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Optimizing Data Interoperability for System Efficiency: One Data Standard in the Government's Environment

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ABSTRACT

This research aims to determine the optimization of data interoperability for the efficiency of the One Data Employment System by analyzing the implementation of the One Data standard, technical challenges, organizational needs, and the benefits of strategic steps. This research uses a qualitative research approach with in-depth analysis assisted by NVivo 12 Plus Software with various data sources that support the research results, namely Previous studies/literature reviews, news, and websites on the Satu Employment Data portal. The results of the analysis show that the implementation of the One Data standard includes data collection and exchange policies, development of technological infrastructure, adoption of data standards, personnel training, and stakeholder involvement with inter-agency coordination, as well as regular data reporting and validation, are needed to prevent duplication. Technical challenges relate to differences in communication protocols, data formats, and security. The results of the implementation show that with a careful and collaborative approach, these technical challenges can be overcome, as seen from the network revitalization and increased data security at the Ministry of Manpower with the help of BSSN. Organizational needs by carrying out needs analysis, setting standards, developing infrastructure, and managing data quality. Benefit from strategic steps by aligning departments, training, and regular monitoring, as well as scalability and collaboration. One Employment Data organizers produce quality data through the coordination of various work units and one data policy.
Keywords: Data Interoperability, One Employment Data, System Efficiency, Government Environment.

ABSTRAK

Penelitian ini bertujuan untuk mengetahui optimalisasi interoperabilitas data untuk efisiensi Sistem Ketenagakerjaan Satu Data dengan menganalisis penerapan standar Satu Data, tantangan teknis, kebutuhan organisasi, dan manfaat langkah strategis. Penelitian ini menggunakan pendekatan penelitian kualitatif dengan analisis mendalam dibantu Software NVivo 12 Plus dengan berbagai sumber data yang mendukung hasil penelitian yaitu Studi terdahulu/ telaah pustaka, berita, dan website pada portal Satu Data Ketenagakerjaan. Hasil analisis menunjukkan bahwa penerapan standar Satu Data mencakup

kebijakan pengumpulan dan pertukaran data, pengembangan infrastruktur teknologi, penerapan standar data, pelatihan personel, dan keterlibatan pemangku kepentingan dengan koordinasi antarlembaga, serta pelaporan data secara berkala dan validasi, diperlukan untuk mencegah duplikasi. Tantangan teknis berkaitan dengan perbedaan protokol komunikasi, format data, dan keamanan. Hasil implementasi menunjukkan bahwa dengan pendekatan yang cermat dan kolaboratif, tantangan teknis tersebut dapat diatasi, terlihat dari revitalisasi jaringan dan peningkatan keamanan data di Kementerian Ketenagakerjaan dengan bantuan BSSN. Kebutuhan organisasi dengan melakukan analisis kebutuhan, menetapkan standar, mengembangkan infrastruktur, dan mengelola kualitas data. Manfaatkan langkah-langkah strategis dengan menyelaraskan departemen, pelatihan, dan pemantauan rutin, serta skalabilitas dan kolaborasi. Penyelenggara Satu Data Ketenagakerjaan menghasilkan data yang berkualitas melalui koordinasi berbagai unit kerja dan satu kebijakan data.

INTRODUCTION

Data interoperability is the primary key to increasing system efficiency, especially in the context of a government environment (Leski Rizkinaswara, 2020). To achieve these goals, implementation of the One Data standard has become a significan't focus for many government agencies (Burns et al., 2019). The One Data Standard aims to integrate data from various sources and ensure that the data can be used efficiently and effectively by multiple government units and agencies (Lee et al., 2021).

One Data Standard in the government environment aims to identify challenges, benefits, and optimization steps that can be taken to increase overall system efficiency (Zeid et al., 2019). Implementing the One Data standard in the government environment is an essential step in creating an integrated and efficient system (Xu et al., 2020). With good interoperability, various data produced by multiple government agencies can be connected and utilized more optimally (Lelli, 2019).

A deep understanding of the implementation of the One Data standard can increase overall system efficiency, improve public services, and strengthen the basis for data-based decision-making (Kulsum et al., 2022). Implementation of the One Data standard will include several key aspects, including technical challenges, organizational needs, expected benefits, and strategic steps that can be taken to ensure successful implementation (da Silva

Serapião Leal et al., 2019). However, to achieve successful implementation of the One Data standard, a deep understanding of the challenges, benefits, and optimization steps that can be taken is required (Burns et al., 2019).

