

Research Article

Model for Participatory Planning Digital Transformation of Local Economic Development

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Abstract.

Planning process digitization is widely used in Indonesia's national and regional development. However, the local economic development, characterized by participation and empowerment, has not matched the implementations. This study argues that the participatory planning process for local economic development should be standardized and digitized. The argument is based on the results of the literature regarding development stages, procedures, the characteristics and cycles of information system designs, and various digitizing participatory planning practices in various countries. In-depth interviews were conducted with local economic development planners/facilitators and other parties involved in planning, such as information system analysts and designers. The results showed that the stages and instruments in the participatory local economic planning process could be standardized and digitized. However, digital systems cannot replace all stages due to the varied contexts of action plans' problems.

Keywords: local economic development, participatory planning, digitization of the planning process

1. Introduction

Digital transformation refers to various process of utilizing technology, such as virtualization, mobile and cloud computing and the integration of all existing systems in an organization (1). Both private and public sectors have tapped into the benefits of digital transformation. Globally, there are extensive studies on improving private companies' effectiveness and efficiency through information systems. Information systems support various activities and influence company performance (2, 3, 4, 5, 6). Various digital-based strategic ecosystem developments, such as Micro, Small and Medium Enterprises (MSME), Farmers and Fishermen Go Online, the 1000 Digital Start-Up Movement, and Ignite the Nation, have emerged in Indonesia. For instance, digital annual reports

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Ministry of Communication and Information, Republic of Indonesia stated that there were 39,233 MSME involved in online-based sales in 2019.

The Indonesian government has implemented strategies to adopt digital transformation policies. In the 95th Presidential regulation 2018, there were action plans on adopting Electronic-Based Government Systems (SPBE). Furthermore, an E-government portal was developed to realize clean, effective, transparent, and accountable governance and quality and reliable public services. The development of an e-government portal eases the presentation and management of electronic data. Also, there will be effectiveness in analyzing electronic data offerings (7). Several other benefits will be attained through government-oriented digital transformation, including establishing an information network, interactive business relationships, easy communication mechanisms, effective management systems and a transparent work process.

Digital transformation needs to be applied to planning, implementing, monitoring, and evaluating regional development management projects. This application will ensure easier preparation of documents, digitalization and effective information systems, ensuring quality planning.

All provincial and district (local) governments in Indonesia have used information systems to prepare their regional development planning documents. Ministry of Home Affairs have built local government information systems at the national level. All local governments are encouraged to use these systems to assist their regional development planning. However, the quality of data and information systems vary across local governments. It stated that an information system's limitation still hinders regional development planning, monitoring, evaluation, and reporting processes in Indonesia (8, 9).

A viable information system that can assist the local economic development (LED) planning is more difficult to find at lower levels such as villages. This is because the processes of most local entities have compromised quality, which affects implementation. Also, LED often fails due to low community participation, weak facilitation processes, or the program's incompatibility with the poor's needs (10). It was stated that the obstacles to empowering farming communities in Manokwari Regency include low participation and lack of program interest from top decision-makers (11). The main challenges in local planning processes are inadequate government officials and planning databases and weak village institutions (12). Furthermore, facilitators' capacity and availability as well as leadership affect the success of community empowerment, participatory planning

and quality social capital (13, 14, 15). Therefore, the absence of an information system, highly influences LED planning.

LED planning should be through the participatory approach and in accordance with the characteristics that empower local resources. This approach needs to be combined with planning that involves determining current conditions and expected conditions, formulating strategies, and establishing performance indicators (16). Some studies showed how a participatory approach influences planning and local community empowerment (17, 18, 10). In the long run, models and tools are needed to help planners' compile LED projects in a participatory, easy, and precise manner. Therefore, it is appropriate for these planners to utilize the information system.

The use of information and communication systems (ICTs) in participatory planning is diverse enough to attract and engage citizens, disseminate information more widely, gather local knowledge and facilitate consensus building in many countries (18, 19, 20, 21, 22, 23, 24). Participatory planning ensures that community-based development is conducted in various sectors, such as environmental, waste and natural resource management, settlement mapping, heating sectors and river catchment areas (25, 22, 26, 20, 27, 28). Several participatory tools are applied in strategic planning processes, including communication, knowledge sharing, social learning, decreasing differences in power, integration between sectors, supporting agreements, training workshops and collaborative learning (29).

