

Seminar Component

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Title of Paper

Lessons for Effective Public-Private Partnerships (PPPs) from the Use of Mobile Phone Data in Indonesian Tourism Statistics

Abstract

This paper draws out the lessons for successful cooperation mechanisms between the public and private sectors in the development of tourism statistics in Indonesia using Big Data. BPS Statistics Indonesia have worked with the Indonesian Ministry of Tourism, Positium, and Telkomsel to gain access to, and develop effective methodology for using mobile phone data to develop tourism official statistics. The collaboration has evolved over the years and over several projects, and this evolution is described. The paper reviews the challenges and the emerging solutions that have allowed this cross-sectoral partnership to be effective, which includes hard issues, such as contracting, legal issues in data sharing, and Memoranda of Understanding between partners, and essential soft issues, such as trust-building and knowledge-pooling.

The benefits to all parties will be elaborated, as an essential part of establishing effective partnerships and models for the development of official statistics using Big Data, stimulating innovation. The Indonesian example will be placed in the context of wider global lessons emerging from initiatives to gather evidence about the benefits and effective models of PPPs in statistical capacity development.

Keywords: Sustainable Development Goals, Public Private Partnership, mobile positioning data, tourism, Statistical Capacity Building.

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II. Introduction

Since tourism has multiplier impacts on social and economic development that need to be measured, tourism data is very important to collect. Tourism has several roles in achieving the 2030 Agenda of Sustainable Development Goals (SDGs). The contribution of tourism can be directly or indirectly to all of the goals, specifically it has been included in Goals 8, 12, and 14 on inclusive and sustainable economic growth, sustainable consumption and production (SCP) and the sustainable use of oceans and marine resources (UNWTO, 2015). In order to achieve this targets, better quality of data are needed to monitor and evaluate the SDGs Indicators in the 2030 Agenda. Tourism can be a significant engine to achieving the SDGs.

There are several issues that need to be solved by National Statistics Office (NSO) to provide data for SDGs, especially indicators that related to tourism sector, such as shorten data lag, more detailed data, more frequent data availability, reduce outlier of missing data, and data standardization for official statistics (Bank Mandiri, 2017). It is predicted that big data methods can provide faster data collection, more detailed data, more frequent data availability, and fulfill the missing data. Because it is very crucial, big data method is needed. It becomes

complementary for official statistics. Although many challenges remain that will require adapted responses, big data may provide faster, cheaper and more granular data to complement, certainly not replace, official statistics, and to design and implement better policies and programs (Letouzé and Jütting, 2015). Big data can play an important role in improving the accuracy, timeliness, and relevance of economic statistics at a lower cost than expanding existing data collections with careful attention to incentives; protection of privacy through data protocols and collaborative agreements; and integration of these non-statistical with existing statistical data (Landefeld, 2014). It is in accordance with the United Nations recommendation on data revolution that is stated in the UN Expert Advisory Group report called “A World that Counts” (IEAG, 2015).

Mobile Positioning Data (MPD) is a relatively new data source, which can be a complement of the current data source used for tourism statistics. Eurostat (2014) has highlighted the use of mobile data as a source for tourism statistics can provide advantages, such as better timeliness (in some cases up to near-real time), access to statistical information previously not available (new indicators), calibration opportunities for existing data, better resolution, and accuracy in time and space.

BPS started to use mobile positioning data in the data released in October 2016 in order to be able to accurately capture and increase the coverage of international visitor arrival, especially on the cross-border areas. Data was collected by the Mobile Network Operator (MNO) Telkomsel, which is a private company. It is the first time for BPS to implement big data in official statistics that has been released.

This paper draws out the lessons for successful cooperation mechanisms between the public and private sectors in the development of tourism statistics in Indonesia using Big Data. BPS Statistics Indonesia have worked with the Indonesian Ministry of Tourism, Positium, and Telkomsel to gain access to, and develop effective methodology for using mobile phone data

to develop tourism official statistics. The paper will review the challenges and the emerging solutions that have allowed this cross-sectoral partnership to be effective, which includes hard issues, such as contracting, legal issues in data sharing, and Memoranda of Understanding between partners, and essential soft issues, such as trust-building and knowledge-pooling. The benefits to all parties will be elaborated, as an essential part of establishing effective partnerships and models for the development of official statistics using Big Data, stimulating innovation, and in working with the private sector. The Indonesian example will be placed in the context of wider global lessons emerging from initiatives to gather evidence about the benefits and effective models of PPPs in statistical capacity development.