Implementing the One Data standard in the government environment is an essential step in creating an integrated and efficient system (da Silva Serapião Leal et al., 2019). With good interoperability, various data produced by multiple government agencies can be connected and utilized more optimally (Smith et al., 2021). A deep understanding of the implementation of the One Data standard can increase overall system efficiency, improve public services, and strengthen the basis for data-based decision-making (Sharma & Sharma, 2020). Implementation of the One Data standard involves several key aspects, including technical challenges, organizational needs, expected benefits, and strategic steps that can be taken to ensure successful implementation (Lan et al., 2021).

This research aims to identify challenges, benefits, and optimization steps that can be taken to increase overall system efficiency within the government environment by managing One Employment Data (Ardani & Cahyani, 2022). The One Employment Data Policy is an improvement step in government governance in the employment sector to create employment data that is accurate, up-to-date, integrated, and accountable (Rizky Maulidya, 2022). Apart from that, this policy also aims to facilitate access and sharing of data between central and regional agencies (Kemnaker.go.id, 2022). One Employment Data is in the form of a single data portal, which will be used as a medium for utilizing employment data by the entire community and all employment work partners (Leski Rizkinaswara, 2020).

LITERATURE REVIEW

DATA INTEROPERABILITY OPTIMIZATION

Data interoperability, as a crucial element in today's digital ecosystem, refers to the ability of different systems and organiza-

tions to exchange and use information effectively (Höschele et al., 2022). Optimizing data interoperability is not just about exchanging data but also about utilizing that information most efficiently and effectively (Li & Wang, 2021). Previous studies emphasize the importance of data standards and communication protocols in creating a framework that supports interoperability (Yaghoobirafi & Nazemi, 2019). For example, the use of open and consistent data formats such as XML or JSON can facilitate the exchange of information between diverse systems (Møller, 2019).

Another increasingly popular approach is the adoption of semantic technologies, such as graph-based ontologies and data models, which enable more prosperous and more flexible data representation (Freire et al., 2019). This technology allows systems to understand the context and relationships between data, which in turn improves their ability to collaborate (Valero et al., 2021). In addition, service-oriented architecture, and the use of APIs (application programming interfaces) also play an essential role in ensuring that data can be accessed and used by various applications and platforms seamlessly (Rainer et al., 2020).

However, optimizing data interoperability also faces challenges, especially related to data security and privacy (Bhatia, 2020). As data exchange between systems increases, the risk of security breaches also increases. Therefore, a holistic approach is required, which integrates robust security mechanisms with- out sacrificing efficiency and ease of data access. In addition, legal aspects and regulatory compliance must also be considered to ensure that data exchange between organizations complies with applicable laws (Arzo et al., 2021). Overall, optimizing data interoperability is a complex and multidimensional effort that requires cross-sector collaboration, adoption of the latest technologies, and comprehensive implementation of standards and best practices (Moreira et al., 2022). Success in this area will pave the way for further innovation and increased operational efficiency in various sectors, from health to government and industry (Van, 2018).

ONE DATA STANDARD IN THE GOVERNMENT ENVIRONMENT

The implementation of the One Data Standard in the government environment aims to increase transparency, efficiency, and accountability through interoperability, accuracy, completeness, and reliability of data (De Lacerda Filho et al., 2022). This standard enables the integration of data from various government agencies, thereby reducing duplication of effort and improving the quality of accurate, evidence-based decision-making (Blobel et al., 2018). Benefits include greater transparency, operational efficiency, and better decision-making, but challenges include data governance, technology, and human resources (Najjar et al., 2022). Several countries have successfully implemented the One Data Standard, such as Singapore with the Smart Nation initiative and Indonesia with One Data Indonesia, which shows how data integration can improve the quality of public services and development (Ozturk, 2020). However, successful implementation requires a robust policy framework, investment in technology, and adequate training of experts (Docksey & Propp, 2023).

To overcome this challenge, several strategic steps can be taken. First, the development of a comprehensive data governance policy is essential to ensure that data is managed well and conforms to the required quality, security, and privacy standards (Gao et al., 2023). Second, investment in technological infrastructure needs to be increased, including the development of sophisticated data management systems and capable analytical tools to support effective data integration and analysis (Thayil et al., 2023). Third, the government must focus on developing human resource capacity through continuous training and education in the field of data technology and analytics (Rahman & Hussain, 2020).

