12	0	0	177
	Computer operating system	27	28	4	0	0	223

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

Table continued

Technological products as tools to Optimize Planning Activities		SA	A	NS	DA	SD	score
service	Land line telephone service	12	27	18	1	1	151
	Internet service connection quality	21	28	4	3	2	174
	Cellphone/smart phone service connection quality	19	30	9	0	1	189

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

7. (A07). Please show the degree of acceptance of the finest roles of these technological products in providing planning related data when you are in your office and when you are in your home by checking your best answer in table below.

Technological products as tools to Optimize Planning Activities		At the office				At home			
		H	M	L	score	H	M	L	score
Internet access	To access internet using laptop computer	26	26	7	215	21	32	6	207
	To access internet using desktop computer	19	27	12	188	13	29	17	169
	To access internet using cellphone/smart phone	19	27	12	188	18	29	15	192
Calling, texting, sending data activities	To make call using land line phone	14	29	14	171	20	27	12	193
	To make call using cellphone/smart phone service	33	19	7	229	31	21	7	225
	To send and receive data using facsimile	23	33	3	217	25	31	3	221
	To send text using cellphone/smart phone service	19	36	4	207	16	34	9	191
	To make video call using cellphone/smart phone service	26	31	2	225	25	30	4	219
	To chat using yahoo messenger or facebook or skype	14	31	14	177	19	30	10	195

Notes: H=high; M=medium; L=low.

8. (A08). Please rank what is/are the working activities in terms of planning activities when you are in your office and while you are at your homes by checking your best answer in table below.

Technological products as tools to optimize planning activities		Office activities				Home activities			
		H	M	L	score	H	M	L	score
Spatial plan making process	Data gathering	20	33	6	205	10	35	14	169
	Data entry	19	33	5	199	13	34	12	179
	Data editing	18	38	4	208	12	32	15	171
Planning analysis	Statistical analysis	17	33	9	193	17	31	11	189
	GIS analysis or conventional land suitability analysis	16	36	7	195	10	33	16	165
	Descriptive analysis	13	34	11	178	12	32	15	171
Planning decision making and control	Data synthesis: providing planning scenario	21	30	8	203	10	36	13	171
	Decision making process	14	34	11	183	12	28	19	163
	Dissemination planning information	14	31	13	176	14	28	17	171
	Monitoring data	18	29	12	189	13	27	18	164
	Control mechanism formulation	19	30	10	195	12	34	13	175

Notes: H=high; M=medium; L=low.

9. (A09). Please rank the finest roles of these technological products in data gathering for planning activities by checking your best answer in table below.

Technological products as tools to optimize planning activities		In your office				In your home			
		H	M	L	score	H	M	L	score
hardware	Laptop/desktop computer	23	27	9	205	20	26	12	190
	Cellphone/smart phone	18	28	12	186	12	33	13	172
software	Geographical information system software	12	37	10	181	16	29	13	180

Notes: H=high; M=medium; L=low.

Table continued

Technological products as tools to optimize planning activities		In your office				In your home			
		H	M	L	score	H	M	L	score
	Cellphone application	12	31	16	169	12	27	19	160
	Computer operating system	16	33	9	188	16	31	11	184
service	Land line telephone service	11	37	11	177	11	31	16	164
	Internet service connection quality	18	33	8	197	10	30	17	157
	Cellphone/smart phone service connection quality	10	32	17	163	11	29	18	160

Notes: H=high; M=medium; L=low.

10. (A10). Please rank the finest roles of these technological products in data analysis for planning activities by checking your best answer in table below.

Technological products as tools to optimize planning activities		In your office				In your home			
		H	M	L	score	H	M	L	score
hardware	Laptop/desktop computer	28	26	5	223	18	30	11	191
	Cellphone/smart phone	21	22	16	187	13	28	17	166
software	Geographical information system software	17	34	8	195	10	31	18	161
	Cellphone application	12	27	20	161	11	31	16	164
	Computer operating system	22	29	7	204	17	30	13	188
service	Land line telephone service	13	31	16	174	12	30	17	167
	Internet service connection quality	26	28	5	219	16	33	10	189
	Cellphone/smart phone service connection quality	18	26	15	183	14	29	16	173

Notes: H=high; M=medium; L=low.

