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Innovation in Statistical Business Register

Statistical Business Register As The Engine of the Knowledge-Engined Respondent Engagement Management System (KREMS) Framework

Abstract

Recently Badan Pusat Statistik (BPS) – Statistics Indonesia has a serious concern in a low response rate problem. In 2016, of 123 surveys/activities conducted by BPS, 38 had less than 80% response rate (BPS, 2017). In Sub-directorate for Mining and Energy Statistics, for example, the response rate was only 29,03% for Annual Survey of Oil Refinery Companies (BPS, 2017). Based on a research conducted by Yaghoubi in 2011, Knowledge Management (KM) is effective in Customer Relationship Management (CRM) which results in increasing customer's satisfaction and also profitability. Here, the nature of customer and respondent are similar in how both provide very important value for the existence of the companies and BPS. Without the customer, the companies will not get their profit. Similarly, without respondents/data providers BPS cannot produce their statistics. This paper shows the results of a Design Science Research. Here is proposed a framework that was adapted from a knowledge-based CRM Framework to solve the response rate problem, especially for the business-based survey since currently, this area of survey becomes the main concern of BPS. The Framework, which was named Knowledge-Engined Respondent Engagement Management System Framework (KREMS-Framework), consists of the Top-Level KREMS-Framework (level 0) and the level-1 (modules) KREMS-Framework. It tells about what to achieve in the framework, i.e. the increased response rate, along with the indicators of the increased response rate, about respondent communication, respondent segmentation, and the enabler so that the framework can work well. The engine of this framework is the knowledge which uses Statistical Business Register (SBR) database which is rooted from administrative data, survey feedback, SBR Quality Improvement Survey (QIS), and profiling program, also uses a respondent database which is rooted from Survey Control File (SCF) results, profiling program, and metadata-paradata. This paper will also show some specific scenario examples of how using SBR data can help BPS in engaging with the respondents which in the end can increase the response rate for the business-based survey.

Keywords: SBR, Response Rate, Response Rate, Respondent Engagement, Respondent Management, Business-based Survey

INTRODUCTION

Recently Badan Pusat Statistik (BPS) – Statistics Indonesia has a serious concern in a low response rate problem. The phenomenon that commonly exists in several statistical Subject Matter Areas (SMAs) is manifested in some cases, such as some questionnaires are not fully filled, some are not returned, and the worst case is that some targets refuse to respond. In 2016, of 123 surveys/activities conducted by BPS, 38 had less than 80% response rate (BPS, 2017). In Sub-directorate for Mining and Energy Statistics, for example, the response rate was only 29,03% for Annual Survey of Oil Refinery Companies (BPS, 2017).

To solve that problem and also other problems that currently exist, BPS has developed Statistical Business Framework and Architecture (SBFA) as one of the deliverables from BPS Statistical Capacity Building-Change and Reform for the Development of Statistics (STATCAP-CERDAS), transformation program. On the SBFA, there are some strategies pertaining to the modernization of BPS. One of those strategies is described as “Improved Relationship with Respondents”. The mission of improving the relationship with respondents will be done by rationalizing the survey program, more professional questionnaire design and more professional communication between BPS and respondents (BPS, 2016). On that SBFA, BPS also describes specific strategies related to Data Provider Engagement.

Despite the vast strategies that have been planned, a framework to create a condition where BPS and its respondents have a harmonized relationship which leads to a high response rate is needed because of some reasons. First, a detailed breakdown of how those strategies will be implemented specifically still does not exist and in the end, will make the implementation hard. Moreover, a model that describes how each part of the strategy communicates with each other as a whole system has not been defined. Because there is still no advanced analysis of those strategies, it is possible that BPS will miss important points that can be done to engage with the respondents.

To handle that, a design research has been done. Based on a research conducted by Yaghoubi in 2011, Knowledge Management (KM) is effective on Customer Relationship Management (CRM) which results in increasing customer’s satisfaction and also profitability. Here, the nature of customer and respondent are similar in how both provide very important value for the existence of the companies and BPS. Without the customer, the companies will not get their profit. Similarly, without respondent/data providers BPS cannot produce their statistics. This inspired the author to adopt the idea of the CRM on respondent management.

To design that framework, the authors used the already invented CRM framework by Ross Dawson (2010), Knowledge-Based CRM Framework [Figure 1], to increase the response rate for the business-based survey which is currently being the focus of the business process re-engineering in BPS. To develop the high-level framework, the authors mainly adopted or adapted the pillars and the components of the original CRM framework. The additions of the components and the sub-components of the modules were based on the best practices, previous researches on the area, or strategies stated in the SBFA.

