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Digital technology and smart village development in Banyuwangi, Indonesia: an exploratory study

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Abstract. Advances in digital technology have increasingly influenced many aspects of our everyday life at different geographical levels. In this paper, we focus on rural areas as key geographical loci of development by investigating the notion of the smart village (SV). Our main objective has been to improve the understanding of the adoption of the SV concept in different geographical contexts by zooming in on the case of Banyuwangi, Indonesia. In doing so, this paper investigates the adoption of SV in Banyuwangi by means of the Smart Kampung programme and reflects Banyuwangi's situated experience against the broader SV discussions. Drawing on empirical material obtained through a series of semi-structured interviews conducted between 2020 and 2021, our analysis reveals that Banyuwangi has contextually translated SV into three main aspects of development, namely government service, economy and tourism. More broadly, our study exhibits that geographical situatedness of SV does matter, in the sense that some aspects of Banyuwangi's experimentation with SV align with the trend in Global South countries, while some echo the trend in Global North countries.

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1. Introduction

The discussion concerning how digital technology has interrelated with and affected the social world has gained rising popularity over the last decade (Katz et al., 2014). Indeed, such technology has permeated many (if not most) aspects of our everyday life, changing the way people communicate, interact and carry out their activities (Roztocki et al., 2019). This omnipresence of digital technology and the advancement of various forms of information and communication devices have presented varying terms and concepts, including the most popular one: the “smart city” (SC). Not only has it emerged as one of the most discussed topics among urban scholars (de Jong et al., 2015; Noori et al., 2021), SC has also come to the fore as an increasingly appealing urban development strategy, with technocrats around the world vying to adopt this label into the policy arena (Angelidou, 2014; Anthopoulos, 2019). Although multiple perspectives and definitions of SC exist, this label can be briefly referred to as the injection of digital technology and information and communication infrastructure into urban systems (Albino et al., 2015; Goodspeed, 2015).

The bulk of academic discussions and practices of SC, however, tend to view the utilisation of digital technology from an urban perspective, or what Lipton (1977) dubbed “urban bias”. Referring to Lipton’s long-standing critique, particularly in the context of development planning in the Global South, rural areas are oftentimes placed on the margin of mainstream development discourses, arguably leading to the underdevelopment of such areas. The global population data published by the United Nations Department of Economic and Social Affairs (UNDESA, 2019), make clear that, in Global South countries, most of the population still live in rural areas (i.e., 60.8% in the case of lower-middle-income countries and 69.1% in the case of low-income countries) and that rural areas thus need further attention equal to that devoted to urban areas. Meanwhile, there has been also a similar concern across countries in the Global North to revive rural areas given the advent of the digital era. For instance, in 2017, the European Union (EU) introduced EU Action for Smart

Villages that is aimed at villages that are in decline due to remoteness and depopulation (Komorowski & Stanny, 2020).

This article attempts to switch the mainstream discussion of SC by shifting the attention to the “smart village” (SV), in which rural areas are centrally placed in the digital technology-related discussion. The SV concept is expected to provide an alternative avenue for rural areas to increase rural sustainability, as well as to contribute to socio-economic progress of the country (Adamowicz & Zwolińska-Ligaj, 2020). However, despite various SV projects having been implemented across the globe, there is still little academic discussion of this particular topic (Gerli, Navio-Marco & Whalley, 2022). Against this background, the main objective of this paper is to improve our understanding of the adoption of the SV concept in different geographical contexts. Our main proposition is that despite an increasing trend of policy mobility in a globalised and connected world, there is no such thing as a “one-size-fits-all” urban/rural model. Given this, to empirically nuance the SV conceptualisation, in this study we zoom in on Banyuwangi, a regency located in East Java (*Jawa Timur*) Province, Indonesia.

