

Elements and Concepts of
Methodology for Urban Infrastructure Development
Planning and Management based on System Approach Method
and its Verification through Case Studies*

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Framework of System Approach

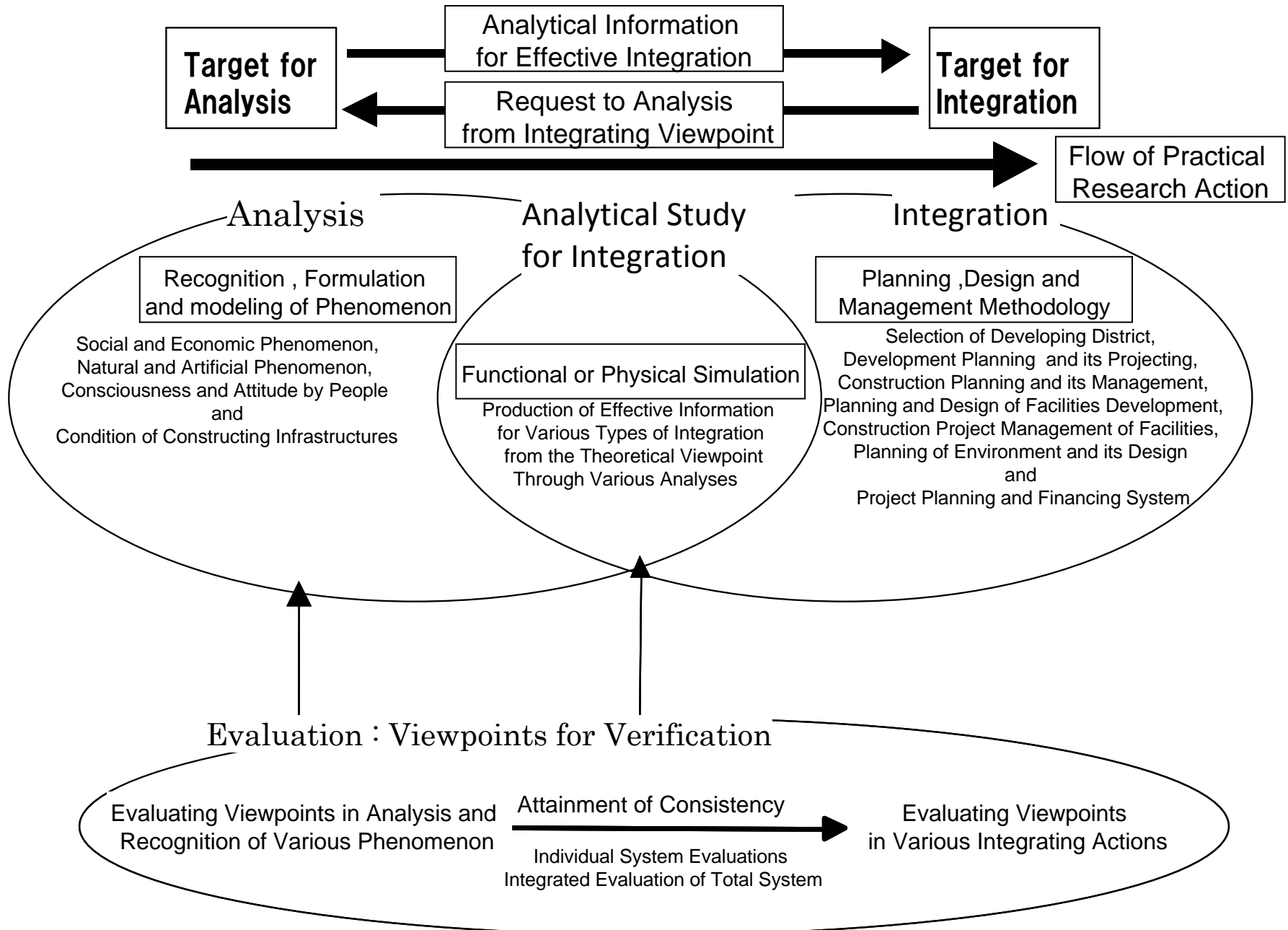


Figure process system in planning decision

Step1:
Analytic examination of present condition
 Society and economic conditions, nature. Grasp of a geographical feature state and a climate.
 Clarification of the problem and subject of industrial activity / life action and environmental preservation.
 The elucidation of a flag of a company, economy, and a material phenomenon mechanism

Society and economic indicator, (data which is being collected by public organizations in fixed intervals based on law + data for various purposes which is being collected periodically by public organizations + data which was suitably collected with specific purpose by public organization) as well as geographic and environmental data, and so on, are processed and formed into judgment material on a mathematical statistics and social statistics target, and it consider technical analysis information, and phenomenon structure is solved or the problem and subject of an area are clarified. Moreover, especial survey for this plan, and the same analysis as above is carried out. Make an overall judgment of present condition of area through the above analytic examination.

Step2:
 Plan analytic examination **Step 2 Of processing**
 Model of system Mechanism and Phenomenon structure
 Problem phenomenon dissolution and subject achievement can be considered
 Construction of simulation model
 Effect analysis of the problem solution and the subject achievement means which can be carried out

Plan Subject (whom and who's standpoint plan is being done)
 Plan purpose (what kind of goal want to be achieved, and Build a plan, in order to solve what problem)
 Plan object (for which area and what phenomenon tends to be taken up and it is going to aim at the improvement by the plan)
 Plan means (It tries adopting probably to assuring the subject achievement and problem solution as expedient of some kind of hard facility improvement and soft system maintenance plan?).
 etc. are "main element of a plan theory" is supposed clearly, the stem it grasps theory and (description) does clearly.
 Furthermore, change of a state where contents change of planned expedient appraises the degree of intended achievement there is what corresponding relationship, qualitative and quantitatively clarification (model description).
 Furthermore, the enforcement effect of a plan means is analyzed qualitatively and quantitatively, and the design plan of these contents of a plan is established based on this.