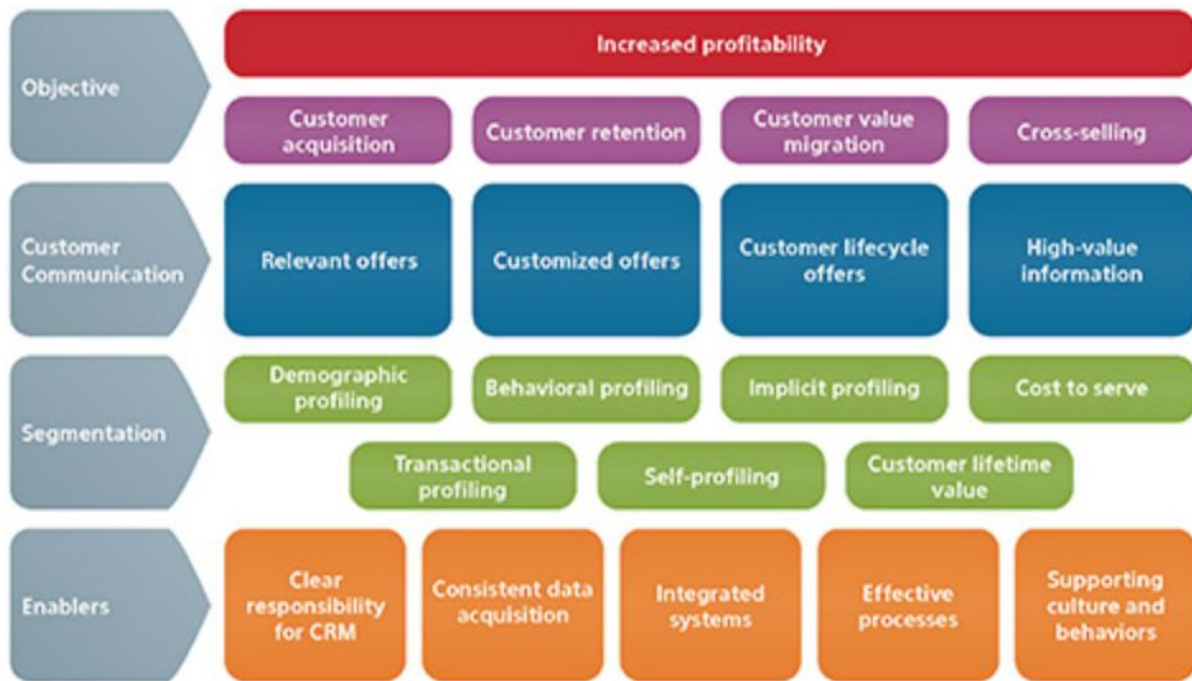


Figure 1. Knowledge-Based CRM Framework by Ross Dawson (2010)

THE FRAMEWORK

Figure 2 shows the invented framework. It uses all the pillars from the original CRM framework: objective, respondent communication (which is adapted from the customer communication), segmentation and enabler. In the first pillar, some original components are used, but with some adaptations. The top/final objective is the increased response rate (adapted from increased profitability). The factors describing the increased response rate are three: respondent acquisition (adapted from customer acquisition), respondent retention (adapted from customer retention), and cross-selling enumeration (adapted from cross-selling). Next, the components in the second pillar, respondent communication, are still four: relevant offers, customized offers, respondent lifecycle offers (adapted from customer lifecycle offers) and high-value information. The components for the third pillar are different from the original CRM framework. When in the original framework it contains seven components, here the authors only give two: demographic profiling and ways of profiling. Finally, in the last pillar, the authors add three more components to the original five components. They are clear responsibility for Data Provider Management, consistent data acquisition, integrated system, effective processes, supporting culture and behaviors, legal supports and lastly continuous research.