11. (A11). Please rank the finest role of these technological products in data synthesis or planning formulation activities by checking your best answer in table below.

Technological products as tools to optimize planning activities		In your office				In your home			
		H	M	L	score	H	M	L	score
hardware	Laptop/desktop computer	27	27	7	223	27	21	9	207
	Cellphone/smart phone	17	33	9	193	16	28	15	179
software	Geographical information system software	12	37	10	181	13	34	12	179
	Cellphone application	11	31	17	165	12	32	15	171
	Computer operating system	23	32	4	215	20	32	7	203
service	Land line telephone service	20	31	8	201	12	35	12	177
	Internet service connection quality	23	36	0	223	24	30	5	215
	Cellphone/smart phone service connection quality	17	27	15	181	16	28	15	179

Notes: H=high; M=medium; L=low.

12. (A12). Please rank the finest roles of these technological products in planning decision making activities by checking your best answer in table below.

Technological products as tools to optimize planning activities		In your office				In your home			
		H	M	L	score	H	M	L	score
hardware	Laptop/desktop computer	20	33	6	205	19	31	9	197
	Cellphone/smart phone	14	31	14	177	9	28	22	151
software	Geographical information system software	15	32	12	183	14	32	13	179
	Cellphone application	15	32	12	183	12	32	15	171
	Computer operating system	16	34	9	191	18	34	7	199
service	Land line telephone service	21	33	5	209	16	36	6	194
	Internet service connection quality	16	37	6	197	17	30	12	187
	Cellphone/smart phone service connection quality	22	28	9	203	16	33	10	189

Notes: H=high; M=medium; L=low.

13. (A13). To keep in touch with your planning activities in your office, is your daily transportation to support your job activity has been influenced by telecommunication service? Please rank your preference by checking your best answer in table below.

Vehicle types	Before you are using cellphone and internet service				After you are using cellphone and internet service			
	H	M	L	score	H	M	L	score
Public transportation (bus or small public urban transportation).	22	30	7	207	18	34	7	199
Para transit (ojeg or becak or delman)	21	30	8	203	18	30	11	191
Private car	20	34	5	207	20	34	5	207
Motorcycle/moped	18	34	7	199	18	36	5	203
Bicycle	17	32	10	191	13	34	11	178
On foot/walking	18	31	10	193	21	25	7	187

Notes: H=high, M=medium, L=low.

14. (A14). Please indicate the advantages of these telecommunication devices to planning activities by checking your best answer in table below.

Advantages	% Land line phone	% Cellphone	% Internet service
Time efficiency	28	24	24
Transportation cost efficiency	27	25	23
To support working activity and economic productivity	24	25	26
To provide more time for activities outside working activities (such as social networking, leisure, or side job)	21	26	27
total	100	100	100

15. (A15). Please indicate the advantages of telecommunication devices usage to your daily working travel in order to optimize your planning activity in your office by checking your best answer in table below.

Changes	% Land line phone		% Cellphone		% Internet service	
	Travel distant	Travel time	Travel distant	Travel time	Travel distant	Travel time
Longer	10.53	5.17	5.17	8.62	5.17	8.62
Shorter	36.84	44.83	39.66	41.38	37.93	41.38
The same	52.63	50.00	55.17	50.00	56.90	50.00

16. (A16). In terms of transport cost efficiency, please indicate the advantages of telecommunication devices usage to your daily working travel in order to optimize your planning activity in your office by checking your best answer in table below.