The terms “smart” and, particularly, “smart city” have recently entered Indonesia’s national policy circles. In particular, the government of Indonesia, under the Ministry of Communication and Informatics (KOMINFO), launched a national SC programme so-called “100 Smart Cities Movement” in 2017. As can be clearly identified from the programme’s name, it involves 100 cities (*kota*) and regencies (*kabupaten*). It is important to note that Indonesia’s local level is divided into two categories: (1) the *kota*, which is an urbanised administrative area and (2) the *kabupaten*, which refers to a less urbanised administrative area, mostly still dominated by rural characteristics. Banyuwangi Regency is part of this programme and often appears as an anecdotal example of SC/SV adoption in Indonesia, as this locality is widely considered to be relatively successful in utilising and developing digital systems to support its local development. Owing to its relatively smooth digital transition, Banyuwangi has gradually changed its image from a witchcraft (*santet*) region to a digital region. Despite the 100 Smart Cities Movement being a national government initiative, the success

(or failure) and the trajectory of this programme at the local level has been largely determined by local governments. Thus, instead of being too directive, the main intention of this national programme has been to provide a more holistic understanding that SC is not necessarily about the presence of digital technology but, more importantly, about changing local government's mindset and business process.

This paper does not intend to broadly capture the application of digital technology in Banyuwangi, but rather to explore how the SV concept has been adopted in this locality through the "Smart Kampung" programme. Smart Kampung is the flagship programme in Banyuwangi's digitisation process that was launched in 2016. To this end, this paper addresses two questions in particular: How has the SV concept been adopted in Banyuwangi by means of the Smart Kampung programme? And how this situated experience can be reflected in the broader SV discussions?

2. Definition and aspects of the smart village

As with SC, there is no single definition of the SV concept (see also Gerli et al., 2022). Viswanadham & Vedula (2010), for instance, interpret SV as a set of integrated services for rural communities and business groups to address the demographic deficit and to achieve inclusive growth goals in a more effective and efficient manner. Meanwhile, others have defined SV as an avenue to develop a self-dependent and self-sufficient village. In this respect, villages are expected to be able to provide better services for their people (as a place to live and work) by also, simultaneously, maintaining the quality of their natural assets (Mohanty et al., 2020). In addition to this, despite receiving minor attention, SV is also expected to help improve the disaster resilience of rural areas (Freeman & Hancock, 2017). Taken together, SC is a rural development strategy that has the objective of supporting a sustainable development agenda (Adamowicz & Zwolińska-Ligaj, 2020).

Within the bulk of discussions of SV, there is a clear tendency that SV is directed towards reviving rural areas. The injection of digital technology into the rural systems is expected to overcome multiple problems caused by "remoteness", such as low quality

of public services, lack of quality jobs, low quality of logistics to support business entities, etc. (de Viron & Mudri, 2019; Visvizi & Lytras, 2018). In this sense, digital technology is an avenue to overcome the physical boundary or distance problem usually attached to rural areas. By improving the quality of infrastructures and living condition in villages, rural areas can gradually emerge as centres of social and economic activities. The revival of rural areas helps overcome declining rural economies in the case of Global North countries and to mitigate the multiple problems caused by the rapid and excessive urbanisation experienced by many Global South countries.

It is important to note, nonetheless, that while SV is expected to contribute to creating more balanced rural-urban linkages, its current practices in the Global South have largely concentrated on improving the most basics conditions (hard and soft infrastructures) in villages. Such a mode of action can be seen in, for instance, a number of SV projects supported by various international organisations, including, but not limited to, the Food and Agriculture Organisation (FAO), the International Telecommunication Union (ITU) and the United Nations Development Programme (UNDP). The implementation of these projects has focused on issues related to energy efficiency, poverty and hunger (Kamal et al., 2018). Another notable example of an international initiative would be the IEEE Smart Village (ISV) project that has given particular attention to equitable access to electrification through renewable energy use, as well as to education and sustainable entrepreneurship (Anderson et al., 2017; Kamal et al., 2018; Mackenzie, 2019).

One common feature of these international projects is their concern for the involvement of local communities and the use of relevant forms of technology (digital and appropriate technology) to support rural development. The SV concept also emphasises the importance of considering endogenous potentials, such as human and social capitals, and of building partnerships (de Viron & Mudri, 2019; Visvizi & Lytras, 2018; Viswanadham & Vedula, 2010).

All in all, there is no single model for developing SV. The concept of SV seems in its basic essence to encompass various aspects of rural development

that are linked to the utilisation of various forms of digital technology. Accordingly, inspired by Giffinger et al.'s (2007) interpretation of SC, various scholars have focused on probing the different development aspects constituting SV to represent the comprehensiveness of SV. Table 1 presents different aspects of SV expressed by various scholars or institutions. In short, which aspects should be prioritised and how these aspects should be operationalised depend on the adoption process in different countries and regions. In this paper, we are particularly interested to explore and understand the adoption of these aspects in the context of Banyuwangi. Before discussing the adoption of SV through the lens of such development aspects, we first describe a brief overview of Banyuwangi and the methodology used in our research.