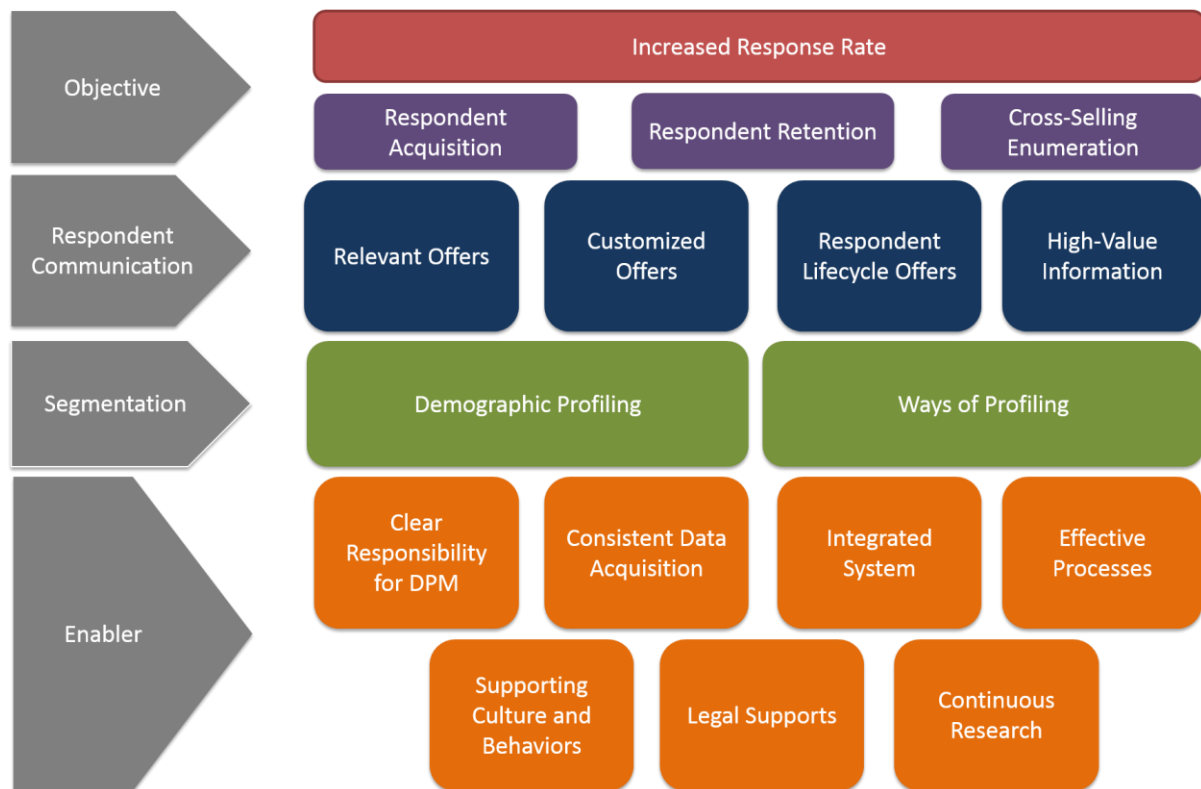


Figure 2. The High Level of the KREMS-Framework

Based on Ross Dawson (2010), the CRM framework he created is largely self-explanatory. Despite the lack of information about what exactly each component means, here is tried to give some explanations about each component in the new framework inspired by the CRM framework.

The Components of the Framework

It is clear that the top objective of the framework is to increase the BPS response rate or to decrease the non-response rate. Even so, what are the factors? Here, the authors propose respondent acquisition, respondent retention, and cross-selling enumeration (adapted from cross-selling) as the possible factors. Below is the definition for each factor.

- Respondent Acquisition: when a new respondent (i.e. never be the selected sample unit before) agree to respond successfully.
- Respondent Retention: when an ever responding respondent in the past cycle in the same type of survey agree to respond again in the next enumeration cycle.
- Cross-Selling Enumeration: when the respondent who has responded to a particular type of enumeration agree to participate again in other types of enumeration(s).

Following are the definitions of each component in the second pillar.

- Relevant Offers: The approaches to interacting with the respondents (the interactions to obtain the data from them, the interactions to give the statistical products to them, and all other interactions to get the engagement with the respondents) must be relevant with their profiles/segments.
- Customized Offers: The respondents can choose the approach with which BPS will interact with them. For example, the respondents can choose the way of the enumeration (email, website, paper, etc.) based on their preference.
- Respondent Life-cycle Offers: BPS can interact with the respondent based on their life-cycle status. For example, the beginners are provided with the tutorial on using the survey website (starter kit).
- High-Value Information: The respondents are given high-value information, for example, the interesting facts produced by BPS or about next agenda of the enumeration to make them aware and interested to the survey, or information about BPS as a whole.

The segmentation pillar only contains two components wherein the original CRM framework it contains seven of them. The two components are the demographic profiling and the ways of profiling. The reason behind this modification is that the authors found a difficulty when tried to pinpoint each lesson learned from the systematic literature review to the kind of the segmentation. After studying the components, it was found that actually the components are divided into the two groups. Hence, the two groups were made to be the components and the original seven components were made to be the sub-components for the two brand new components.

Following are the definitions of each component in the enabler.

- Clear Responsibility for Data Provider Management (DPM): The Data Provider Management must have some clear responsibilities determined by BPS executives. It includes, but not limited to, the areas under which they should operate, the outputs, organizational structures, etc.
- Consistent Data Acquisition: Data, especially about respondents, are collected consistently to update the respondents' profiles and segments, also to do some decisions pertaining to the respondent engagement. This is a very important component to have as this is the engine of the framework.
- Integrated Systems: The systems under the BPS systems/applications portfolio are integrated into one. It contains the systems in the Corporate Statistical Infrastructures (CSIs) from the SBFA. Besides, this component also includes the financial and HR system (called BPS back office system), communication channels, and Big Data & machine learning processing.
- Effective Processes: This is related to processes and their sub-processes, including the Standard Operating Procedure (SOP) to do the responsibilities in the Data Provider Management (DPM). Included in this component is the use of the business process standards, i.e. Generic Statistical Business Process Model (GSBPM). To make the processes done by the DPM fruitful optimally, there are qualities that the DPM should achieve. These quality standards will be sourced

from the BPS Quality Assurance Framework (QAF) that can play its role as the guidance for the Quality Management, one of the over-arching processes in GSBPM.

- Supporting Culture and Behaviours: The example of such is the culture of the BPS to follow the NSO ethical codes in keeping credential respondents' data.
- Legal Supports: For example, some legal supports (MoU and cooperation agreement) are required to make sure that there are data streams periodically from the administrative data sources. The other one is related to the obligations for the businesses to respond to the enumerations. It is important to emphasize that it also needs the enforcement of these laws by BPS and other governmental functions.
- Continuous Research: Some decisions and relationship between profiles/segments and relevant offers (and other relationships) are based on the systematic literature review results. This needs to be maintained over time to make it always up to date and the dictionary can grow in number.

The Modules of the Framework

The first module comes from a component of the segmentation pillar [Figure 3]. It contains at least nine sub-components that represent the possible way of profiling the respondents. The sub-components are behavioral profiling, transactional profiling, big data profiling, mass media profiling, implicit profiling, self-profiling, ground check profiling, telephone profiling, and survey profiling. The authors also mention "etc" because the ways of profiling are not limited to the aforementioned ways of profiling. From the eight ways of profiling, in BPS internet browsing profiling and ground check profiling have been started since 2013 in the SBR development phase. The further definition/explanation is also presented.