Transport cost	% Land line phone	% Cellphone	% Internet service
Reduce	15.79	13.56	23.73
Increase	31.58	44.07	30.51
The same	52.63	42.37	45.76

17. (A17). Please indicate an implication of telecommunication devices usage to your planning activity in your office by checking your best answer in table below.

planning activity	% Land line phone	% Cellphone	% Internet service
Speed up my job completion	18.84	22.93	21.05
Increased my job quality	23.19	20.38	20.18
Getting more information to support my job	15.94	19.75	23.68

Table continued

planning activity	% Land line phone	% Cellphone	% Internet service
Get good coordination in finalizing my job	20.29	22.29	21.93
No implication	21.74	14.65	13.16

18. (A18). Please indicate an implication of telecommunication devices usage to your working time efficiency to support planning activities. Please check your best answer in table below.

Time efficiency	% Land line phone	% Cellphone	% Internet service
Earlier to go to work	12.66	15.68	15.13
Late to go to work	17.72	12.43	13.45
Earlier to go back home	7.59	17.30	13.45
Late to go back home	15.19	12.43	10.92
Tend to work at home instead of working in the office	8.86	16.22	18.49
Tend to do a part of your work in home, instead of doing it in my office	16.46	15.14	15.97
No implication	21.52	10.81	12.61

19. (A19). Please rank the level of telecommunication devices usage among working activities (especially optimizing planning activities), non-working activities, and possibility to get side job by checking your best answer in table below.

Job overload issue	Land line phone				Cellphone				Internet service			
	H	M	L	score	H	M	L	score	H	M	L	score
Planning activities in your office	10	32	15	161	18	29	12	189	23	22	14	195
Non-working activities	11	28	20	159	19	31	9	197	12	33	14	173
Side job possibilities	10	33	16	165	19	31	9	197	17	29	13	185

Notes: H=high, M=medium, L=low.

B. Integrating ICT and Bandung Metropolitan Area Spatial Plan

1. (B01). In the level Bandung metropolitan area today, please describe a type of planning activities which begin to be discussed without having face-to-face meeting. Please check your best answer in table below.

Number of meeting	% Non-face-to-face meeting (using telecommunication devices)	% Face-to-face meeting
1st per month	36.11	40.00
2nd per month	16.67	8.57
3rd per month	11.11	11.43
4th per month	11.11	8.57
5th per month	5.56	11.43
>6th per month	19.44	20.00

2. (B02). Please show the degree of acceptance of the planning process (Bandung metropolitan area level) which can be done by non-face-to-face coordination by the support of telecommunication devices. Please check your best answer in table below.

Planning stages	Data compilation		Analysis		Planning formulation	
	Only part of it	The whole part	Only part of it	The whole part	Only part of it	The whole part
Strongly agree	18	21	29	22	24	22
Agree	29	24	21	24	30	24
Not sure	12	5	3	3	4	2

Table continued

Planning stages	Data compilation		Analysis		Planning formulation	
	Only part of it	The whole part	Only part of it	The whole part	Only part of it	The whole part
Disagree	2	1	1	3	3	0
Strongly disagree	1	1	1	0	1	4
Score	178	174	203	176	200	164

3. (B03). Related with Bandung metropolitan development, please rank the telecommunication devices roles in supporting plan meeting, in ongoing condition. Please check your best answer in table below.

No.	Communication types	intensity			
		high	medium	Low	score
1	Sending official airmail to the member of meeting	17	35	8	198
2	Sending radiogram to the member of meeting	22	26	11	199
3	To make call using land line phone	16	35	8	193
4	To make call using cellphone/smart phone service	24	28	7	211
5	To send and receive data using facsimile	19	35	5	205
6	To send text using cellphone/smart phone service	25	29	5	217
7	To make video call using cellphone/smart phone service	24	24	11	203
8	To chat using yahoo messenger or facebook or skype	16	31	12	185

Notes: H=high; M=medium; L=low.

4. (B04). Please show the degree of acceptance of the advantages of telecommunication devices usage in developing communication among planning related office to discuss about Bandung Metropolitan Development. Please check your best answer in table below.