III. Public Private Partnerships in Statistics Capacity Building

Public Private Partnership (PPP) for statistics is defined as a voluntary collaborative agreement between the public and private sectors, which is aimed at increasing the National Statistical System's capacity to provide new or better statistics (Robin N, 2016). What distinguishes PPPs for statistics from other forms of public-private co-operation is the existence of an agreement, which structures collaboration and defines roles, responsibilities and rights. PPPs are typically characterized as long-term agreement (World Bank, 2015)

The recent emergence of big data has resulted in the accumulation of valuable non-official data sets by the private sector, which has prompted calls for PPPs in data-sharing (IEAG, 2015). However, the scope of PPPs is not limited to the exchange of data and can cover also methodology, quality assurance and a system for processing the data. Processing and analysis dimensions are particularly relevant to developing countries which often lack the resources to analyse large private data set. The expertise in the designing and building systems for data collection and processing lies with the private sector (see Figure 1 illustrated

on the GSBPM model). That said, the NSO should see their role equally valuable in design, output creation and validation, dissemination and quality management. In some sense, NSO can add their expertise on top of what the private sector is capable of, thus creating a synergy between two sectors.

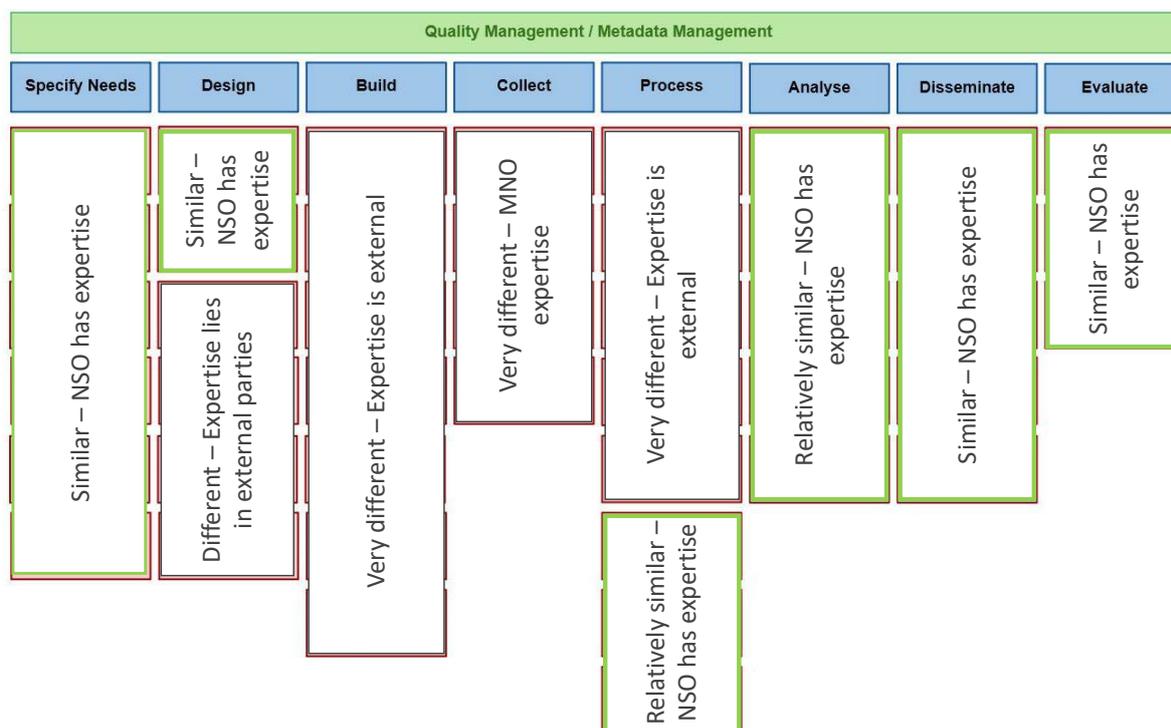


Figure 1. Distribution of expertise in the production of statistics with big data, as shown on the GSBPM model

In Indonesia, before Ministry of Tourism and BPS started the cooperation with the MNO, the MNO did not save signaling data because they did not see use for saving this data and using up limited storage space. It is through agreements with the public sector that the MNO realized the value in using this data, started storing the data over a longer period and developed capabilities for processing it.