Figure 3. The Module 1 of the KREMS-Framework (Ways of Profiling)

- Behavioral Profiling: Respondents are profiled based on their behaviours, this includes, but is not limited to, their behaviours on facing the enumerations and behaviours on consuming BPS data.
- Transactional Profiling: Transactional profiling is a profiling that is based on the transactional data, which includes, but is not limited to, the respondents' historical enumeration/survey transactions and their statistical data consuming transactions.
- Implicit Profiling: Implicit profiling is done by harnessing knowledge by reading the implied or implicit clues given by the respondents, instead of what has been said directly by the respondents.
- Self-profiling/Explicit Profiling: This kind of profiling is done by using the respondent's self-choices about their profiles/segments. For example, in the CAWI (Computer Assisted Website Interface) survey, the respondents can profile their own selves about their professional job so that in the relevant offers section, the question language will suit to their preference.
- Big Data Profiling: Big Data profiling is done by harvesting big data and use the information obtained, after the big data and machine learning processing, to profile/segment the respondents. API consuming and scrapping are two of the possible ways to get the data. For an example of a potential profiling with this kind of profiling is getting the opening hours for the businesses using the Google API.
- Mass Media Profiling: This profiling can be done by using any kind of mass media, e.g. TV, newspaper, or internet. This kind of profiling has been done in BPS since 2013 for the large and complex enterprises. This profiling is done by the profilers working for the SBR by using the internet browsers. Profilers can use the website of the businesses, the annual reports that usually are provided in their website, and other kinds of websites giving respondents' profiles (e.g. google maps, yellow pages, Facebook fan pages, etc.)
- Ground Check Profiling: This kind of profiling has been done in BPS since 2013 for some of the large and complex enterprises. This is done by visiting the enterprises where the profilers need some confirmations regarding businesses' data, e.g. the active status, etc.
- Telephone Profiling: This is done by confirming the respondent's data by using a telephone.
- Survey Profiling: The profiling is done with survey.

The second module, the demographic profiling, also comes from a component in the segmentation pillar [Figure 4]. It contains at least fifteen sub-components that represent the kinds of respondents profiling. The sub-components are the cost to serve, entity type, device usage, institutional sector, respondent lifetime value, business scale, difficult-easy area, geographical area, communication capability, level of communication needs, statistical units, reluctance level, burden level, business complexity, and Category/KBLI. The authors also mention "etc" because the types of profiling are not limited to the aforementioned kinds of profiling.

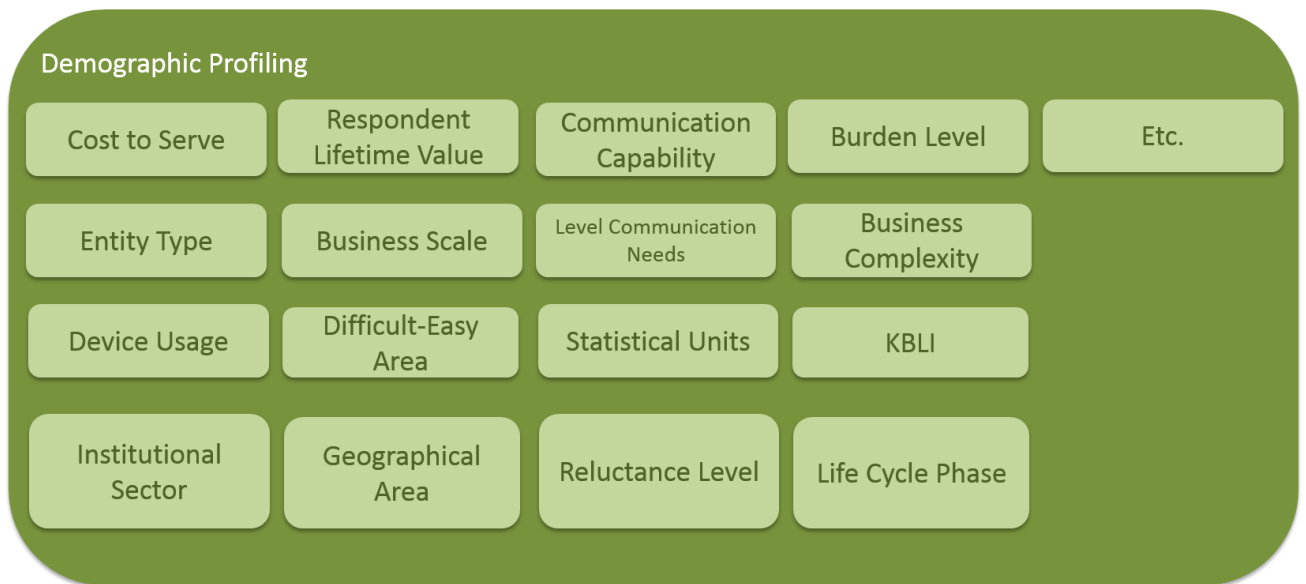


Figure 4. The Module 2 of the KREMS-Framework (Demographic Profiling)

The Sub-components of the Demographic Profiling Module are as follows.