No.	Communication breakthrough	SA	A	NS	D	SD	score
1	To enhance communication among employee in your division	17	35	7	0	0	197
2	To enhance communication among head of division and subordinates in your division	19	33	7	0	0	201
3	To enhance communication among head of planning division in regencies or decentralized cities within Bandung metropolitan area	22	33	4	0	0	213
4	To enhance communication among employee of planning division in regencies or decentralized cities within Bandung metropolitan area	19	35	5	0	0	205
5	to enhance communication among head of planning division in regencies or decentralized cities within Bandung metropolitan area and a head of planning division in West Java Province	24	32	3	0	0	219
6	To enhance communication among employee of planning division in regencies or decentralized cities within Bandung metropolitan area with related spatial planning office in West Java Province	15	35	9	0	0	189
7	To enhance communication among spatial planning division in regencies or decentralized cities within Bandung metropolitan area, related spatial planning office in West Java Province, and related spatial planning office in National level.	18	34	7	0	0	199

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

5. (B05). Please show the degree of acceptance of the advantages of telecommunication devices usage in developing communication among government employees and private sectors and a public. Please check your best answer in table below.

No.	Communication breakthrough with private and public	SA	A	NS	D	SD	score
1	Enhance communication with public in Bandung metropolitan area	19	29	11	0	0	193
2	Enhance communication with private sector in Bandung metropolitan area	20	32	5	2	0	195
3	Enhance communication with NGO's/CBO's in Bandung metropolitan area	22	34	3	0	0	215
4	Enhance communication with telecommunication service companies	25	29	5	0	0	217

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

6. (B06). Please show the degree of acceptance your response in reducing face-to-face Bandung metropolitan development coordination by encouraging telecommunication devices usage. Please check your best answer in table below.

No.	Possibility to reduce face-to-face coordination	SA	A	NS	D	SD	score
1	Coordination through official air mail letters	18	32	8	1	0	191
2	Coordination through radiogram	16	37	6	0	0	197
3	Coordination through land line phone call	17	37	5	0	0	201
4	Coordination through cellphone/smart phone call	26	30	3	0	0	223
5	Coordination through facsimile	17	39	3	0	0	205
6	Coordination through sending text using cellphone/smart phone service	19	34	6	0	0	203
7	Coordination through video call using cellphone/smart phone service	19	34	5	1	0	199
8	Coordination through chatting using yahoo messenger or facebook or skype	19	30	6	3	1	177
9	Coordination through internet	17	33	7	2	0	185

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

7. (B07). In order to strengthen the role of coordination board of regional planning (Badan Koordinasi Penataan Ruang Daerah=BKPRD), please rank your response in forming annual coordination for planning implementation as feedback to Bandung Metropolitan Area Plan which has to be in line with spatial plan of regencies and decentralized cities within Bandung metropolitan area by checking your best answer in table below.

No.	Type of land use activities	SA	A	NS	D	SD	score
1	Coordination through official air mail letters	20	33	5	1	0	201
2	Coordination through radiogram	19	31	8	1	0	193
3	Coordination through land line phone call	17	37	2	3	0	189
4	Coordination through cellphone/smart phone call	16	33	9	1	0	185
5	Coordination through facsimile	20	34	5	0	0	207
6	Coordination through sending text using cellphone/smart phone service	24	30	5	0	0	215
7	Coordination through video call using cellphone/smart phone service	18	29	7	3	1	170
8	Coordination through chatting using yahoo messenger or facebook or skype	14	31	12	2	0	169
9	Coordination through internet	15	36	8	0	0	191

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

No.	Land use location (including land use change)	SA	A	NS	D	SD	score
1	Coordination through official air mail letters	16	34	6	3	0	179
2	Coordination through radiogram	18	31	5	2	3	167
3	Coordination through land line phone call	17	36	6	0	0	199
4	Coordination through cellphone/smart phone call	21	26	12	0	0	195
5	Coordination through facsimile	17	33	8	1	0	189
6	Coordination through sending text using cellphone/smart phone service	21	36	2	0	0	215