In addition, collaboration between government agencies, the private sector, and academia can accelerate the adoption of the One Data Standard (Bianchi et al., 2023). This collaboration can create a more robust and more innovative data ecosystem,

enabling the sharing of knowledge and resources (Rath et al., 2023). The government also needs to build public trust by ensuring transparency in data management and involving the public in data-based decision-making processes. Case studies from countries that have successfully implemented the One Data Standard can serve as a guide for other countries in designing effective implementation strategies (Martin et al., 2022). Through a better understanding of best practices and the challenges faced, governments can adopt approaches that are more adaptive and responsive to local needs (Suardi et al., 2023). Thus, implementing the One Data Standard is not only about technical data management but also includes policy aspects, technology investment, human resource development, and cross-sector collaboration (Chen et al., 2023). If implemented well, the One Data Standard can be a powerful tool to support government digital transformation, improve the quality of public services, and promote more inclusive and sustainable development (Amr et al., 2020).

RESEARCH METHOD

This research is a type of qualitative research that uses a case study approach (Sugiyono, 2017). A qualitative approach was chosen to gain an in-depth understanding of the implementation of the One Data Standard and data interoperability in the government environment in managing One Employment Data, as well as researchers to explore various contextual and dynamic aspects related to this topic. Through a case study approach, this research will explore specific details about the implementation of the One Data Standard in the government environment and identify obstacles and strategies in optimizing data interoperability. This research aims to provide an in-depth and contextual understanding of issues related to data management in the government sector. This research aims to conduct a review of the implementation of the One Data Standard in the government environment with a focus on optimizing data interoperability. Data collection techniques include literature study document

analysis. The data collected was analyzed using content analysis techniques and compared with relevant theories in the literature. Furthermore, the analysis results will be supported by NVivo 12 Plus software and Visual Object-oriented Social Data and Text (VOSviewer) to gain in-depth insight into patterns and relationships between data. This research is expected to provide an in-depth understanding of the implementation of the One Data Standard and data interoperability in the government environment, as well as provide policy recommendations and best practices to improve the efficiency of government data management.

RESULT AND DISCUSSION

In accordance with the mandate of Presidential Regulation Number 39 of 2019 concerning One Indonesian Data and Minister of Manpower Regulation Number 15 of 2020 concerning One Employment Data, the Employment Data and Information Technology Center has been appointed as the Employment Data Trustee, one of whose duties is to disseminate Data, Data Standards, Metadata in the One Employment Data Portal (Bappeda Kaltim, 2022). One Employment Data is in the form of a one data portal, which is used as a medium for utilizing employment data by the entire community and all employment partners (Leski Rizkinaswara, 2020). All employment data culminates in the One Employment Data Portal as public data to resolve employment problems and overlapping data, which often occurs due to the lack of standardization in data collection (Kemnaker.go.id, 2021b). Optimizing Data Interoperability for System Efficiency: Review of the Implementation of the One Data Standard in the Government Environment by analyzing the Implementation of the One Data standard, technical challenges, organizational needs and benefits, and strategic steps (Tobar Rosero et al., 2019). The results of the analysis with NVivo 12 Plus are shown in Figure 1.