3. Banyuwangi: a brief overview

Banyuwangi Regency, occupying an area of 5,782.50 km², is the largest regency in East Java Province (Local Government of Banyuwangi, 2019). The regency is situated in the easternmost part of the province that is adjacent to Bali, one of the most famous tourist destinations in the world. Before its economic revival that has to a certain degree been spearheaded by digital-led development coupled with its tourism vision, Banyuwangi used to be a relatively underdeveloped area and was known as a centre of occultism and mysticism.

This digital or SV development in Banyuwangi Regency has not been an overnight process. The initiation of SV can be traced back to the early 2010s, when the local government began to gradually instal Wi-fi points in 30 village (*desa*)

Table 1. Development aspects of SV

No.	Scholars / Institutions	Aspects
1.	Viswanadham & Vedula (2010)	Resources, institutions, service delivery technologies and mechanisms, and service chains
2.	Somwanshi et al. (2016)	Smart governance, smart mobility, smart economy, smart living, smart people and smart environment
3.	Sai (2016)	Smart infrastructure, smart technology and innovation, smart institutions and smart service delivery
4.	Ella & Andari (2018)	Resources, technology, service chains, institution and sustainability
5.	National Institute of Public Administration Indonesia (LAN) (LAN, 2018)	Smart government, smart society, smart economy and smart environment
6.	Syaodih (2018)	Smart institution, smart resources, smart service and smart technology.
7.	The Bled Declaration (European Commission, 2018)	Precision farming, digital platforms, shared economy, circular economy reducing waste and saving resources, biobased economy, renewable energy, rural tourism, and social innovation in rural services and entrepreneurship
8.	EU Network for Rural Development (ENRD, 2018)	Society, digital services, technical platform and infrastructure
9.	Kamal et al. (2018)	Agriculture, health and telemedicine, market management, education, law, micro financial skill assessment programme, outsourcing programme, disaster management and electrification.
10.	Atkočiuniene & Vaznoniene (2019)	Economic recourses, social resources, environmental resources and cultural resources
11.	Herdiana (2019)	Smart government, smart community and smart environment

Source: own work

offices and all district (*kecamatan*) offices (Head of Communication, Informatics, and Statistics Department of Banyuwangi, interview on 26 August 2020). Furthermore, in 2013, the local government started to expand Internet connectivity across many more villages. By 2017, as many as 1,400 public Wi-Fi points had been installed throughout Banyuwangi and, by 2019, all or 189 villages in Banyuwangi were connected to a fibre optic network (Local Government of Banyuwangi, 2017, 2021). Indeed, the provision of information and communication technology (ICT) infrastructure in all villages was put among the top priorities of Banyuwangi's development policy.

It was, nevertheless, the launching of the so-called "Smart Kampung" programme in 2016 that paved the way for SV development in Banyuwangi. In 2016, 41 villages were selected as the first pilot project of Smart Kampung programme (Local Government of Banyuwangi, 2016). Now all villages in Banyuwangi are already part of this programme. Smart Kampung was intended to provide guidance for village development by utilising various forms of digital technology and systems, both those developed by the local government and those already available on the market (such as e-commerce platforms, social media platforms, etc.). While this programme has a number of directions, its main aim has been to improve the overall public services delivery to Banyuwangi's citizens (Anas, 2020). It was also expected that the village officers, together with the village residents, could creatively adopt this programme by considering the very potentials and uniqueness of each village.

It should be noted that before the launching of KOMINFO's 100 Smart Cities Movement in 2017, several localities (*kota* and *kabupaten*), including Banyuwangi, had already initiated their own SC agenda. Some of these earliest "local" SC initiatives, including in Banyuwangi, were already in the right direction, but many other localities viewed SC solely from a narrow technical perspective: they proclaimed themselves SCs although these claims were only based on the presence of CCTV and Wi-Fi. It was particularly this issue that became one of the reasons behind the promulgation of the national SC initiative (Director General of Informatics Application, Ministry of Communication and Informatics, interview on 22 November 2021). In

this respect, KOMINFO envisioned SC based on six main pillars (i.e., smart government, smart branding, smart economy, smart living, smart society and smart environment) and used these as part of the selection process (Sub-coordinator for the Preparation of the Smart City Master Plan, Ministry of Communication and Informatics, interview on 22 November 2021). Local governments were, however, given room to develop their own priorities for the SC agenda. Banyuwangi, for instance, has steered the SC agenda to centre it around the development of its villages and probably became the first locality in the country that did so.