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

Table continued

No.	Land use location (including land use change)	SA	A	NS	D	SD	score
7	Coordination through video call using cellphone/smart phone service	14	36	8	1	0	183
8	Coordination through chatting using yahoo messenger or facebook or skype	24	28	6	1	0	207
9	Coordination through internet	17	35	7	0	0	197

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

No.	Social activity and its implication	SA	A	NS	D	SD	score
1	Coordination through official air mail letters	20	32	6	1	0	199
2	Coordination through radiogram	20	35	4	0	0	209
3	Coordination through land line phone call	23	34	2	0	0	219
4	Coordination through cellphone/smart phone call	22	32	5	0	0	211
5	Coordination through facsimile	20	33	6	0	0	205
6	Coordination through sending text using cellphone/smart phone service	20	32	7	0	0	203
7	Coordination through video call using cellphone/smart phone service	21	30	7	1	0	199
8	Coordination through chatting using yahoo messenger or facebook or skype	21	31	6	1	0	201
9	Coordination through internet	18	32	9	0	0	195

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

No.	Economic activities and its implication	SA	A	NS	D	SD	score
1	Coordination through official air mail letters	20	32	9	0	0	205
2	Coordination through radiogram	21	31	6	0	0	204
3	Coordination through land line phone call	17	35	4	3	0	185
4	Coordination through cellphone/smart phone call	17	36	6	0	0	199
5	Coordination through facsimile	22	25	12	0	0	197
6	Coordination through sending text using cellphone/smart phone service	20	31	8	0	0	201
7	Coordination through video call using cellphone/smart phone service	20	32	6	1	0	199
8	Coordination through chatting using yahoo messenger or facebook or skype	18	32	8	1	0	191
9	Coordination through internet	18	33	8	0	0	197

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

No.	Cultural activities and its implication	SA	A	NS	D	SD	score
1	Coordination through official air mail letters	19	32	8	0	0	199
2	Coordination through radiogram	17	33	8	0	0	192
3	Coordination through land line phone call	18	36	5	0	0	203
4	Coordination through cellphone/smart phone call	20	33	6	0	0	205
5	Coordination through facsimile	18	35	5	0	0	200
6	Coordination through sending text using cellphone/smart phone service	15	38	6	0	0	195
7	Coordination through video call using cellphone/smart phone service	15	31	12	1	0	177
8	Coordination through chatting using yahoo messenger or facebook or skype	19	31	8	1	0	193
9	Coordination through internet	17	34	8	0	0	195

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

8. (B08). Please indicate your degree of acceptance in terms of conflicted issues in using telecommunication devices to support Bandung Metropolitan Development Performance. Please check your best answer in table below.

No.	Problematic coordination using telecommunication devices	SA	A	NS	D	SD	score
1	Administrative accountability	22	33	3	1	0	209
2	Not all government officials likes to use telecommunication devices for spatial planning coordination	16	35	7	1	0	189
3	Certain planning issues have to be coordinated through face-to-face meeting	21	33	4	1	0	205
4	Getting more busy because you can be reached anywhere to talk about spatial planning activities	19	33	7	0	0	201
5	You have conflicted problem with your family because you can be reached out of day job to talk about spatial planning activities	21	35	3	0	0	213
6	You have more job to do because of the easy access of telecommunication devices and software availability	21	33	4	1	0	205
7	You have conflicted problem to provide side job because of the easy access of telecommunication devices and software availability	23	34	2	0	0	219

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

C. The Possibility of ICT to Strengthen Planning Objective of Bandung Metropolitan Area Spatial Plan

1. (C01). In terms of urban development strategy, show your degree of acceptance about the development of these satellite cities in term of reducing the reliance to the Bandung city centers? Please check your best answer in table below.