- The cost to Serve: high cost, low cost.
- Entity Type: Businesses (including agriculture establishments), Government units, Owners of registrations and administrations already in use by BPS, Owners of registrations and administrations required by BPS, Owners of registrations/administrations potentially usable by BPS. The administrative data sources are also included since it is possible to integrate administrative data with survey data as pictures in the SBFA.
- Device Usage: Tablet, handphone, PC, paper, etc. The screen resolutions also can be taken into account for the segmentation.
- Institutional Sector: Financial Corporation, non-financial corporation, household, non-profit institution serving household (NPISH), government.
- Respondent Lifetime Value: valuable in the long term or not.
- Business Scale: Small, medium, large.
- Difficult-Easy Area: Difficult, easy.
- Geographical Area: Province of DKI Jakarta, Jawa Barat, Banten, DI Yogyakarta, Bali, etc.
- Communication Capability: Poor communication capability, sufficient communication capability, excellent communication capability.
- Level of Communication Needs: Basic level of communication needs, have a heightened risk of response burden or a heightened risk of non-response related to particular situations, deemed to be at high-risk because of their high visibility or sensitive nature (Statistics Canada, 2016).
- Statistical Units: Enterprise group, enterprise, establishment, ancillary unit.
- Reluctance Level: Reluctant, not reluctant.

- Burden Level: Based on the number of the respondents have been being sampled and the length of the enumeration.
- Business Complexity: Complex, not complex.
- KBLI/Category: F-Construction, C-processing Industry, etc.
- Life Cycle Phase: Beginner, Not Beginner, etc.

The third module comes from a component in the enabler pillar [Figure 5]. The data acquisition is sourced mainly from two BPS corporate databases: respondent database and SBR database, although the two databases actually will interact with each other. The content of the respondent database is mainly from Survey Control File, SBR profiling program, and a metadata system. On the other side, the contents of the SBR database are mainly from the administrative data source, survey feedback, SBR Quality Improvement Survey, and also SBR profiling program. The further definition/explanation is presented as follows.

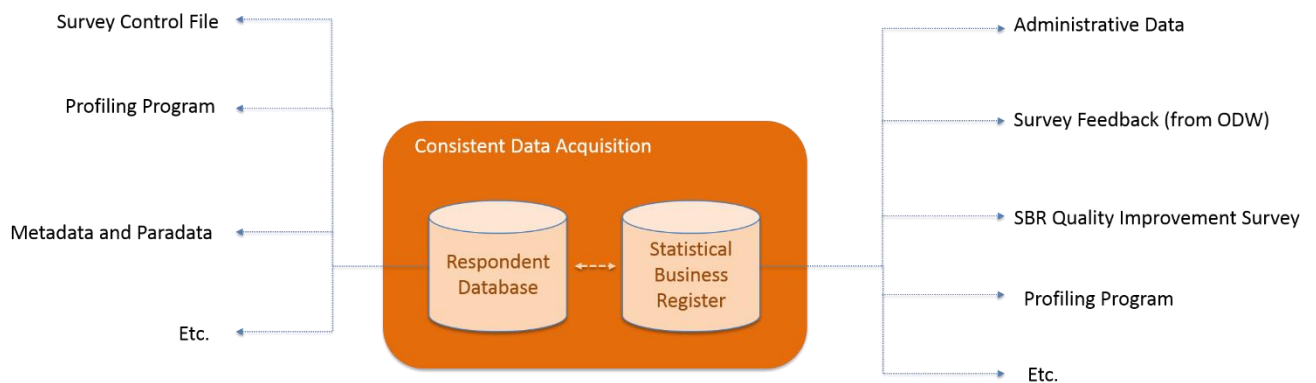


Figure 5. The Module 3 of the KREMS-Framework (Consistent Data Acquisition)

- Respondent Database: The database consisting of the data/profiles about each respondent. The database also contains the history of the respondents' responses toward the enumerators/surveys and other technical aspects about respondents, for example, the contact person and opening hours.
- Statistical Business Register: The database that acts as the single, authoritative and comprehensive source of enterprises and establishments and their variables required for sampling and creating business demography (BPS, 2017).

The Sub-Sub-Components of the Consistent Data Acquisition Module is as follows.

- Survey Control File: For each selected sample, the contact information will be extracted from the SBR along with its identification and classification. If exists, SCF information obtained from the previous enumeration cycle is also taken. All such information is written in the Survey Control File (SCF) for each unit. During the data collection, any changes found to the current information will be updated in the SCF. In addition, the constraints encountered during enumeration will also be written in the SCF. The latest information will be sent at any time to the survey management for monitoring purposes. The end result of this SCF will be returned to the SBR at the end of the data collection period (BPS, 2017).