There is no formal smart city ranking in Indonesia, but KOMINFO and other parties (including Bandung Institute of Technology) have routinely granted specific dedicated SC awards for localities, including for those that are not part of the 100 Smart Cities Movement. Given its unique approach to SC (particularly SV development through Smart Kampung) and its overall performance, Banyuwangi has regularly received national SC awards, such as the Indonesia Smart Nation Award (ISNA) (Local Government of Banyuwangi, 2021b). Another important achievement would be that, together with Jakarta (the capital city of Indonesia) and Makassar (the capital city of South Sulawesi Province), Banyuwangi represents Indonesian localities in the "Association of Southeast Asia Nations (ASEAN) Smart Cities Network" that was established at the 32nd ASEAN Summit on 28 April 2018.

4. Methodology

This paper uses a single case study design, specifying the notion of SV into a more nuanced geographical setting. By using such a design it is difficult to formulate a generalisation from this research (Yin, 2014). Our analysis, however, can still provide some insights into other SV developments in similar contexts.

In parallel to this case study design, and given the nature of research on SV, this study employed an exploratory research strategy. This type of research tends to focus on a specific phenomenon for which few or no previous studies have been done (Brown, 2006; Swedberg, 2020). Therefore, the main intention is not to provide conclusive results, but to

help us open the black box of such a phenomenon (Swedberg, 2020).

This study mainly relied on primary data that was retrieved from semi-structured interviews taken from August to December 2020. To gain a better understanding of the particular process and context-specific adoption of SV in Banyuwangi, the main questions asked during the interviews centred around the information related to the direction of, main priorities of, and efforts taken by Banyuwangi's local government in SV implementation during 2010–2020. The selection of our respondents adopted a purposive sampling. The targeted respondents were obtained through secondary sources (mainly academic publications and media articles) and primary sources (notably from an acquaintance of one of the authors who has previous experience in conducting studies in Banyuwangi). The respondents were identified as key informants or relevant actors involved in – or having sufficient knowledge of – the process of SV development in Banyuwangi. To this end, 12 informants in

Banyuwangi were interviewed. Meanwhile, to gain a better understanding of the process and policy of SC at the national level, we also interviewed five key informants at the national level between 2020 and 2021. In total, 17 informants were thus interviewed (Table 2). Due to the Covid-19 pandemic situation, all interviews were carried through an online platform. Each interview session lasted between one and two hours and was conducted in Indonesian language (*Bahasa Indonesia*).

We used a hybrid (deductive–inductive) process of thematic analysis for analysing the interview data. The deductive process sprang from a generic conceptual background of SV, particularly the development aspects that constitute SV as outlined in the literature review section. This conceptual background was then combined with the inductive process that was carried out to identify the specific development aspects of SV in Banyuwangi.

Finally, a triangulation of data was performed through a cross-comparison of the interviews data itself. Secondary data (mainly official documents,

Table 1. List of interviewees

No.	Organisation	Position	Date of Interview
1	Tamansari Village	Head of Village	5 August 2020
2	National Development Planning Agency	Director of Urban, Housing, and Settlement	25 August 2020
3	Department of Communication, Informatics, and Statistics	Head of Department	26 August 2020
4	Department of Culture and Tourism	Head of Department	7 September 2020
5	Local Development Planning Agency	Head of Economic Division	7 September 2020
6	Department of Communication, Informatics, and Statistics	Hired Individual Expert	20 October 2020
7	Department of Culture and Tourism	Hired Individual Expert	20 October 2020
8	Ijen Tourism Cluster	Chairperson	4 November 2020
9	Banyuwangi's Creative House	Chairperson	10 November 2020
10	Banyuwangi's Creative House	Staff	10 November 2020
11	Ministry of Home Affairs	Acting Head of Research and Development Agency	19 November 2020
12	Kemiren Village	Chairperson of Tourism Group	27 November 2020
13	Local Financial and Asset Agency	Head of Department	4 December 2020
14	Osing Pay (PT Veritra Sentosa Internasional)	Chief Operating Officer	4 December 2020
15	Presidential Staff Office	Former Deputy	17 November 2021
16	Ministry of Communication and Informatics	Director General of Informatics Application	22 November 2021
17	Ministry of Communication and Informatics	Sub-coordinator for the Preparation of the Smart City Master Plan	22 November 2021

Source: own work

statistical reports and relevant studies) were collected to confirm and enrich the findings from our primary data.