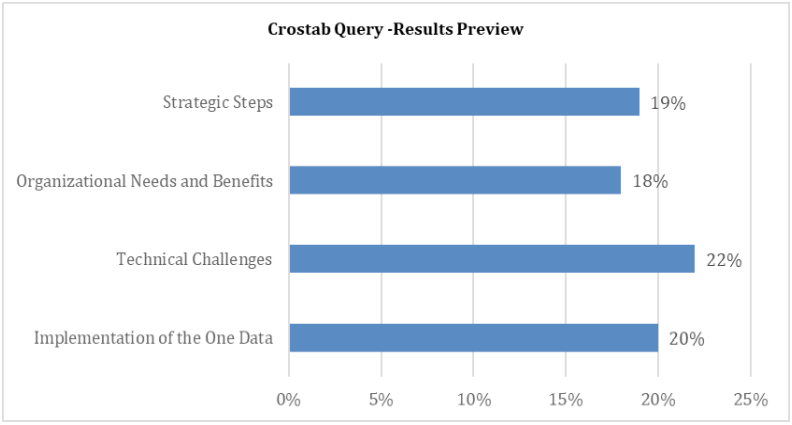

Figure 1. Crosstab Query-Results Preview
Source: NVivo 12 Plus Analysis, 2024

The results of analysis using NVivo 12 Plus show that 20% of these aspects have been implemented well, illustrating progress in increasing efficiency, transparency, and innovation in managing employment data. Implementation of the One Data standard includes establishing supporting policies and regulations, building adequate technological infrastructure, and adopting consistent data standards and interoperability to ensure readability and effective data exchange. In addition, increasing personnel capacity through training, involvement of various stakeholders, and guaranteeing data protection and security is significant. Strong coordination and consolidation between institutions is needed to prevent data duplication, with data reporting and verification carried out periodically and in stages. Effective monitoring and evaluation and adequate allocation of financial resources support sustainable development and implementation. Technical challenges account for 22% of the time and require adequate monitoring, evaluation, and resources to support infrastructure. Proper technology selection and thorough testing are critical to ensuring system interoperability. Revitalization of network equipment and data security is carried out in collaboration with various parties, and ongoing maintenance is required to address technical needs and provide support to users. Organizational-

needs and benefits account for 18%. Data interoperability gives organizations the ability to integrate systems, improve operational efficiency, and facilitate more effective collaboration by enabling seamless data exchange. Other benefits include improving the quality of decisions through more complete and accurate data access, improving customer service and data security, as well as expanding collaboration networks with external partners.

Data interoperability also enables faster response to market changes, identification of market trends, performance measurement, and integration with external systems, supporting business growth and innovation. The success of data interoperability based on the results of the NVivo 12 Plus analysis with a percentage (19%) and strategic steps must be considered. This includes analyzing organizational needs, establishing data standards, data quality management, and personnel training. Alignment between departments involved, data security, and regular monitoring are also crucial. Collaboration, coordination and thorough preparation are essential foundations for successful implementation.

IMPLEMENTATION OF THE ONE DATA STANDARD WITH SEVERAL KEY ASPECTS

Implementation of the One Data standard involves several vital aspects that must be considered comprehensively (Singer et al., 2018). First, there is a need to establish policies and regulations that support the collection, processing, and exchange of data across sectors and government agencies (Ntafi et al., 2022). This includes rules on privacy, security, ownership, access, and use of data (Gerontas, 2020). Second, adequate technological infrastructure needs to be built to support efficient and secure data storage, integration, and access (Kalogirou et al., 2020). This includes the development of centralized data platforms, interoperability standards, and network and computing infrastructure that supports significant data processing needs (Nizam et al., 2020). Third, it is essential to adopt consistent and interoperable

data standards to ensure readability, compatibility, and effective data exchange between various systems and platforms (Gacitua et al., 2021).

Additionally, increasing the awareness and capacity of personnel regarding One Data practices is essential through training on quality data collection, data analysis, and effective data management (Oumkaltoum et al., 2021). Involving various stakeholders, including government, the private sector, civil society, and academia, in the One Data development and implementation process is also necessary (Pauletto, 2021). Personal data protection and overall data security must be guaranteed through data protection policies, data encryption, controlled access, and data usage audits (Saputro et al., 2020). The processing flow of one employment data is shown in Figure 2.

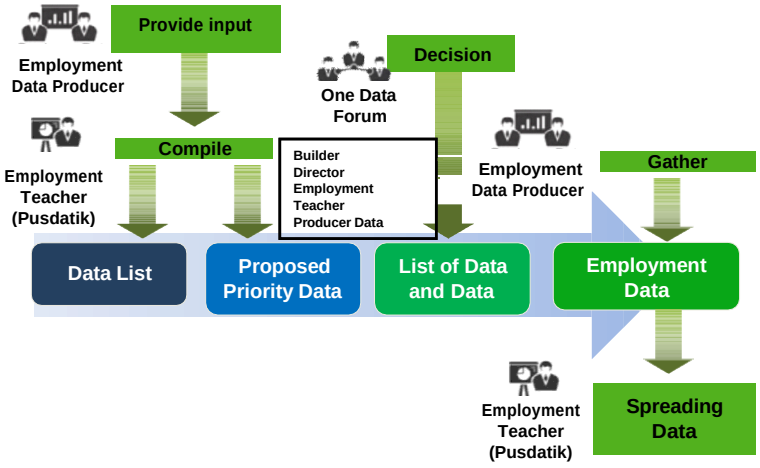

Figure 2. Flow of Management of One Employment Data

Implementation of processing one employment data in preparing employment data by carrying out coordination and consolidation between data guardians and the secretariat of data producers so that data duplication does not occur (Lelono, 2021). Reporting, verification, and validation of data are carried out periodically and in stages, starting from the Regency/City, Prov-