In 2017, Ministry of Tourism and BPS started cooperation with Positium, who has experience in processing MPD for tourism statistics for over 10 years. Before the cooperation with Positium the mobile positioning that Statistics Indonesia obtained is in table form and aggregate data. There were questions about methodology soundness and quality assurance,

so adjustment of the final output was necessary. What is more, BPS Statistics Indonesia could not properly answer users about outliers or anomalies in the data. The first task for Positium was to analyse the data and processes the MNO had, to provide transparency.

In 2018, work began on upgrading the tourism statistics processing according to a new methodology handbook and quality assurance framework created between Positium and BPS. Positium was tasked with implementing the methodology and create an automated system for processing MPD to tourism statistics within the premises of Telkomsel. The work was completed through further methodology discussions with BPS, including capacity building. Since 2019 January, data about cross-border statistics has been based on the results from the new system, which applies the tourism definitions to trips at the raw data level. The distribution of responsibilities for the cross-border tourism project is shown on Figure 2.

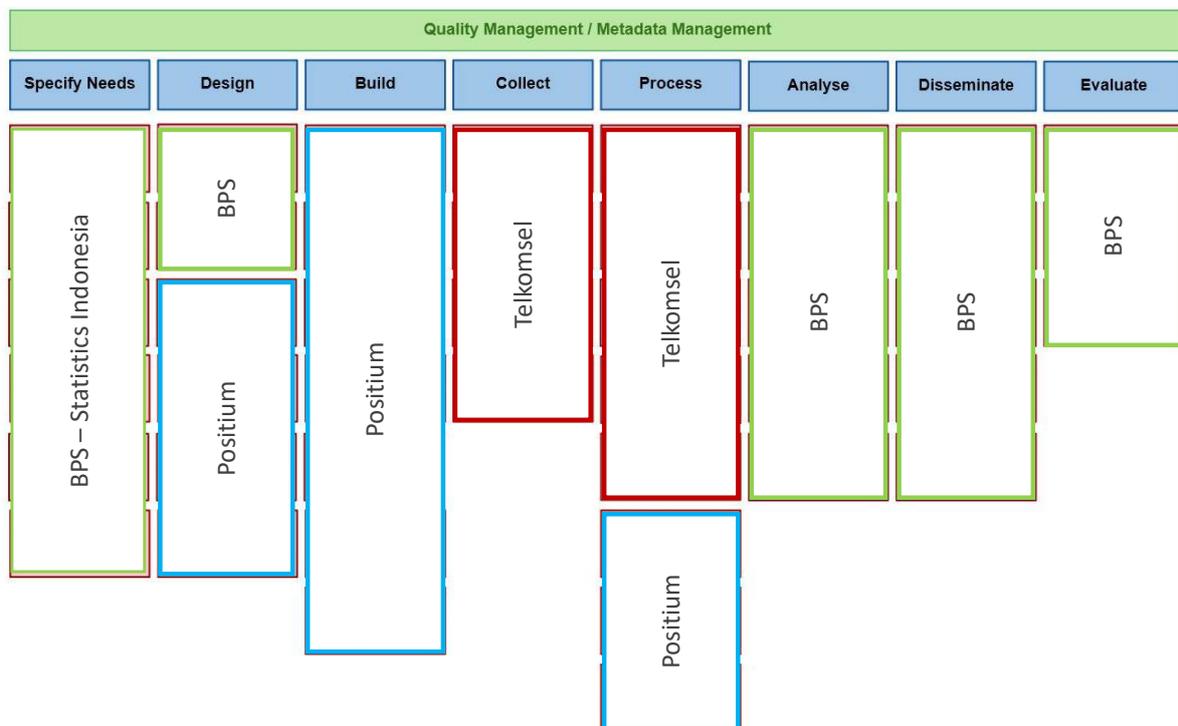


Figure 2. Distribution of tasks for cross-border tourism project

At the same time, BPS started another project for commuting and domestic tourism statistics with Telkomsel. In this project, BPS was the one who developed the logic for

processing, while Telkomsel was tasked with implementing it. Positium provided consulting to guide both BPS and Telkomsel in their work. The cooperation between parties has evolved over time, as illustrated on Figure 3.