5. Results: aspects of Banyuwangi's smart village development

In the following section we primarily focus on disclosing what we argue to be the three main aspects of development underlying Banyuwangi's SV development during the last five years.

5.1. Public services delivery

As noted earlier, the earliest focus of Smart Kampung programme was on improving the quality of public services delivery. In doing so, various attempts have been made. The most important one is that many government services that used to be provided at the district or regency level have been transferred to the village level. This was done to bring government services closer to Banyuwangi's citizens. As a result, the village office has been directed to function as a community centre that provides various services related to administrative, education, health, social, cultural and economic matters. Meanwhile, following the vision of Banyuwangi's regent to embrace inclusive economic development, the village office is also responsible for collecting and managing a database of poor residents. So, in relation to the matters mentioned earlier, the village office is also responsible for assisting poor village residents in accessing free medical services and education scholarships.

Banyuwangi's smart village development in the context of public services delivery does not solely focus on digitalisation of these services, but has also been accompanied by the transformation of the business process of government offices at all levels, thereby improving overall government service management. This has sped up the processing of certain documents (e.g., poor statement document, population-related documents, business permits, etc.). In addition to this, as a part of e-government implementation and the use of ICT in public services, E-Village Budgeting (EVB) and E-Village Monitoring (EVM) have been introduced. The main intention underlying the implementation of EVB and EVM is to improve budget transparency

and online monitoring of development in villages. These applications were expected to make rural development monitoring easier and more accessible. For instance, the staff from the district office (*kantor kecamatan*) can directly input the progress of village road construction into the EVM system. As such, the budget used and the real-time development progress of this road construction can be monitored through the system, based on the coordinates of the project location (Anas, 2020). To help with the operation of the IT-based system, two IT operators are stationed in each village office (Village Head of Taman Sari, interview on 15 August 2020).

5.2. Rural economic development

As noted by some, in terms of economy, SV aims to support rural development based on rural endogenous strengths and assets that in turn are able to create economic opportunities in rural areas and to improve the quality of life of its residents (Zavratnik, Kos & Stojmenova Duh, 2018). In the context of Banyuwangi, the rural endogenous economic potentials have been promoted with the help of various forms of digital technology. The most common example of digital-related rural economic development is the use of the Internet to sell local village products through both electronic commerce platforms such as Banyuwangi-Mall, Tokopedia, and Shopee, and social media platforms such as Facebook and Instagram. In some tourist areas, the village residents have also promoted some tourist destination sites located in their villages through different digital channels – particularly social media platforms, websites and online maps.

(The simplest thing is that we (village residents) operate google form to record tourist visits who come to (our) village. Banyuwangi Tourism application has been applied in Kemiren (Village). Now we start to sell our products in Banyuwangi-Mall.com. Our signature product labelled Kopi Kemiren Jaran Goyang is already available in the e-commerce.

(Head of Tourism Management Group (Kelompok Sadar Wisata or Pokdarwis) of Kemiren Village, interview on 27 November 2020)

In relation to the local government initiative, Banyuwangi Mall is in fact a local e-commerce platform developed by Banyuwangi's local government. Apart from this initiative, since 2018, Banyuwangi's local government has, in cooperation with East Java Bank (Bank Jatim) and a national private company (PT Veritra Sentosa Internasional), introduced a smart financial technology system. This system is an electronic-based non-cash-payment application known as "Osing Pay". This smart application is equipped with a standard Bank Indonesia QR Code (Quick Response Indonesia Standard QRIS).