2. Methods

Data was collected through literature studies on how to formulate a digital transformation model for participatory LED planning. Content analysis was conducted in two categories, including the literature related to the stages and forms of participatory development planning. The second category analyzed the information system design to formulate sub-sections and flows. In-depth interviews were conducted with experienced actors such as facilitators, designers, and analysts to understand the process better.

An information system analyst conducted model confirmation to ensure it can run, especially in a digital environment. This was in accordance with the general stages of system design, which include planning, system analysis, and implementation (30). Furthermore, the system model had to be in accordance with user needs to assist in the participatory process (31). This involved reviewing and understanding needs from

stakeholders' perspectives, testing software options, developing and applications on users in relevant locations, and making necessary revisions. Confirmation was limited to the system planning stage or assessing the feasibility of several models that could be digitized.

3. Result and Discussions

3.1. Participatory Planning Stages

Literature studies suggested several similar models used as a reference for stages, procedures, or standardized participatory development planning flows. It was proposed developing participatory action planning with 5 major activities, including establishing mission and values, situational analysis, strategy and vision determination, strategic plan development and implementation and assessment (32). This is in line with another model which proposed 4 core planning stages, including determining current and expected conditions, formulating strategies, and establishing performance indicators to ensure effectiveness. Since a participatory planning system should fully reflect the community's concrete needs in the formulation process, it is necessary to add a participatory approach, including stakeholders analysis to determine who is involved in the entire planning process and participation analysis matrix [11].

The participatory planning steps and methods proposed by another researchers were also used to strengthen the reference and determine the stages and planning flows in the model [28]. There were 4 proposed steps in the participatory planning model, including understanding current conditions, determining future needs, simulating and evaluating alternative strategies, and recommending development efforts. In this model, the community participation was evident in all stages. For instance, locals are the main source of data and are involved in determining the future conditions. Furthermore, the community is the verifier and validator of alternative strategies during evaluation. It strengthens the human resource capacity to support project development. Figure 1 shows the flow of these steps in a participatory manner.

The other model showed participatory planning steps which are compiled from the bottom up and not initiated by local governments. The model proposed 2 steps, including conducting investigations to determine or identify local community problems through involvement and formulating strategies based on existing consistency. Several substeps are involved in this process, including analyzing information, data and life