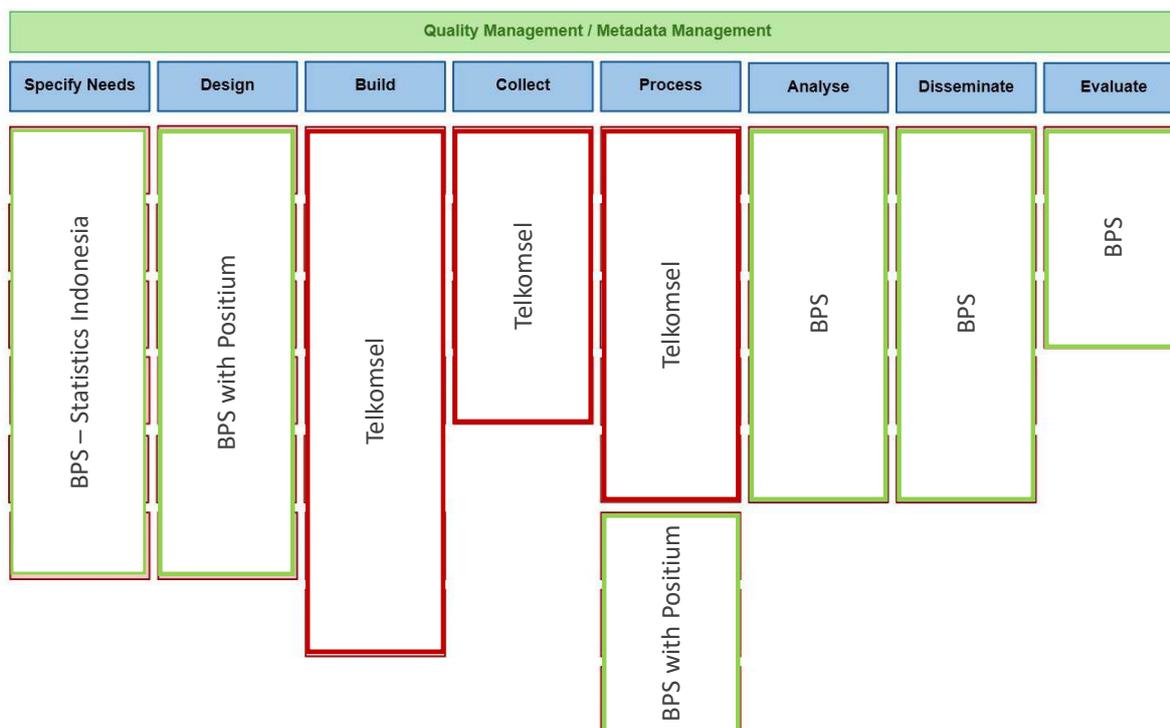


Figure 3. Distribution of tasks for domestic tourism project

This new distribution of tasks is heavily focused on capacity building of NSO to better work with MPD methodologies. It allowed to get a better understanding of the methodological aspects of MPD, especially for applying the necessary concepts in tourism to MPD. For example, it was a long process to specify home at a very exact data-driven level, or having an algorithmic definition for tourism trips, and it took several iterative steps to finally achieve at the correct result.

There are also drawbacks to this method, as BPS is not an expert in spatio-temporal application of MPD methodologies and cannot work on the raw data directly, then the results are not as precise as they can be with MPD, and domestic tourism is only calculated at 2nd level administrative unit level (kabupaten). BPS sees the need for further collaboration on methodologies and processing with the private sector. For that reason, BPS has signed a

long-term Memorandum of Understanding with Positium in 2019 to collaborate on research, project and capacity building.

A. Opportunities

The use of big data, including mobile positioning data for SDG indicators has been very valuable. Public Private Partnerships in this case has helped BPS Statistics Indonesia to save/reduce budget, reduce work burden in the field, provide more detailed data (in time and space) in a more timely manner. The geographic detail that was achieved for domestic tourism allows for data that is compatible with the vision to provide small area estimates for SDGs set out by the Ministry of Planning, including tourism.