By 2020, as many as 198 merchants had already used the Osing Pay application. This application has been installed in some major public places such as Grand Watu Dodol (GWD) Beach, Blambangan Market, Blambangan Park, and Sri Tanjung. Moreover, this application has been also used in a number of Banyuwangi's festivals, including the most famous one: B-Fest. As noted by a staff of Banyuwangi's Local Financial and Asset Agency (BPKAD) that:

After (some of the) micro-small-medium enterprises (MSMEs) have become merchants of Osing Pay, we [BPKAD] will definitely involve (them) when there is an event (or) festival. [This is] because we really hope that all transactions in (for instance) B-Fest (Banyuwangi Festival) use non-cash applications, one of which is Osing Pay.

(BPKAD Banyuwangi, interview on 4 December 2020)

Aside from being a payment instrument used by business entities, this application has also been used in the government sector, notably to pay local taxes and regional levies (parking fees, recreation and sports levies). According to BPKAD, the use of smart financial technology has facilitated more diverse means of payment and more transparent payment transactions (interview on 4 December 2020).

The degree of technology adoption of Banyuwangi's residents, however, becomes the biggest challenge in implementing such non-cash payment. Banyuwangi's residents are more used to using physical money than

making digital transactions. Therefore, continuous education is needed to further introduce this non-cash payment instrument to the residents (BPKAD and Osing Pay Technology Vendor, interview on 4 December 2020).

5.3. Rural tourism development

Rural tourism development basically combines the utilisation of agricultural, environmental and cultural products that together generate economic, social, educational, recreational and therapeutic activities (Park & Lee, 2019). Meanwhile, the concept of SV-based tourism focuses on the extent to which digital technology can be utilised to support tourism development (Chan et al., 2019).

Over the last decade, Banyuwangi's local government has paid particular attention to the tourism sector as the regency's main economic driver. Its tourism development embraces an inclusive economy approach that is simultaneously able to support village development. There are three key elements deployed as part of Banyuwangi's tourism development strategy, i.e., accessibility, attraction and amenity (Anas, 2020). Initially, to facilitate accessibility, Banyuwangi's local government focused on infrastructure development, notably by building and repairing village roads, opening a new Banyuwangi Airport and providing free tourist buses.

The second element, i.e., attraction, was conducted by continuously promoting a number of Banyuwangi's main attractions, namely its natural attractions and cultural arts. In terms of the second type of attraction, the local government has regularly organised various annual festivals or events. Banyuwangi has organised three major festivals since 2011 to commemorate the anniversary of Banyuwangi, namely Gandrung Sewu Festival, Banyuwangi Ethno Carnaval and Banyuwangi Jazz Festival. This series of events is now an annual tourism event widely known as Banyuwangi Festival (B-Fest). There have also been some minor events held in Banyuwangi. The number of events peaked in 2019, when as many as 99 events were held. In 2021, the B-Fest event was held in a hybrid mode, i.e., offline with strict health protocols and online

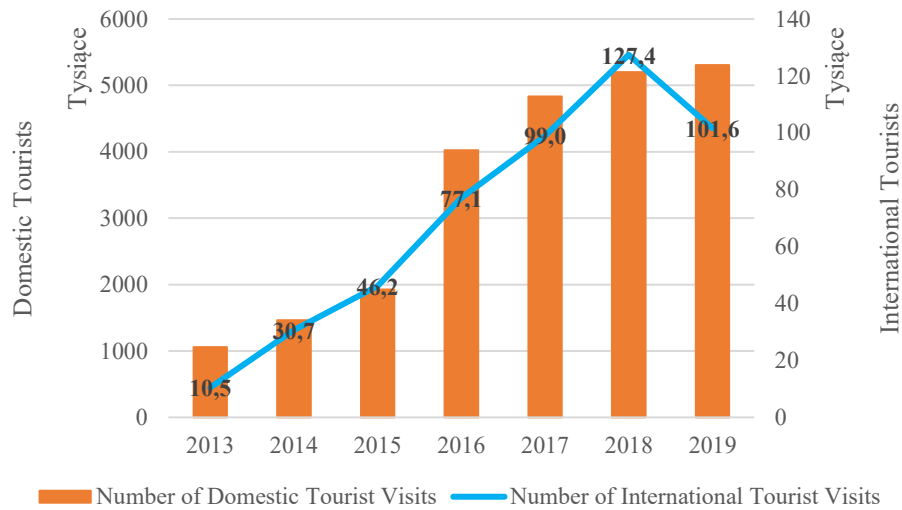


Fig. 1. Number of tourist visits in Banyuwangi

Source: Local Government of Banyuwangi, 2021a

through digital means: live streaming on various social media platform channels.