Step3:
 Examination of planning **Step 3 Of processing**
 Definition of the subject, object, purpose, and means of a plan (Make the fixed form Problem)
 Construction of model plan (formulation of problem) and model analysis
 Design of appropriate plan alternatives (multiple)

After setting up more concretely the subject, the object, the purpose, and means of the plan assumed by step2 of the point, concrete and functional words describes a plan problem as a "plan problem" logically and finite.
 And, first, it corresponds to the concrete contents of a plan problem expressed definite , and is a mathematical plan model; solving under ①Evaluation function (Maximization or minimization of objective function of planned model) ②limiting conditions formula, ③restraint conditional expression, it calculates optimum planned variable value in an executable file.
 Next, various program analyses are done through parametric to which the contents of constraint and restricted conditions are changed, and it asks for two or more alternatives

Step4:
 Plan Evaluation
 Definition of a planned selection standard and evaluation method
 Evaluation of alternatives, and selection of a plan proposal

In analysis of Step3, the superiority or inferiority of two or more alternatives for which it asked previously are compared using the evaluation element which was not able to be carried, synthesis and simultaneous evaluation are performed, and the enforcement plan proposal finally adopted is chosen.

Feedback

One example of Feedback

There is a necessary feedback from Step 4 to Step 2, returns to the necessary previous Step, processing will be finished quickly and accurately, it means to return to the stage of present discussion.

Request of improvement

New information

New information

New Processing

Current process

Feedback

Planning Discussion System

Information Processing System

Social/economical/geographical/needs data collection

Data Arrangement & Data Bank/base System

Primary analysis
Meta-analysis
Adjustment & Summary of the analysis info.

Planning Problem Analysis System

Current Information Analysis Process

Planning Analysis Process

Making alternatives Process

Synthetic evaluation and choosing plan Process

Planning System

Setting of Objective/constraint/restriction

Subject, and making alternatives: design of planning contents

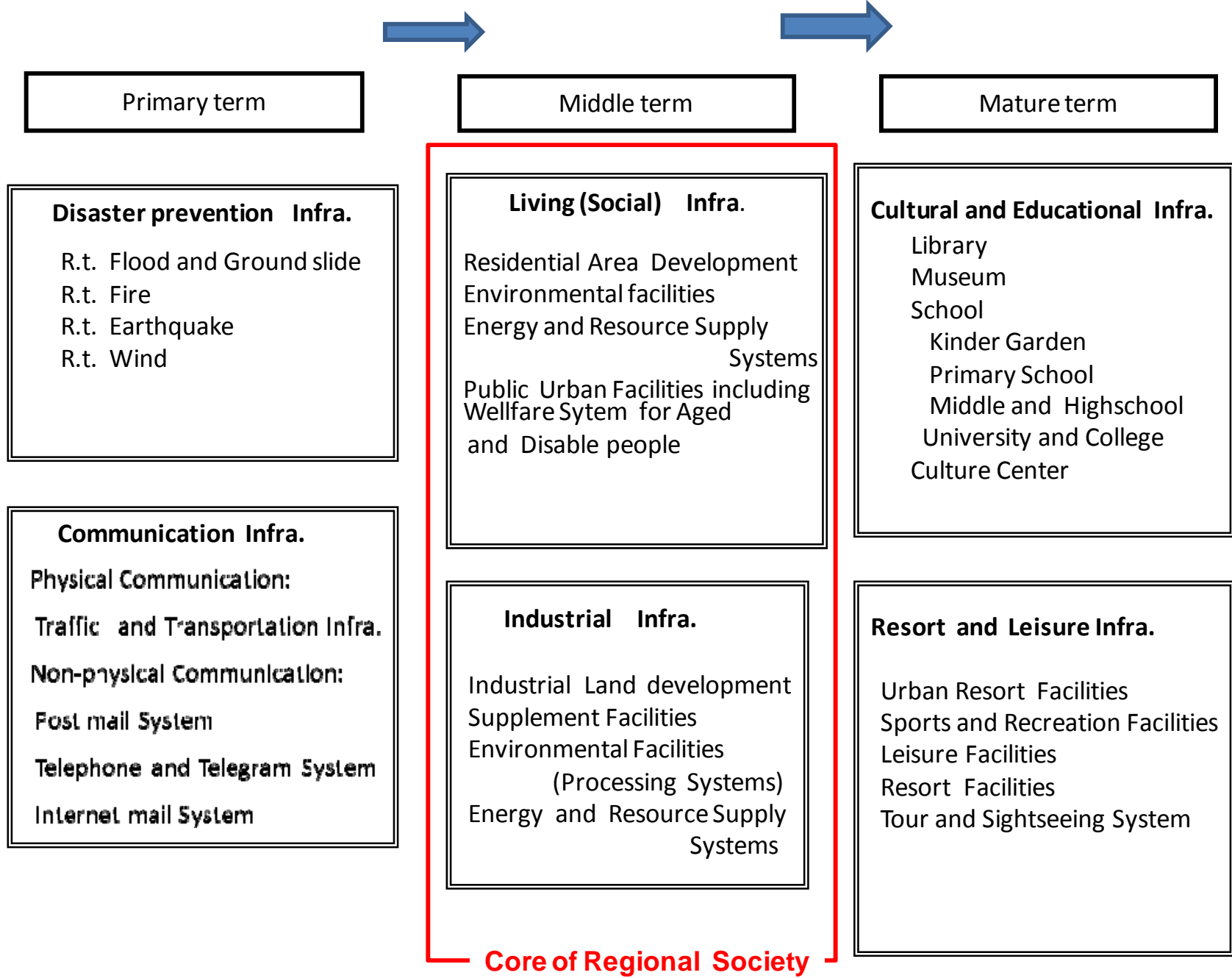
Synthetic evaluation of alternatives and choosing optimal plan

Supply Necessary Info.