No.	Efforts in optimizing satellite cities in Bandung metropolitan area	SA	A	NS	D	SD	score
1	Cipeundeuy-Cikalong Wetan	17	32	10	0	0	191
2	Padalarang-Ngamprah	19	29	11	0	0	193
3	Lembang	14	34	10	1	0	179
4	Jatinangor	15	34	10	0	0	187
5	Cicalengka-Cileunyi-Rancaekek	15	35	9	0	0	189
6	Majalaya	14	32	13	0	0	179
7	Banjaran-Dayeuhkolot-Bojongsoang-Baleendah	11	34	14	0	0	171
8	Soreang-Kutawaringin-Ketapang	12	27	17	3	0	149
9	Cililin	14	33	12	0	0	181

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

2. (C02). Indicate your degree of acceptance about the contribution of these areas to the dense traffic to the Bandung city centers because most Bandung people live in these areas. Please check your best answer in table below.

No.	Contribution of Satellite Cities to the Dense Traffic of Bandung city centers	SA	A	NS	D	SD	score
1	Gedebage	14	27	16	2	0	161
2	Ujungberung	15	34	8	2	0	179
3	Cipeundeuy-Cikalong Wetan	14	31	13	1	0	173
4	Padalarang-Ngamprah	13	32	13	1	0	171
5	Lembang	15	36	7	1	0	187
6	Jatinangor	9	35	14	1	0	161
7	Cicalengka-Cileunyi-Rancaekek	22	30	7	0	0	207
8	Majalaya	13	34	12	0	0	179
9	Banjaran-Dayeuhkolot-Bojongsoang-Baleendah	12	36	11	0	0	179
10	Soreang-Kutawaringin-Ketapang	19	35	5	0	0	205
11	Cililin	18	31	9	0	0	192

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

3. (C03). Indicate your degree of acceptance of the appropriateness of telecommunication services, especially land line phone service, cellphone service, and internet service in these areas. Please check your best answer in table below.

No.	Appropriateness of telecommunication service in satellite cities in Bandung metropolitan area	SA	A	NS	D	SD	score
1	Gedebage	16	38	5	0	0	199
2	Ujungberung	14	35	10	0	0	185
3	Cipeundeuy-Cikalong Wetan	15	32	12	0	0	183
4	Padalarang-Ngamprah	13	36	10	0	0	183
5	Lembang	18	35	6	0	0	201
6	Jatinangor	17	38	2	1	0	198
7	Cicalengka-Cileunyi-Rancaekek	14	38	6	1	0	187
8	Majalaya	20	34	5	0	0	207
9	Banjaran-Dayeuhkolot-Bojongsoang-Baleendah	17	36	6	0	0	199
10	Soreang-Kutawaringin-Ketapang	16	37	5	0	0	196
11	Cililin	14	36	9	0	0	187

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

4. (C04). Indicate your degree of acceptance in terms of conflicted urban development strategy of Bandung metropolitan area which create problems in daily traffic and responsible to a reduction of a green open space. Please check your best answer in table below.

No.	Conflicted urban problem strategy of Bandung metropolitan area	SA	A	NS	D	SD	score
1	Developing arterial roads and collector roads which connect city centers, primary centers, secondary centers, and satellite cities	22	32	5	0	0	211
2	Developing satellite cities in suburban Bandung metropolitan area as self-contain cities for their surrounding area (as local centers)	21	35	3	0	0	213
3	The development of commercial centers in Bandung city center	21	31	2	5	0	185
4	The development of new residential areas in suburban Bandung metropolitan area	21	34	4	0	0	211
5	The development of apartment in Bandung city centers and suburban Bandung metropolitan area	22	29	5	3	0	193
6	It is hard to organize working travel because government could not move working centers closer to the new residential centers in suburban areas	15	38	5	1	0	191
7	Government officials could not work at home during day time, because they have to go to their office, although job can be done in their home	17	36	6	0	0	199
8	Self-provided job workers especially those who work in service sector are more flexible in reducing daily travel by working at home.	16	34	8	0	0	190

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

5. (C05). Please indicate your degree of acceptance about reducing travel to the Bandung city centers by checking your best answer in table below.