Finally, the presence of comfortable amenities at tourist sites is seen as crucial. To this end, Banyuwangi's local government, for instance, has imposed strict quality standards for homestays and hotels. Local homestay operators have been also given relevant training. Additionally, some of Banyuwangi's tourist village destinations have been equipped with Internet connection and Wi-fi facilities.

The development of the tourism sector in Banyuwangi has been concurrently supported by the development of its ICT sector. In addition to basic Internet connectivity, Banyuwangi's local government has developed a digital-based tourism management system by developing an application called "Banyuwangi Tourism". This application has integrated many tourism business entities and provides up-to-date information related to the current pandemic situation in Banyuwangi. For instance, potential visitors can easily find information related to which tourism-related business entities, such as homestays, hotels, restaurants and shops, have already complied with health protocols. The main objective of such an application is to assist (prospective) tourists with planning and arranging their visit to Banyuwangi, as well as with organising their activities during their visit in Banyuwangi.

The village governments have also, together with the residents, actively participated in promoting tourism potentials in their respective villages by various digital means. For instance, they have inputted their homestay locations and descriptions on online map platforms, developed village websites that provide various information, created video/photo content on social media channels, managed online data collection of tourist visits, etc. The utilisation of digital technology in the tourism sector is argued to have had a positive impact on the economy of Banyuwangi's village residents. According to Banyuwangi's Tourism Office (Head of Culture and Tourism Department of Banyuwangi, interview on 7 September 2020), the festival events have promoted some of Banyuwangi's remote areas, thus making these areas more widely known to the public (Fig. 1). Tourism has also had a positive impact on rural communities, in that it has diversified rural economy activities that used to largely rely on the agricultural sector.

6. Discussion

As previously described, the development of SV in Banyuwangi has centred around the utilisation of digital technology and ICT infrastructure to support Banyuwangi's development priorities: better public services delivery and inclusive economic development driven by tourism. The SV development

in Banyuwangi has been mainly embodied through the Smart Kampung programme. It should be noted, however, that while this programme was recently introduced by Abdullah Azwar Anas, the regent of Banyuwangi for the 2010–2021 period, Banyuwangi's digital vision was in fact initiated a couple of years before he took office, mainly through the earliest instalment of Internet infrastructure and free Wi-fi access in some government offices (Head of Communication, Informatics, and Statistics Department of Banyuwangi, interview on 26 August 2020). In general, Banyuwangi's experimentation in SV echoes the "generic" model of SV, both in the context of Global North and South countries (Gerli et al., 2022). By this we mean that many of these countries have promoted rural development by aptly using the merits of digital technology, regardless of the type, purpose and intensity of such technology.

The exploration of SV experimentation as in the case of Banyuwangi, however, showcases the importance of situating the discussion of SV within a more nuanced geographical setting. Given this context, Banyuwangi's SV development may not fully align with the trend of SV in many countries in the Global South. It is true that, in a number of aspects, Banyuwangi's SV development fits with this Southern trend, in the sense that it has paid particular attention to enhancing the provision of basic services and improving the livelihood of rural inhabitants (Gerli et al., 2022). On the other hand, there have also been some signs of economic model shift to overcome rural communities' traditional reliance on agricultural activities, as also happens across Europe (Ballina, 2020; Pélucha, 2020; Slee, 2019). Instead of focusing on the use of technology for agricultural development as has been promoted in many Global South countries (Adesipo et al., 2020; Aggarwal et al., 2018), Banyuwangi's SV development has been led by its tourism development, a particular sector that has been embraced since Anas took office. The thriving development of Banyuwangi's tourism sector has led to the growth of different but related sectors, such as accommodation (including homestays managed by rural inhabitants), restaurants, local industries, and others. Another notable feature that differentiates Banyuwangi's SV experimentation from countries in the Global South would be Banyuwangi's relative lack of attention to natural

resources and environmental issues (Viswanadham & Vedula, 2010; Zhang & Zhang, 2020).