- Profiling Program: Profiling is the process of creating profiles of companies, including the parent-subsidary pictures. Profiling can be done in many ways, for example, by examining annual reports for public companies published on the company website, ground check, telephone, etc.
- Metadata and Para Data: This includes all types of metadata covered by statistical infrastructures, such as collection, variable, reference, quality metadata, and para data. These metadata will be acquired from the Metadata System/Repository (BPS, 2016).
- Administrative Data: OECD explains the administrative data term with “the set of activities involved in the collection, processing, storage and dissemination of statistical data from one or more administrative sources.”
- Survey Feedback: The final results of the survey/enumeration, that have been through micro data editing, macro data editing, and other treatments are feedbacks to the SBR database from the Output Data Warehouse (ODW).
- SBR Quality Improvement Survey: Quality Improvement Survey (QIS) is conducted on businesses that can not be updated by using administrative data and statistical data that already exist (BPS, 2017).

The next module presented by the authors in this research is the Integrated System [Figure 6], from the enabler pillar. This integrates many systems and databases so that they can interact with each other. These systems and databases are actually coming from those mentioned in the BPS STATCAP-CERDAS, transformation program, documents, especially the Statistical Business Framework and Architecture (SBFA) document. In the future, these systems and databases will act as the part of the integrated statistical system. The benefits of this approach for example (but not limited to) is to get the view from many perspectives so that logical relationship between components can be obtained and the decisions made by the DPM regarding the operations of the KREMS-Framework can be based on the data. The further definition/explanation is presented as follows.

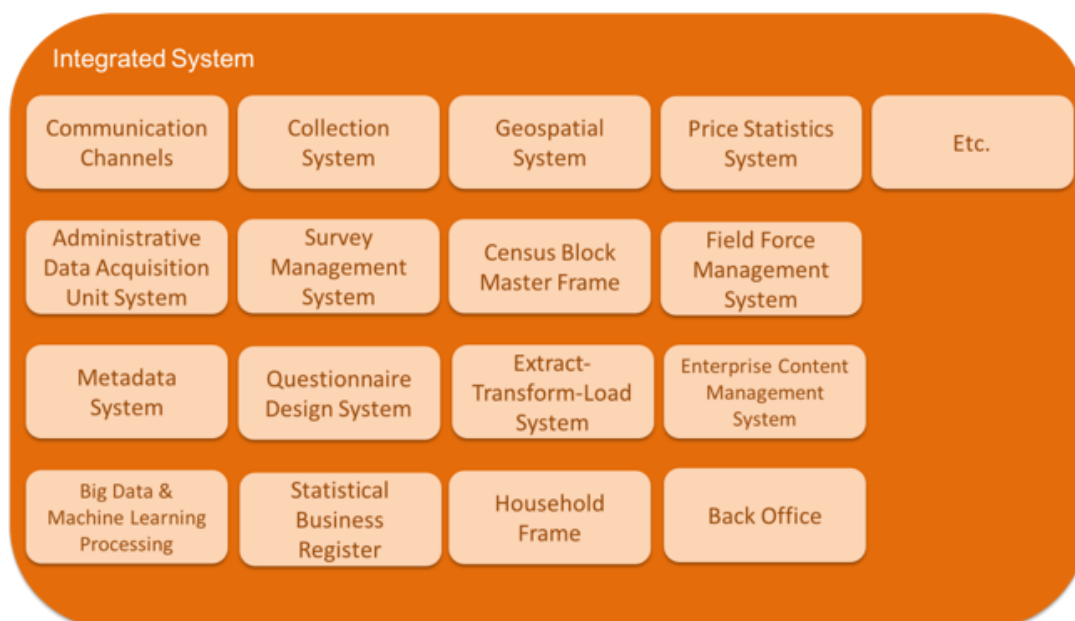


Figure 6. The Module 4 of the KREMS-Framework (Integrated System)

The Sub-Components of the Integrated System Module are as follows.

- Communication Channels: It includes many communication channels for the enumeration (web, telephone, email, etc) and also communication channels for disseminating statistical products (web, newspapers, API, etc).
- Administrative Data Acquisition Unit System: This system will acquire data from the administrative data source periodically. This system will also integrate systems between BPS and data custodians (BPS, 2016).
- Metadata System: This system maintains all types of metadata covered by statistical infrastructures, such as collection, variable, reference, quality metadata, and para data (BPS, 2016).
- Big Data and Machine Learning Processing: This system will process big data to find the patterns in the complexity that can be used to make some suggestion about relevant offers and other things that can be learned from the patterns.
- Collection System: The collection system will be a set of systems (from other Corporate Statistical Infrastructures) to support designing, building and collection phases for all kind of modes and modalities (BPS, 2016).
- Survey Management System: This system ensures that the surveys of BPS will be run effectively and efficiently by supporting the planning, monitoring and controlling the surveys throughout all phases in the GSBPM (BPS, 2016).
- Questionnaire Design System: This system will design the questionnaires in many forms (web, email, mobile apps, etc.) based on the specifications and suggestions (BPS, 2016).
- Statistical Business Register: The SBR is defined as “...the single, authoritative and comprehensive source of enterprises and establishments that provides frames for all formal sector business surveys.” (BPS, 2017).
- Geospatial System: In the Detail Design Document (BPS, 2016), it is stated that the geospatial system will support:
 - Census Blocks and villages digital maps management system;
 - sampling frame design and sample selection;
 - field enumeration using digital maps in CAPI system;
 - statistical data analysis;
 - statistical data dissemination;
 - user decision support system;
 - identification of remote areas.
- Census Block Master Frame: This system will be used to compromise the need for the selection in household surveys in the early stages (BPS, 2016).
- Extract-Transform-Load System: Mainly this system will extract, transform, and load data from big data source and from the administrative data source to match the formats that BPS requires.
- Household Frame: This frame will contain the information about every household in the country and will be used for sampling in the social statistics surveys and household-based economic surveys (BPS, 2016). This frame can be linked to the SBR to know about respondents from many perspectives. For example, BPS can

link the Business Register to the Household Frame so that BPS can see the employment relationships.