No.	Planning response to reduce travel to the Bandung city center	SA	A	NS	D	SD	score
1	To encourage working at home with the support of telecommunication services, especially encouraging the usage of cellphone and internet service	19	37	3	0	0	209
2	To provide public facilities, especially department store, health facilities, and education facilities closer to the residential area.	21	33	5	0	0	209
3	To maintain existing road system based on transportation policy in Bandung Metropolitan Area Plan	17	40	2	0	0	207
4	To encourage the usage of public transportation	20	34	4	0	0	206

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

6. (C06). Based on Law No. 26/2007 about Planning Guidance, telecommunication network development has been considered as a part of network infrastructure system plan in spatial structure arrangement. Please indicate your degree of acceptance by checking your best answer in table below.

No.	Telecommunication network system consideration in spatial plan	SA	A	NS	D	SD	score
1	Telecommunication network system is a part of national spatial plan	24	33	2	0	0	221
2	Telecommunication network system is a part of West Java Province spatial plan	21	36	2	0	0	215
3	Telecommunication network system is a part of regional and cities spatial plan in Bandung metropolitan area	23	34	2	0	0	219
4	Telecommunication network system is a part of detail spatial plan within Bandung metropolitan Area	25	29	5	0	0	217

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

7. (C07). Although telecommunication service is a part of spatial structure arrangement, it is beneficial in optimizing spatial pattern arrangement, especially in maintaining land allocation of protection area and cultivation area within Bandung metropolitan area. Please indicate your degree of acceptance concerning the possible problem in adapting telecommunication service to the elements of spatial pattern arrangement by checking your best answer in table below.

No.	The possible problem in adapting telecommunication service to the elements of spatial pattern plan	SA	A	NS	D	SD	score
1	To ensure environmental preservation activity	25	31	2	0	0	220
2	To ensure social activity	21	34	3	0	0	210
3	To ensure cultural activity	20	35	3	0	0	208
4	To ensure economic activity	21	34	3	0	0	210
5	To ensure defense and security activity	21	33	4	0	0	208

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

8. (C08). In terms of the role of telecommunication services in strengthening planning control, please indicate your degree of acceptance by checking your best answer in table below.

No.	Telecommunication service to ensure development control	SA	A	NS	D	SD	score
1	To optimize zoning regulation	16	37	5	0	0	196
2	To optimize planning licensing or planning permission	19	37	2	0	0	208
3	To optimize the provision of incentive and disincentive	16	33	9	0	0	188
4	To optimize imposition of sanctions	17	37	4	0	0	200

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

9. (C09). In terms of developing telecommunication services for Bandung metropolitan area it is important to invite PT Telkom as the largest telecommunication company to take part in optimizing spatial plan of Bandung metropolitan area. Please indicate your degree of acceptance by checking your best answer in table below.

No.	The participation of PT Telkom in Bandung Metropolitan Area Plan	SA	A	NS	D	SD	score
1	Land line phone development plan	13	38	7	0	0	186
2	Cellphone development plan	17	37	4	0	0	200
3	Internet service development plan	22	34	2	0	0	214
4	Other information and communication technology development plan	22	32	4	0	0	210

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

10. (C10). In terms of planning coordination in the level Bandung metropolitan area, do you think there is a different mindset between PT Telkom as telecommunication service providers with the mission of Bandung Metropolitan Development Plan? Please indicate your degree of acceptance by checking your best answer in table below.

No.	Bandung Metropolitan Development Spatial Plan and PT Telkom development mission	SA	A	NS	D	SD	score
1	There is a different mindset, because PT. Telkom has concerns with private interest while Bandung Metropolitan Development Spatial Plan is concern with public interest	17	31	9	1	0	184
2	There is a similar mission in terms of providing public service but PT Telkom emphasizes on more specific target and timeline	12	33	11	1	1	162

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

11. (C11). What kind of coordination has been made in detail to encourage telecommunication service in optimizing Bandung Metropolitan Area Plan Information and Communication Office in Regencies or Decentralized Cities level and Information and Communication Office in Provincial Level (West Java Province) with PT. Telkom. Please indicate your degree of acceptance by checking your best answer in table below.