The SV development of Banyuwangi is also reflected in themes related to governance and institution. One important recurring issue would be participation of citizens. This issue is viewed as a crucial element in the SV conceptualisation, in the context of Global North and South countries alike (Davidenko et al., 2020; Katara, 2016). However, the discussion of this issue is still limited and depends on the specific context of each case. The room for participation in Banyuwangi, for instance, has been particularly encouraged in local economic development (at the village level) amid the wake of tourism industry and the increasing familiarity of rural inhabitants on the Internet and different (online) applications. More importantly, as can be learnt from Banyuwangi, participation is not an instant process, but an outcome of relentless efforts that require strong leadership and transformative change in local government processes. The experience of Banyuwangi can indeed (partly) inform the question recently raised by Gerli, Navio-Marco, and Whalley (2022) regarding the lack of clarity as to how institutions and (apt) strategies and policies can in fact play an important part underlying the success of SV development. In this regard, the role of leadership should be inserted in the equation of these institution and policy discussions. The role of Anas as a regent had been pivotal, notably in directing and refocusing Banyuwangi's development (and its policies), including positioning rural development in Banyuwangi's broader development, as well as transforming the overall government process. For instance, in Banyuwangi, all local government departments have been directed by the regent to support tourism development, which has eventually helped ease the sectoral silos that have oftentimes hampered local development in the context of decentralising Indonesia (Indraprahasta, Fahmi & Alamsyah, *forthcoming*). Furthermore, to increase the quality of public services and livelihood of rural inhabitants, village offices (*kantor desa*) have been directed to function as a community centre. Village officers in this respect have thus been given more responsibility in the development process, as well as acting as the first gateway in rural digital transformation. To this end, efforts to increase the capacity of village officers have been

made, including by adding two ICT staff members in each village office.

The case of Banyuwangi also provides some insights regarding the spatial delineation of SV that is argued to be variegated and context-dependent (Bielska et al., 2021; Dobrota, Simescu & Turek-Rahoveanu, 2020). While it is true that Smart Kampung is a village-level programme, SV in the context of Banyuwangi can be better understood from a multi-level perspective (local and village levels). Banyuwangi's local policies and programmes pertaining to rural and SV development have indeed provided the foundation and umbrella direction for the development of villages. However, the fate and trajectory of each village in SV experimentation has also been co-determined by the creativity and vision of key actor(s) in each village (Anas, 2020; Pamungkas, 2020).

7. Conclusion

This article springs from the need to bring the discussion concerning the incorporation of digital technology into rural areas to the fore by exploring the adoption of SV concept in Banyuwangi, Indonesia. Being defined as an avenue to develop rural areas linked to the use of digital technology, we have argued that SV is a broad concept that needs further clarification. Learning from the case of Banyuwangi, we can observe that an SV initiative is context-specific, shaped by the policy direction, needs and (endogenous) potentials of the implementing regions. For instance, as can be gleaned from our discussion, SV development in Banyuwangi has mainly focused on three particular aspects, i.e., public services delivery, rural economy, and tourism. In the case of Banyuwangi, it was the vision to lift up the fate of this regency from a relative economic backwater to an emerging tourist hotspot in the island of Java that has shaped its SV trajectory. Meanwhile, the presence of a large proportion of poor residents in Banyuwangi has also provided the foundation to promote an inclusive SV development by having robust, integrated (and digitally-stored) population data that can be further used for more targeted policies and programmes.

It can be gleaned from our discussion that the adoption of SV in Banyuwangi can be used as

a reminder that the geographical situatedness of SV matters. There are some aspects of Banyuwangi's experimentation with SV that do align with the trend in Global South countries, while other aspects echo the trend in Global North countries. Further studies may employ a comparative perspective to better understand the way the concept of SV has been interpreted and adopted differently and for what purposes. So, amid the increasing practices of policy mobility in urban and regional planning, such a comparative view can help inform policymakers in translating SV into a more contextualised (rural and regional) development agenda, instead of by simply importing a certain model from elsewhere. Other prospective future studies would be those discussing the institutional and policy aspects relevant to SV, given the paucity of discussion concerning these issues. Institutions have been conceived to play a foundational part in enabling or inhibiting socio-economic development at various geographical levels (e.g., Martin, 2010; Rogerson, 2014). In this respect, our discussion indicating the important role of leadership and the presence of multi-level governance provide as a starting point for future works.

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