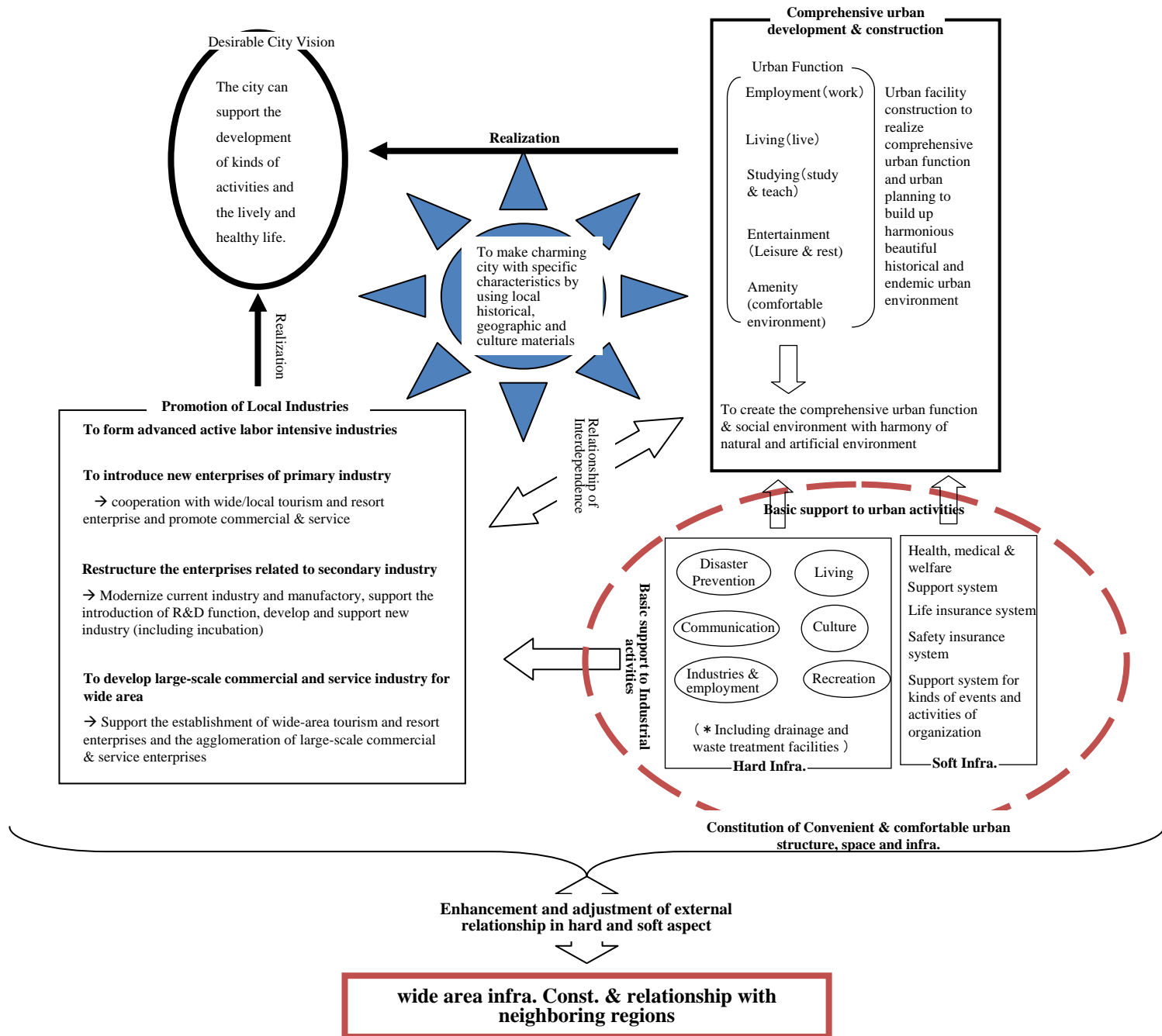
Request Necessary Info.

Request Necessary Info.

Supply Necessary Info.