The distribution of tasks provides the opportunities to best use MPD with the best available methodologies. BPS has expertise in defining the needs of user and understanding the definitions in official statistics, but with private sector expertise about the data it was possible to produce better methodologies that consider all data aspects and how the definitions can be applied to the data. Because the data is collected for other purposes than the specific statistics, BPS sees the opportunity in gaining private sector experience from other countries to understand the quality aspects of MPD. BPS is learning through active collaboration with the private sector and is seeing large gains in the growth in capacity for big data analysis.

B. Challenges

The biggest challenge is building trust between the private and public sector to work in a transparent manner. The MNO should be able to provide raw/detailed data, while there is no national precedent and the company fears going against its privacy rules and corporate guidelines. At the same time the public sector is not used to letting a private company implement the methodology and develop the system for processing mobile positioning data. However, after initial pilots lead to the Memorandum of Understanding, contract and non-

disclosure agreement (NDA), BPS data scientists were able to process some sample data in a sandbox in the MNO server to test the methods on actual data.

c. Benefit

All the parties involved in the Public Private Partnership could benefit from the partnership. The MNO sees value in having help from statisticians to implement important methodological concepts and build services to monetize their data – the same method used for the domestic tourism project was used in other commercial projects by the MNO. For BPS Statistics Indonesia data scientists that usually work with administrative, survey and census data could have experience and develop their knowledge with mobile positioning data. Beside, BPS Statistics Indonesia also could reduce the burden of field works (a few data scientists are now doing the work of thousands of field enumerators) and can obtain data in more detail and up to small area. For Positium, an international company, the added benefit is gaining experience that they can use in other countries.

IV. Conclusion

Public Private Partnership in Statistics Capacity Building could help National Statistical Office to access mobile positioning data and provide more SDGs indicators with efficient budget.

Indeed, there are challenges for building Public Private Partnership in Statistics Capacity Building, however these challenges can be overcome with trust and openness. This trust was built over a number of years through various projects and is now put on paper as bilateral MoUs between all stakeholders involved. All the parties involved in PPP see the benefit from the close collaboration, as the capabilities of all parties have increased.

IV. References

1. Eurostat, (2014). Feasibility study on the Use of Mobile Positioning Data for Tourism Statistics. Retrieved September 30, 2016, from Feasibility Study on the Use of Mobile

Positioning Data for Tourism Statistics Web site:
<http://mobfs.positium.ee/data/uploads/reports/consolidated-report.pdf>.

2. IEAG (UN Independent Expert Advisory Group) (2015) A World that Counts: Mobilizing the Data Revolution for Sustainable Development. Independent Expert Advisory Group Secretariat. Available from: www.undatarevolution.org/wp-content/uploads/2014/11/A-World-That-Counts.pdf
3. Landefeld, Steve. (2014). Uses of Big Data for Official Statistics: Privacy, Incentives, Statistical Challenges, and Other Issues, Discussion Paper, accessed on 16 March 2017, <https://unstats.un.org/unsd/trade/events/2014/beijing/Steve%20Landefeld%20-%20Uses%20of%20Big%20Data%20for%20official%20statistics.pdf>.
4. Letouzé, Emmanuel and Johannes Jütting. (2015). Official Statistics, Big Data and Human Development, Data Pop Alliance White Paper Series.
5. Bank Mandiri. (2017). Emerging Challenges in Data Collection, Survey Methodology and Implications for Official Statistics (User Perspectives), presented in the Plenary Session, International Statistical Institute Regional Statistics Conference (ISI RSC) 2017, Bali.
6. Morales et.al. (2014). A World that Counts: Mobilising the Data Revolution for Sustainable Development. The United Nations Secretary-General's Independent Expert Advisory Group on a Data Revolution for Sustainable Development (IEAG).
7. Robin, N., T. Klein, and J. Jutting (2016). Public Private Partnership for Statistics: Lesson Learned, Future Steps, PARIS21 Discussion Paper.
World Bank (2015) What are PublicPrivate Partnerships? [Online] World Bank, <http://ppp.worldbank.org/public-private-partnership/overview/what-are-public-private-partnerships>.