No.	Coordination among PT. Telkom and Related Governmental Offices	SA	A	NS	D	SD	score
1	Coordination in sharing information	18	32	9	0	0	195
2	Coordination in defining development target	15	38	6	0	0	195
3	Synchronized in program implementation	18	35	6	0	0	201
4	Coordination in implementing CSR of PT. Telkom in line with the planning objective of Bandung Metropolitan spatial plan	17	37	5	0	0	201

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

12. (C12). In the context of planning process of Bandung Metropolitan Area Plan, please rank the difficulty in coordination, involvement, and participation of PT. Telkom as well as Information and Communication Office (Provincial level or Regencies level or decentralized cities level) that has been made by checking your best answer in table below.

No.	Coordination among Institutions	Planning compilation				Planning analysis				planning scenario				Planning control			
		H	M	L	score	H	M	L	score	H	M	L	score	H	M	L	score
1	PT. Telkom as the largest telecommunication service	17	27	15	181	19	31	9	197	14	33	12	181	14	31	13	176
2	Information and communication office in provincial or regencies or decentralized cities level	19	33	7	201	23	31	6	214	22	28	10	204	24	29	7	214

Notes: H=high, M=medium, L=low.

13. (C13). Please indicate your degree of acceptance about the possible collaboration among PT Telkom and local planning board in order to disseminate spatial plan in the metropolitan level (regional spatial plan) and local level (detail spatial plan) by checking your best answer in table below.

No.	The possible collaboration among local planning board and PT. Telkom: spatial plan performance	SA	A	NS	D	SD	score
1	Providing data storage for spatial planning information which can be accessed by the level of authority of government official	24	30	4	1	0	211
2	Providing planning simulation of planning scenario including funding alternatives which can be accessed	19	38	2	0	0	211

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

Table continued

No.	The possible collaboration among local planning board and PT. Telkom: spatial plan performance	SA	A	NS	D	SD	score
	by the level of authority of government official						
3	Developing special price for cellphone and internet connection during working hour in order to enhance the quality of spatial planning related service to the public towards a professional works (to cope with overload and overtime work).	25	31	3	0	0	221

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

14. (C14). Please indicate your degree of acceptance about the possible collaboration among PT Telkom and local government in order to deal with daily transportation problem by checking your best answer in table below.

No.	The possible collaboration among local planning board and PT. Telkom: transportation	SA	A	NS	D	SD	score
1	Traffic monitoring	24	35	0	0	0	225
2	Road system operation and maintenance control (including road quality information)	16	37	6	0	0	197

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

15. (C15). Please indicate your degree of acceptance about the possible collaboration among PT Telkom and local government in order to encourage the competitiveness of development center (local, secondary, and primary development centers) by checking your best answer in table below.

No.	The possible collaboration among local planning board an telecommunication company (PT. Telkom): competitiveness	SA	A	NS	D	SD	score
1	Providing or empowering existing website for West Java Province as well as regencies and decentralized cities centers within Bandung Metropolitan area to share their potencies of development centers	25	28	6	0	0	215
2	Providing or empowering existing website of West Java Province as well as regencies and decentralized cities centers within Bandung metropolitan area to share the Bandung Metropolitan Area Plan as well as planning control (including sanction).	21	33	5	0	0	209
3	Developing cooperation to conduct structured ICT related training in order to socialize ICT knowledge.	19	38	1	0	0	210
4	Providing ICT related training especially to create and to enhance the competitiveness of development centers.	20	35	4	0	0	209
5	Providing labor information system to promote the competitiveness of development centers.	18	39	1	0	0	208

Notes: SA=strongly agree; A=agree; NS=not sure; D=disagree; SD=strongly disagree.

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