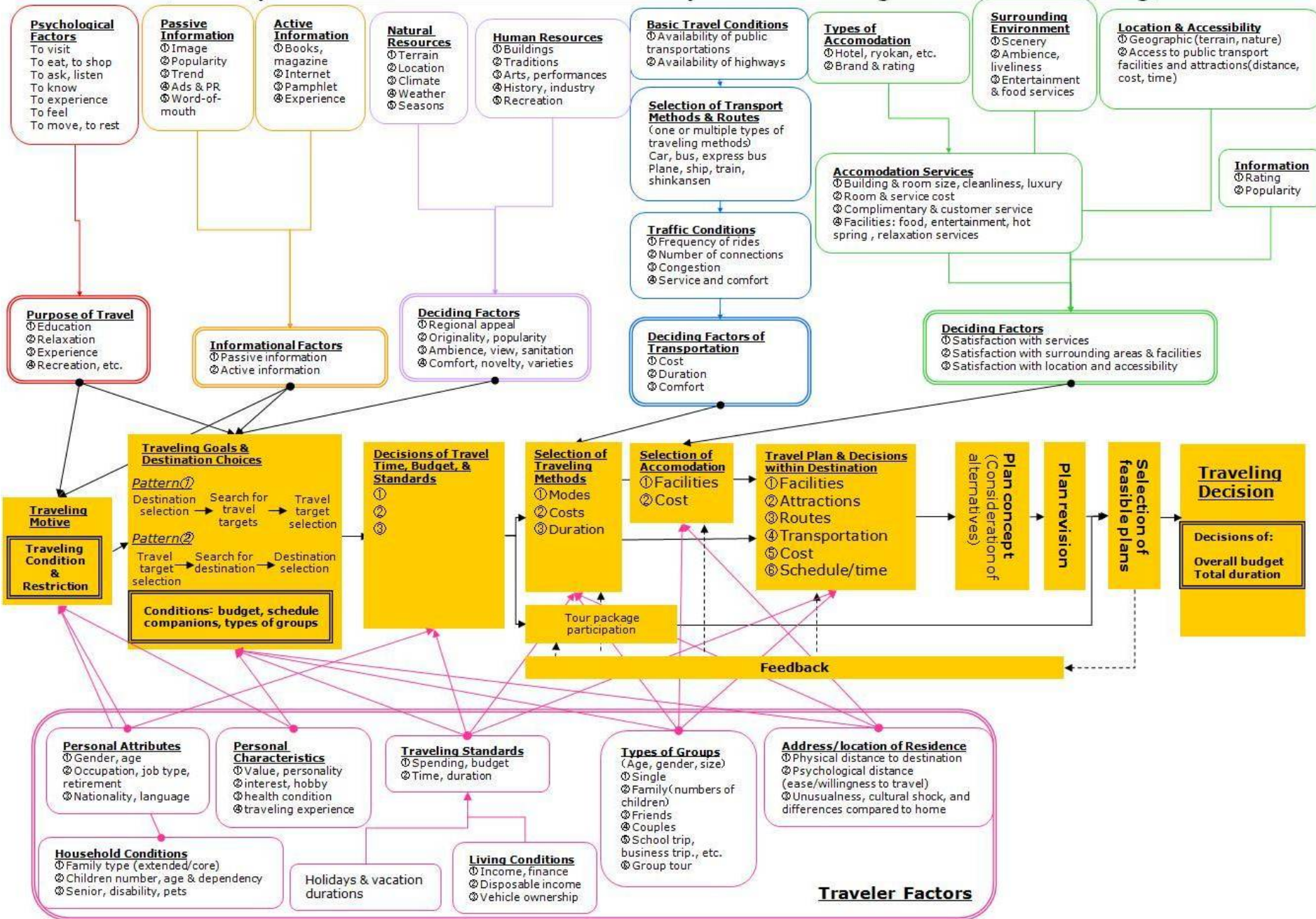


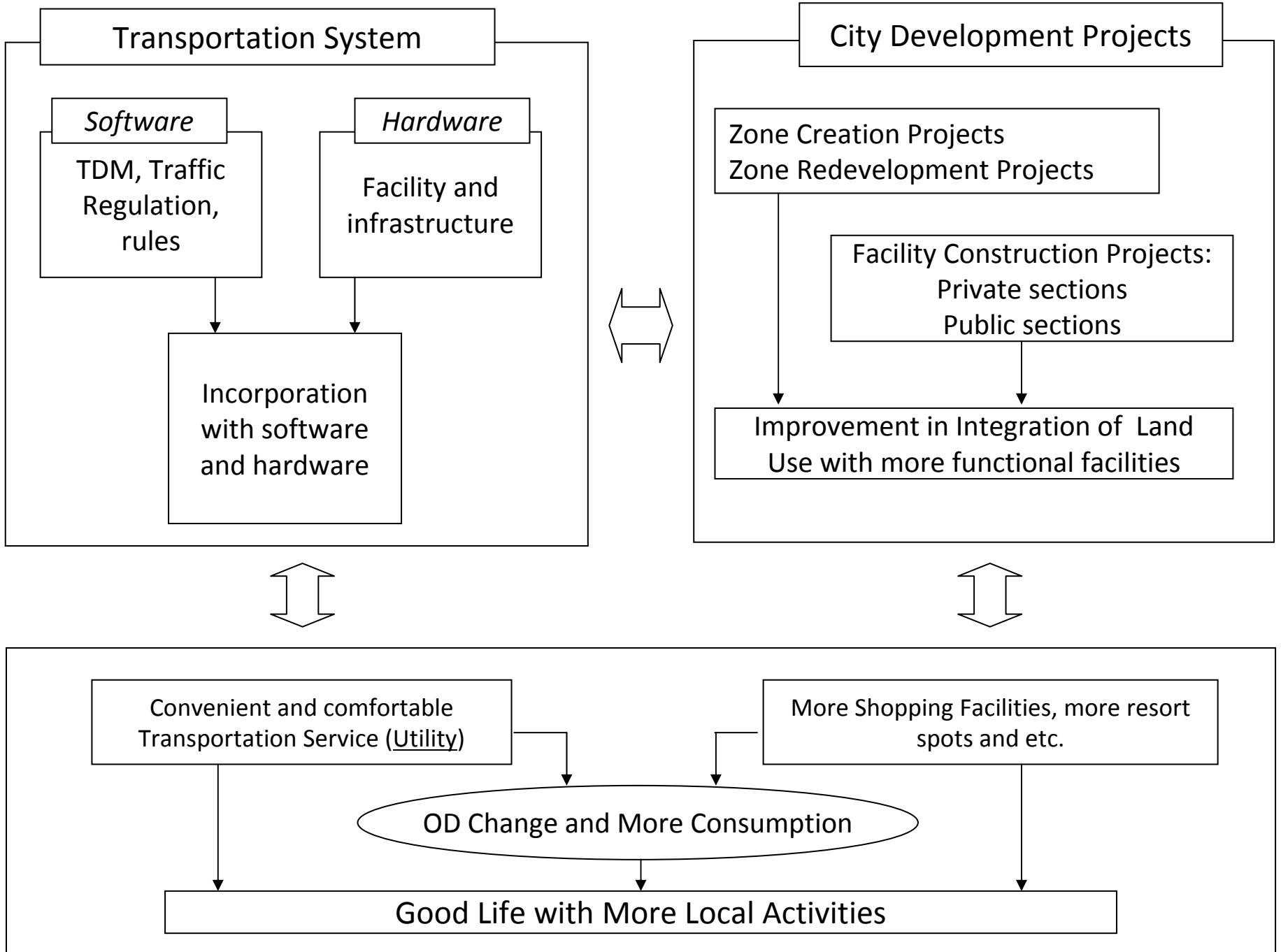
6 Types of Urban Infrastructure and there Relations