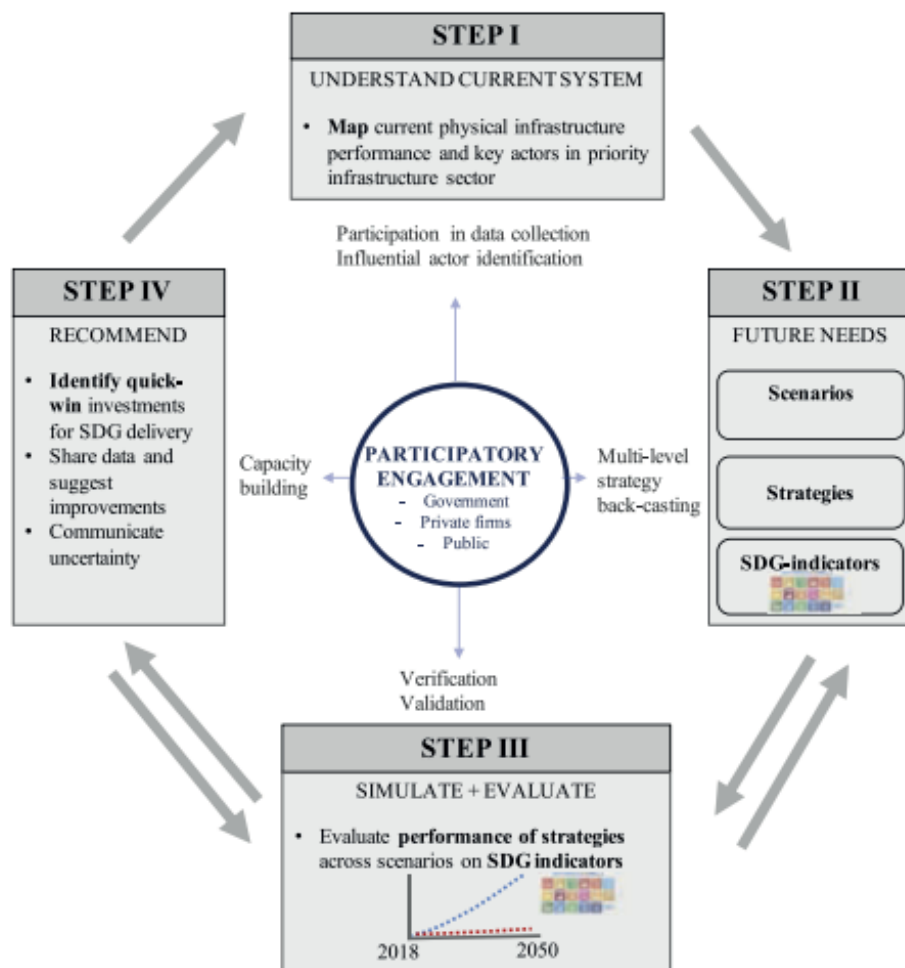


Figure 1: Participatory Planning Methodology in Infrastructure Development (25).

experiences of the community members, identifying supporting resources, determining the objectives and expected conditions, defining the activities to achieve the goal and designing a budget to ensure implementation. In this model, participation involves activities that primarily focus on the community, such as determining current conditions through member experiences, understanding the problems, and supporting locals' resources.

3.2. Standardization of Stages and Digital Transformation Modeling in Participatory Planning

The good leaders are needed in rural areas because the quality of human resources is minimal (12, 13, 14, 15). Facilitators and planners are the mobilizers and motivators for community participation in LED planning, implementation, monitoring, and evaluation processes (33). Therefore, a facilitator needs competence in the initiation, motivation,

community mobilization, and planning skills. Local leaders lack these skills can collaborate with facilitators to ensure LED success.

The similarity in the stages of participatory development is applied in the standardization of the process methodology. Generally, there are five stages in the participatory LED planning process:

- Identification of the prospective key stakeholders and a list of current conditions (problems (W), potential (S), threats (T), opportunities (O)). The facilitator collaborates with local leaders to conduct initial condition identification.
- Identification of key stakeholders that will be directly involved in the planning process and the LED strategy. Facilitators gather public opinions on needs, the urgency of current situations, and prospective stakeholders' influence through surveys with local community respondents. Through the survey, key stakeholders with a strong level of interest and influence in LED are identified. This helps obtain a topic/strategy and develop an urgency plan for the current conditions (SWOT). The use of surveys in community involvement is evident in some studies (20, 21, 24, 31).
- Identification of Priority Objectives that determines the priority objectives for solving LED problems through surveys, focused group discussions (FGD) of key stakeholders. Survey/FGD are conducted to produce information on the positive and negative impacts, strengths, and weaknesses from each opportunity or threat. This information is used to determine the strategy and priority objectives. The objectives are strategic to reduce the impact of killer weakness that hinders development. They are also adjusted to fit into a small and affordable budget that accommodates seizing opportunities. It is critical to note that local communities have sufficient strength to cover their weaknesses optimally.
- Identification of the objective indicators and targets. This is an agreement between the local community and stakeholders to achieve the indicators and targets jointly committedly. The facilitator ensures that the indicators set are specific, measurable, achievable, relevant, and time-bound. These indicators also become tools for monitoring and evaluating LED implementation in the future.
- Strategy determination is the identification of relevant activities in achieving each predetermined objective. Key stakeholders conduct the determination to ensure a common consensus. To ensure that activities produce the expected outputs, the performance indicators and targets need also be determined. Furthermore, it is necessary to make a detailed plan with a schedule, resources needed and people in charge.

The planning results need to be disseminated to ensure that the entire community is involved.

3.3. The Model of Digital Transformation at Participatory Planning Stages

Information and communication systems in participatory planning are used to attract and engage a more diverse population, disseminate information broadly, gather local knowledge/data, and facilitate consensus-building (18), 19, 20, 21, 22, 23). Therefore, this system should be able to function along with the model developed. However, confirmation through in-depth interviews with LED actors and digital information systems analysts and designers yielded some concerns. Resources in rural areas have limitations in the application of digital-based information systems. This information showed that the literate community is limited to only the young people (millennials). Economic equality causes limited ownership of digital communication and information facilities. Furthermore, limited digital communication and information infrastructure, such as telecommunication networks, have not fully covered all rural areas. Inadequate reading skills, knowledge and language differences cause discrepancies in the perception regarding the information received. Therefore, community involvement can only be conducted in a few stages of the participatory planning process. These stages include collecting quantitative data with simple questions, disseminating information, and documenting the planning process's results. Quantitative data collection can be executed through online surveys to identify the key stakeholders involved in the planning process and the LED focus/topic. Information dissemination and participation motivation are conducted at the beginning of the planning or online survey. At the final stage, information systems' role is needed as a medium to distribute planning documents to the public. Therefore, the implementation effectiveness of the information and communication systems in the above planning sub-process may still be inadequate.