- Price Statistics System: This system will produce the inflation information and also the indices of producer price, wholesale price, and consumer prices (BPS, 2016).
- Field Force Management System: This system will help to manage the enumerators (field force).
- Enterprise Content Management System: This system functions will be to capture, manage, store, preserve and deliver content in BPS in every phase of GSBPM, the unstructured information at the most basic level (BPS, 2016).

The next module presented by the authors in this research is the Legal Supports [Figure 7], from the enabler pillar. This consists of Required Laws, Laws Enforcement, etc. The further definition/explanation is presented as follows.

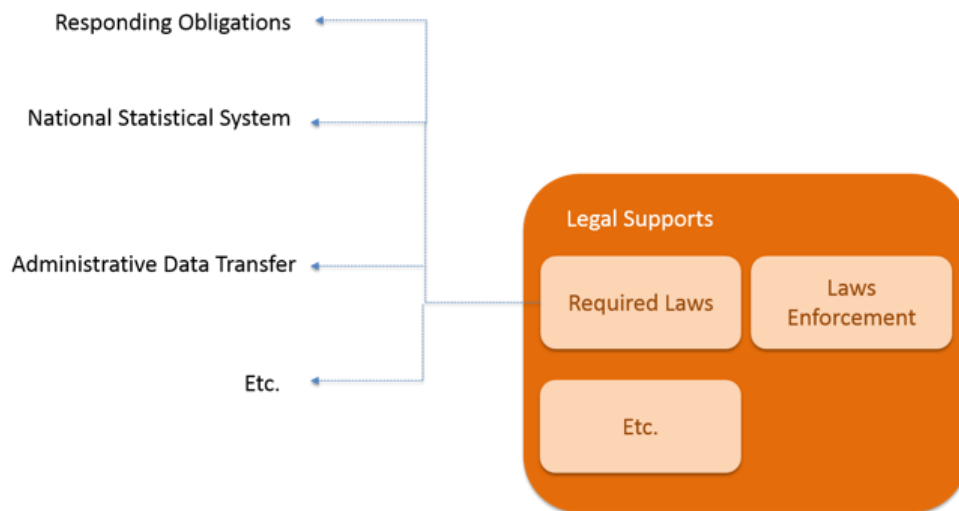


Figure 7. The Module 5 of the KREMS-Framework (Integrated System)

- Required Laws: These are the laws needed to support the framework to work properly.
- Laws Enforcement: The laws need to be enforced so that it makes some deterrent effects on respondents if they do not cooperate.

The Sub-Sub Components of the Legal Supports Module are as follows.

- Responding Obligations: The surveys that are given a high priority by BPS and critical for the country need some law giving the respondents the obligations to respond.
- National Statistical System (NSS): OECD defines National Statistical System as “...the ensemble of statistical organisations and units within a country that jointly collect, process and disseminate official statistics on behalf of national government.” Often, the NSOs act as the coordinator (United Nations-ECLAC, 2005) and so is BPS. However, a law is required to strengthen the BPS functions related to the NSS, especially in the BPS positions that are regarded as having a

lower level than the ministries. The NSS will also help BPS promoting the surveys and statistical products.

- Administrative Data Transfer: The law is required to ensure that an administrative data source transfers their data for BPS for the statistical production purpose.

SBR AS THE ENGINE OF THE FRAMEWORK

The idea of this framework is that the framework is based on knowledge. Hence, to get the knowledge, consistent data acquisition is one of the prominent enablers of this framework. Referencing to Figure 5, we can see that there are two databases in this module: the respondent database and Statistical Business Register database. The two databases are actually related to the SBR processes. While all the channels in which the SBR database come are from SBR processes, the profiling program that the data goes to the respondent database is actually from SBR also.

Some Examples of Engaging with Respondents Based on SBR data

With the functioning of the other enablers, for example, the legal framework that enables the transfer data from administrative data source to SBR, the SBR can give many opportunities toward the growing engagement between BPS and the respondents in the future. There are some examples that can be given specifically based on current knowledge. With the data that will be gathered by the SBR activities, some segmentation can be made. After that, the segmentation can affect the styles of respondent communication, for example as follows.

- Relevant Offers
 - The statistical unit information can give us the idea about which reporting unit is more suitable for a particular survey. For example, if we want to collect information on business' financial information, the enterprise is more suitable reporting unit than the establishment.
 - The sampling with burden control can be based on a segmentation, i.e. the burden level based on how many times the units have been surveyed. The units that already have had a very high burden because have been surveyed so many times, should have a decreasing probability to be selected again. This way, the survey conducted on the respondents are relevant in term of the degree of the burden they have had.
 - The respondent lifetime value will help us as a basis to decide which type of enumerator that will be best for particular targets. If the targets are involved in a longitudinal survey or are the significant businesses based on its contribution to the economy so that the data will be very valuable, then the enumerators with a higher position and having a certain level of education will be more suitable for the respondents. The information of the lifetime value can be obtained, for example, by seeing which units are flagged as the respondents for those longitudinal surveys or by seeing units that are related to some large enterprise groups.