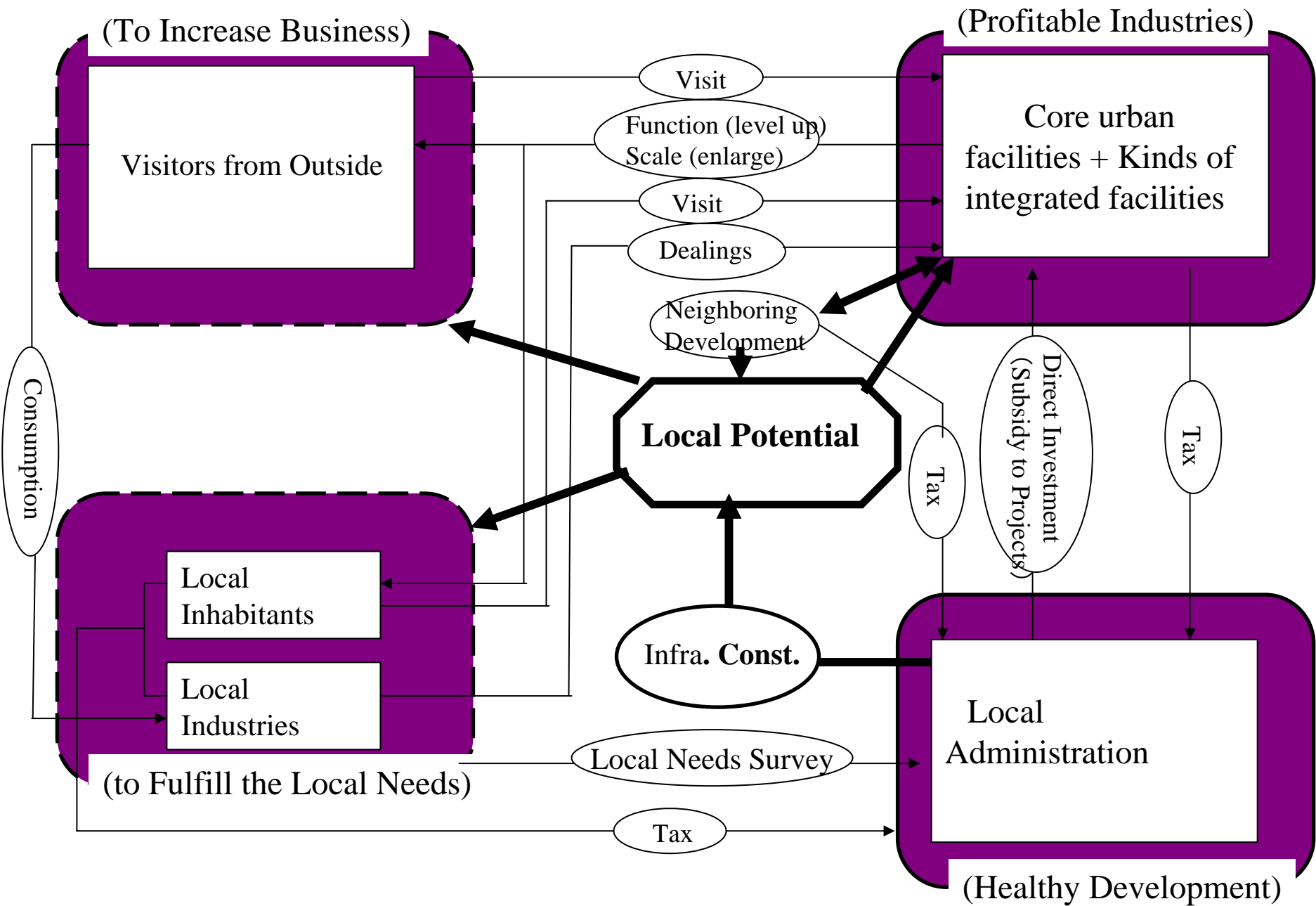


Framework of urban planning for local core city

WBS (Work-Breakdown-Structure) of Traveling Decision Making



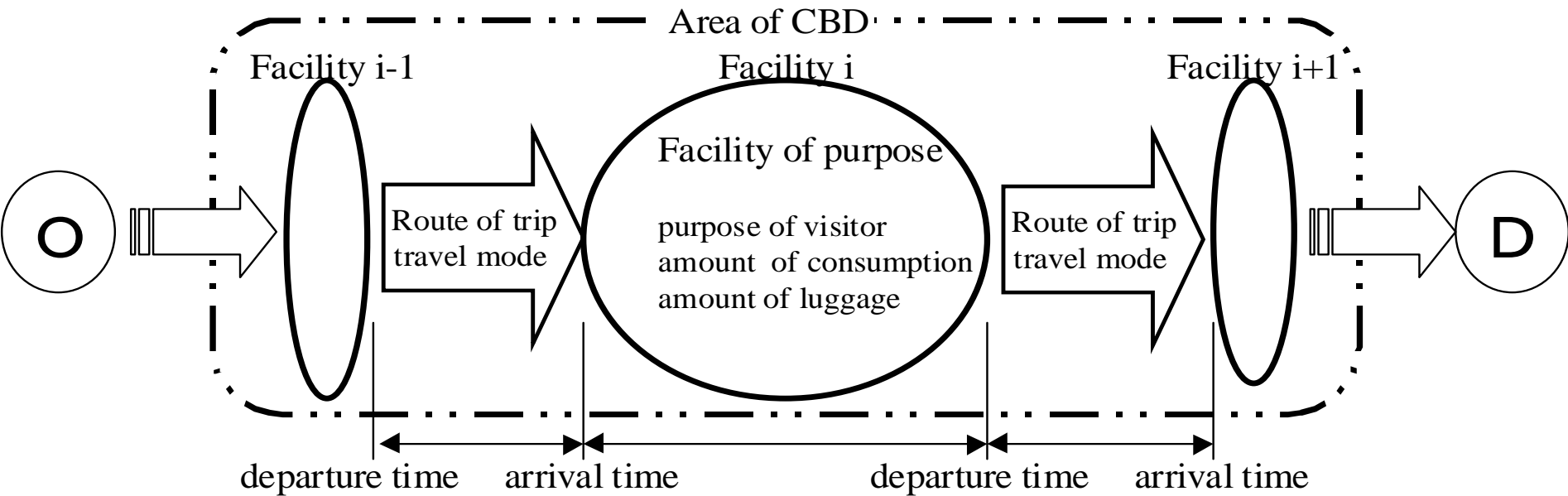




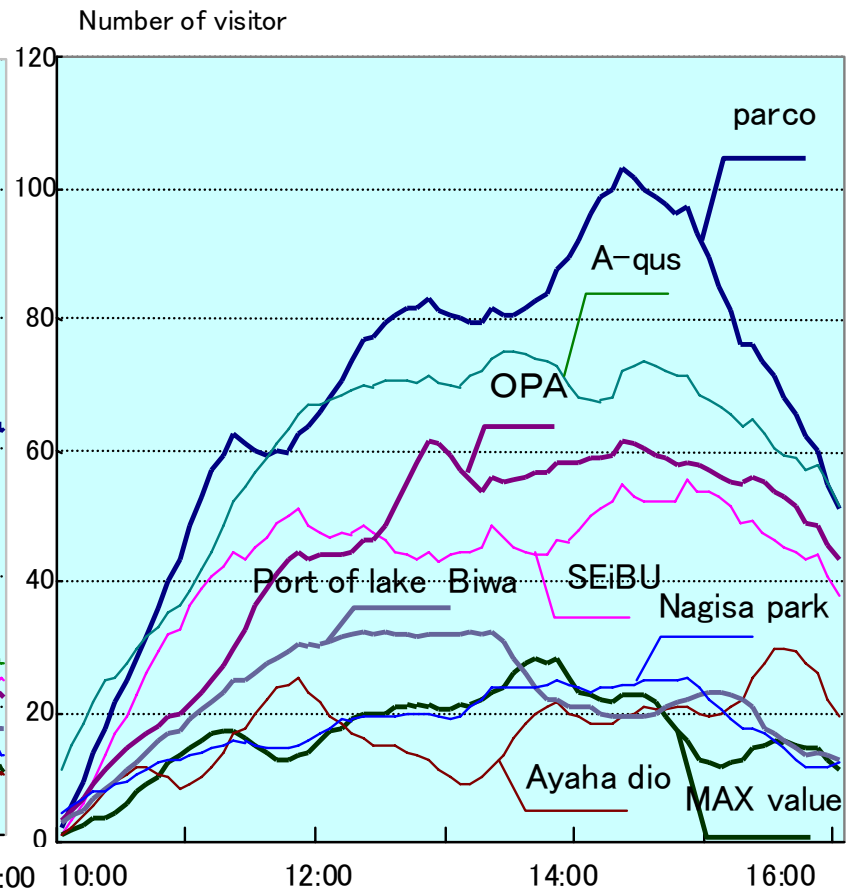
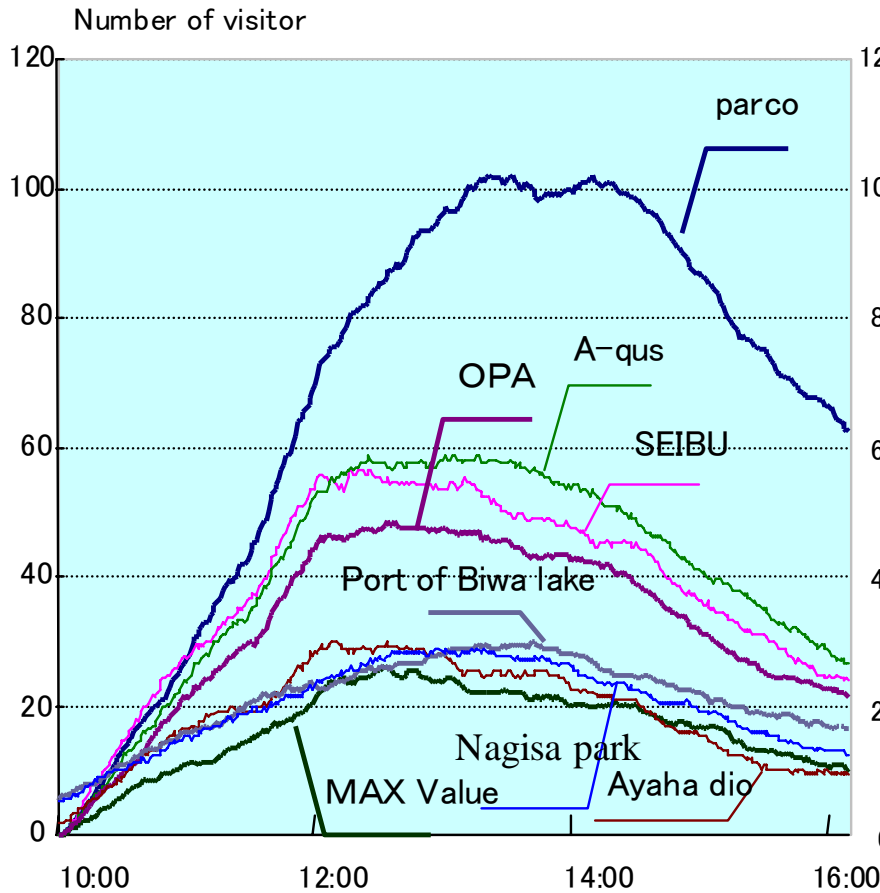
Problems to be solved