Digital transformation can also be accomplished by documenting all planning processes/stages. An application/software can help facilitators conduct the process step by step, document each stage's results, conduct online broad surveys, process results directly, and determine key stakeholders and conditions/topics prioritization. The digital transformation should execute works through the system to increase effectiveness and efficiency.

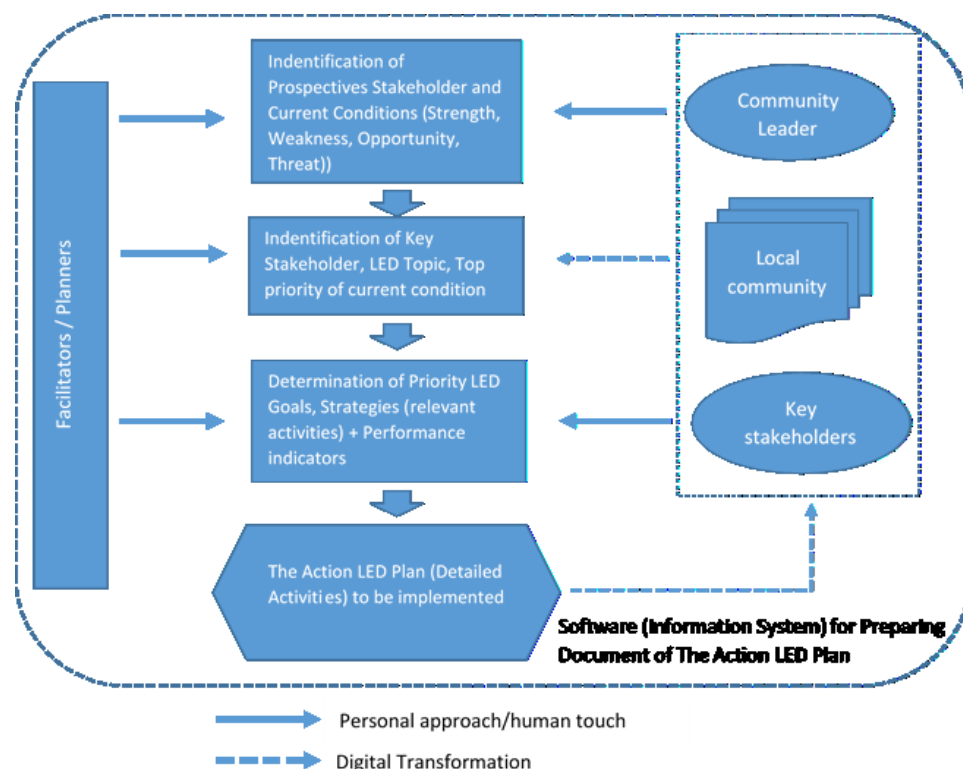


Figure 2: Digital Transformation Model for Participatory LED Planning.

It should be noted that not all stages can be transformed into digital processes. The collection of qualitative data through focused group discussions with planners and key stakeholders should be physical. Also, the varied and complex topics or problems in the community make it impossible to standardize them. Participatory planning requires a human touch to approach, motivate, and mobilize the community (34). The overall participatory planning model proposed in this research is shown in Figure 2.

4. Conclutions

The need for information systems in participatory LED planning processes has increased tremendously. An appropriate information system helps LED facilitators to complete appropriate planning stages effectively. The process should also involve the community to ensure a mutual consensus development.

Research showed that the stages and instruments in the participatory local economic development could be standardized and digitized, especially in the methodology. However, not all stages can be replaced by digital systems. This is due to the varied contexts of problems in the local areas where action plans are conducted. A key question that is often raised is whether inflation control efforts in a country are reliable enough

to drive growth. If not done carefully, the policy to suppress prices in such a way will actually be counterproductive. Conversely, allowing inflation to run wild will be disastrous for the economy. As a macroeconomic indicator that is most easily read by the general public, inflation indicators are often a measure of the success of a development program. Almost every day the issues of price increases are used as raw material to be used as a discussion of the success of development. Some key commodities such as basic necessities, foreign exchange rates are of concern not only by observers and economists, but also by ordinary people. As soon as the price of basic needs rises, the analyst about the domino effect caused will be released immediately.

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