- The institutional sector information can be based, for example, to decide what survey method is best for a sector. If the targets are in the NPISH sector, then we can choose a mail survey over a web survey to increase the response rate.
- Respondent Lifecycle Offers
In CRM, usually, corporates try to create some “phases” in the customer journey. These phases then can be the basis for them to decide on how to interact with so that they can engage more with the customers. In the future, in BPS, the SBR business processes will include flagging the units that have been surveyed. Therefore, we can get the information about the units that are relatively often or not often being the selected samples for surveys. That information can be the base for the lifecycle offer. For example, if we know that particular respondents are first timers, then we can give them a kit containing brochures about BPS, send them the enumerators who are better on communicating the concepts and definitions related to the surveys, or in the case of Computer-Assisted Web Interviewing (CAWI) we can give a quick tutorial for the new-comers. Meanwhile, we can also give the respondents who have responded relatively many times with thank-you-for-being-loyal gifts or certificate.
- High –Value Information
High-value information can also be given to the respondents based on the segments made with the SBR data. For example, the units that operated in a particular industry sector can be given information about in which position they are relatively in the market or how good is the industrial climate in the market. The information can also be sourced from business statistics, one of the products of SBR.

With those example of communications that are based on segmentation with SBR data, hopefully, the indicators of an increased response rate, as the objective of the framework, can be seen. The example of the effects of the aforementioned communication ways to the higher response rate is as follows.

- If we chose the right reporting units, the respondents will not have the reason for not having the data. This will reduce the non-response rate. Currently, the reporting unit for the business-based survey in BPS is establishment. We found that there are difficulties with gathering financial-related information. In Economic Census, for example, the respondents often asked the enumerators to contact their head offices to get the data. Based on International Recommendations for Industrial Statistics (2009), actually, instead of the establishment, the enterprise is more suitable for collecting information that is related to financial and balance sheet accounts.
- With the sampling with burden control (Guggemos and Sautory, 2012), the acquisition can be made. With the control, a respondent should not be surveyed too often. This will increase the probability that, instead of getting the same units sampled, again and again, some new units will be chosen as the samples. This way, the response rate will increase because in the root-cause analysis of the response rate problem, “respondent has had too many surveys” is one of the factors that lead to the problem.

- Based on the workshop conducted by agricultural SMA in BPS who involved the people from businesses in the workshop, they found that large businesses tend to choose enumerators who have a higher position in BPS. By knowing which of the businesses are actually large businesses based on SBR data, we can choose the suitable enumerators for those businesses so that they do not refuse to participate in the survey. If we refer to the root-cause analysis of the response rate problem in BPS, we can see that the low image of current enumerators is one of the factors that lead to the problem.
- Lin and Ryzin (2011) found that using a mail survey instead of a web survey is more effective in term of response rate for gathering data from non-profit organizations. Hence, using the institutional sector information from SBR might be a benefit for BPS.
- The respondent lifecycle offers as the aforementioned example can make the acquisition to be more successful because as the first timers, respondents can get the information about what BPS is and how the data they give to BPS can be useful for the country. The enumerators who are better on communicating the concepts and definitions related to the surveys will help them through the first time survey and make the process easier for them so that they will agree to participate in the survey. That the respondents do not know about the survey and feel that the survey is hard to do for the respondents are actually two of the factors of why the respondents refuse to participate in the survey as identified in the root-cause analysis that was done before the framework was developed.
- Finally, in CRM, satisfaction and delight are two of the customer retention factors (Rust, 1993; Oliver, Rust, & Varki, 1997). Learning from that, it is likely that the respondent retention can also be made by the previous experience or satisfaction or delight they got when dealing with the enumerators, including the high-value information that is given to the respondents based on the segments made with the SBR data. Actually, giving the respondents valuable information to respondents is also a recommendation by Schoeni (2018). If the first impression is obtained with all the combination of good communication ways as mentioned previously, it is also likely that the respondent retention can also be achieved.

CONCLUSION

A framework to increase the response rate for the business-based survey in BPS was proposed. The framework that was adapted from a knowledge-based CRM framework tells about what to achieve in the framework, i.e. the increased response rate, along with the indicators of the increased response rate, about respondent communication, respondent segmentation, and the enabler so that the framework can work well. The engine of this framework is the knowledge which uses Statistical Business Register (SBR) database which is rooted from administrative data, survey feedback, SBR Quality Improvement Survey (QIS), and profiling program, also uses a respondent database which is rooted from Survey Control File (SCF) results, profiling program that also one of the SBR activities, and metadata-paradata. There are some scenario examples that can be given specifically based on current knowledge. With the data that will be gathered with the SBR activities, some segmentation

can be made. The examples are segmentations based on statistical unit, burden level, lifetime value, institutional sector, respondent phase, and industrial sector. After that, the segmentation can affect the styles of respondent communications. In this paper, we give some example on relevant offers, respondent lifecycle offers, and high-value information. In this paper also, we give the example of how those styles of communication that based on SBR data can improve the response rate.

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