Profitability



Structure Model of Human Behavior (Person Trip Analysis) in Downtown District



name of facility	kind of facility	name of facility	kind of facility
parco	department store	OPA	department store
A-qus	amusement facility	Nagisa Park	park
SEIBU	department store	ayaha dio	shopping center
port of lake Biwa	port	Max value	shopping center

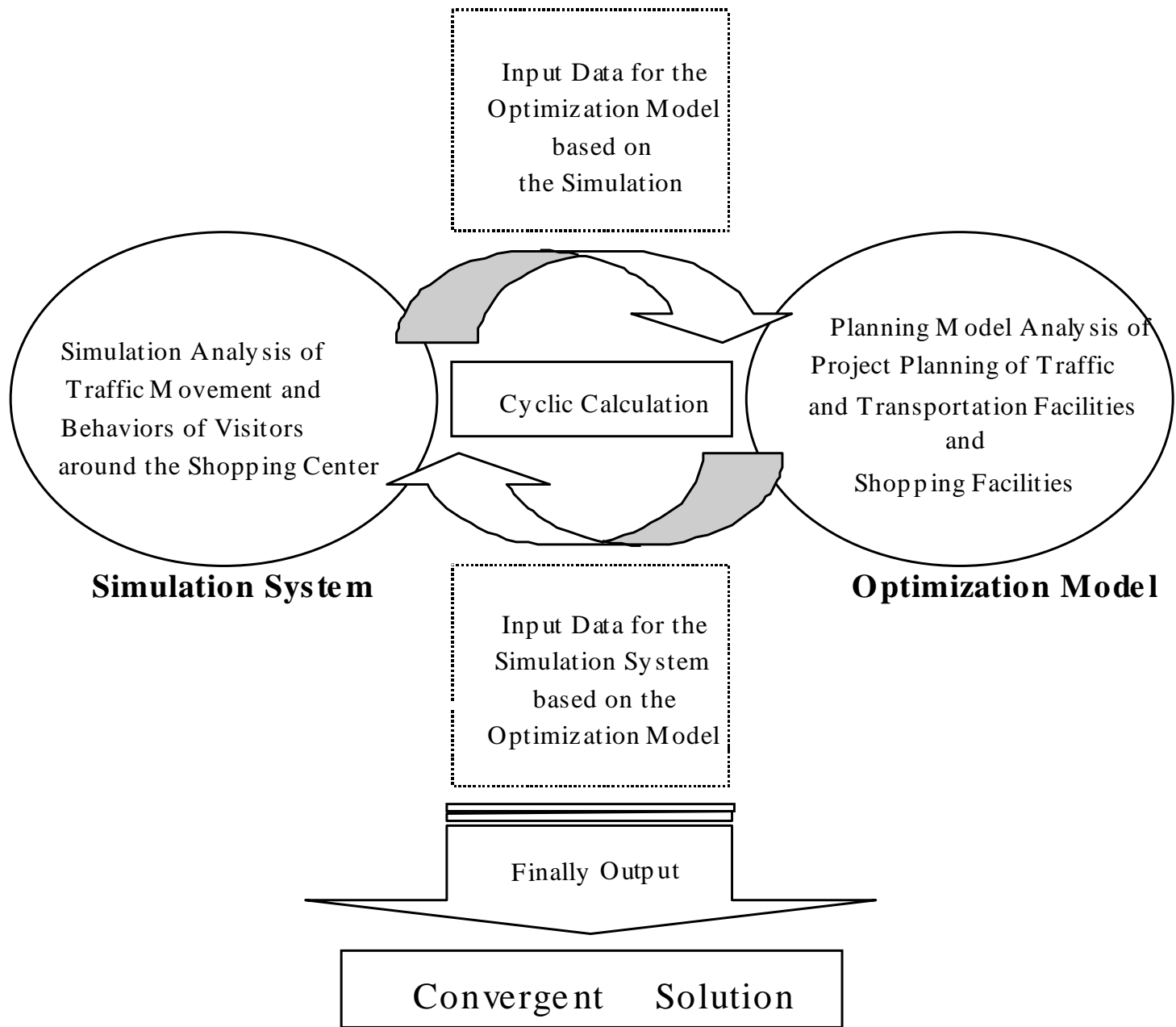
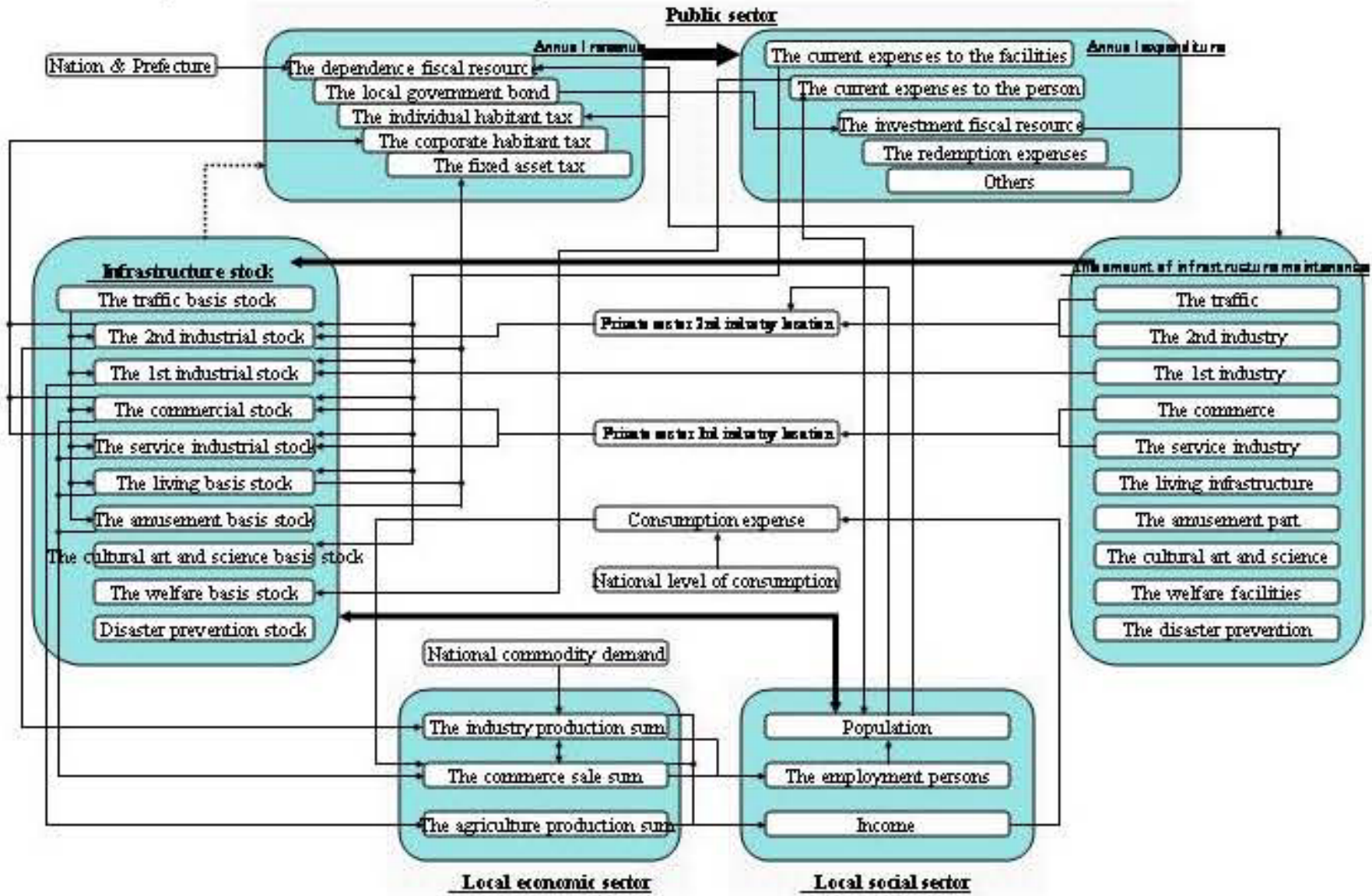
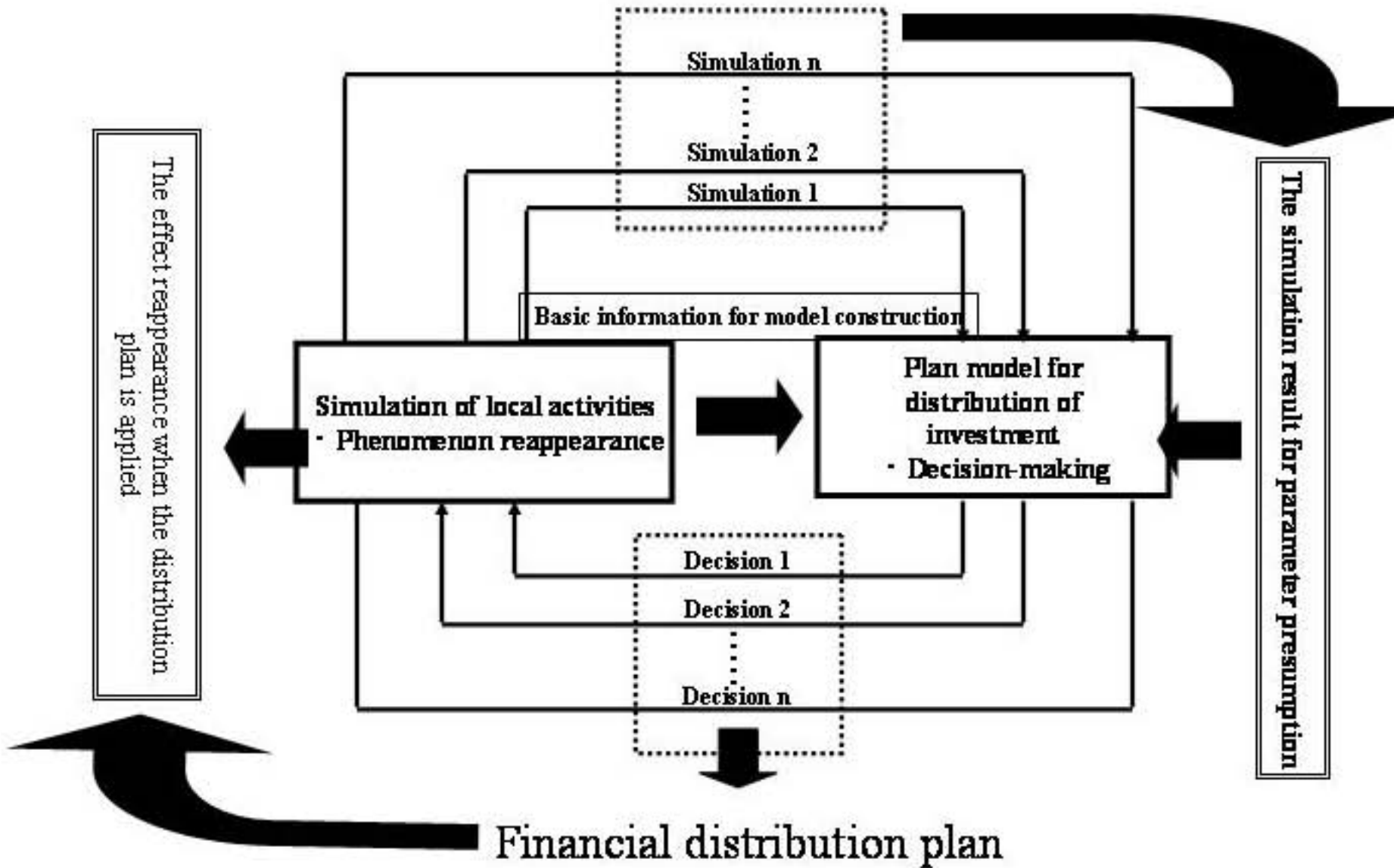


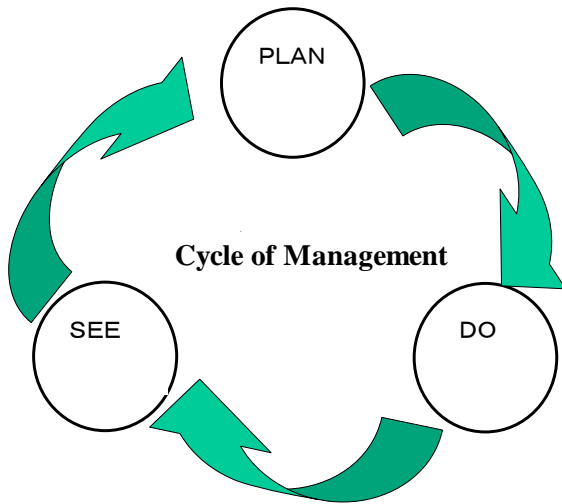
Figure: Structure of Hybrid Planning Model



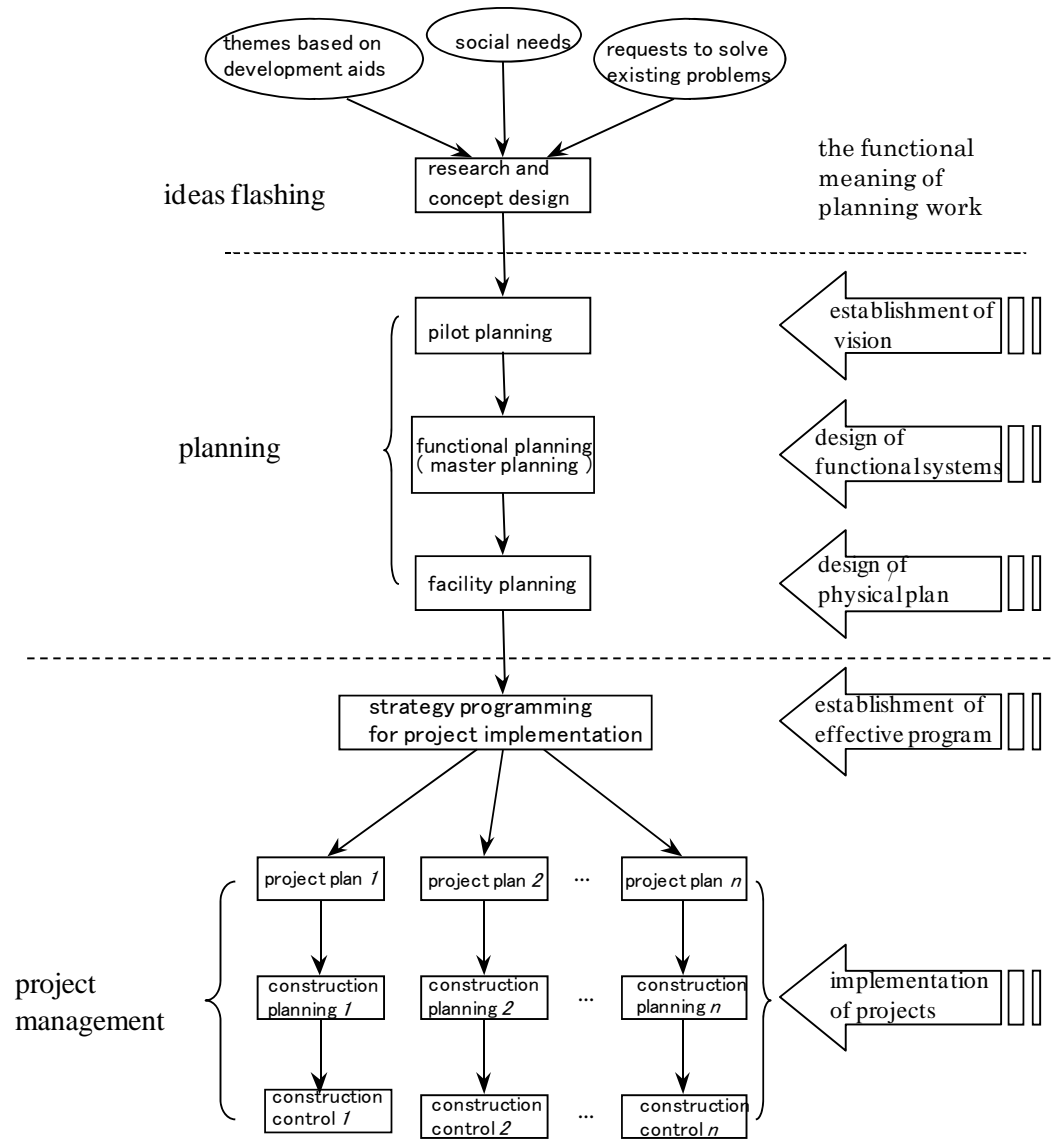
The Structure of Functional Relationship for Regional and Urban Activities

Hybrid model





stage-wise planning and management process



stage-wise planning and management process for urban and regional development projects

Theory System