ince, to the Central level, both conventionally and using information technology (Kemnaker.go.id, 2021a). The Ministry of Manpower plays a central role in coordinating the implementation of the single employment data policy (Bappeda Kaltim, 2022). Efforts are clearly focused on clarifying data flows, strengthening coordination between agencies, and effective data management with coordination, consolidation, and duplication prevention approaches. Data reporting, verification, and validation are carried out regularly and in stages, both through conventional approaches and by using information technology (Wahyuni et al., 2021).

Implementation of One Employment Data with effective monitoring and evaluation to measure progress, correct weaknesses, and adjust strategies (Ardani & Cahyani, 2022). Allocation of adequate financial resources is essential to support the ongoing development, implementation, and maintenance of the infrastructure and systems required to support One Data (Xu et al., 2020). By paying attention to all these aspects, implementing the One Employment Data standard can produce significant benefits in increasing efficiency, transparency, and innovation in the management and use of data in various sectors and levels of government (Rizky Maulidya, 2022). Employment Data becomes information by providing knowledge, presented periodically and periodically, which is helpful in developing policies and making employment development plans, supervising the implementation of employment development activities, and conducting employment development evaluations (Indonesiabaik.id, 2020). Employment data is only published or disseminated by the Data Manager periodically and as needed through the One Employment Data Portal and other media such as books, tabloids, leaflets, and bulletins (BSSN.go.id, 2022).

The One Data aims to integrate and simplify government data management to make it more accurate, up-to-date, and accessible (Islami, 2021). This is like the GDPR in the EU in terms of data management. However, One Data focuses more

on standardization and data openness, while the GDPR focuses on personal data protection (Kulsum et al., 2022). In the US, the approach is more decentralized. One Data ensures consistent standardization across agencies, like the European Interoperability Framework. However, its data protection needs to be explicitly regulated and relies more on the Personal Data Protection Law (Lee et al., 2021). For improvement, Indonesia needs to strengthen personal data protection in One Data, develop cross-sector interoperability standards, and balance data openness with privacy protection (Islami, 2021)

TECHNICAL CHALLENGES OF ONE EMPLOYEMT DATA

Implementation of One Employment Data with effective monitoring and evaluation to measure progress, correct weaknesses, and adjust strategies (Belchior et al., 2022). Allocation of adequate financial resources is essential to support the ongoing development, implementation, and maintenance of the infrastructure and systems required to support One Data (Ozturk, 2020). By paying attention to all these aspects, implementing the One Employment Data standard can produce significant benefits in increasing efficiency, transparency, and innovation in the management and use of data in various sectors and levels of government (Corici et al., 2022). Employment Data becomes information by providing knowledge, presented periodically and periodically, which is helpful in developing policies and making employment development plans, supervising the implementation of employment development activities, and conducting employment development evaluations (Cayeux et al., 2023). Employment data is only published or disseminated by the Data Manager periodically and as needed through the One Employment Data Portal and other media such as books, tabloids, leaflets, and bulletins (Lin & Wang, 2023)

Choosing the right technology is an essential first step, ensuring that the integrated systems can communicate smoothly with each other (Liepert et al., 2023). Teams involved in system devel-

opment and maintenance must work closely together to resolve technical differences and ensure that integration goes according to plan (Sampaio & Gomes, 2021). Thorough testing steps are also required to ensure that interoperability is successfully achieved (Krastev et al., 2023). This includes unit testing to check the functionality of each component separately, as well as integration testing to verify that the integrated systems can interact correctly (Adibfar & Costin, 2021).

The revitalization of the network equipment and data security of One employment Data was carried out on May 13, 2023, accompanied by Mr. Sugiarto A. and a team from the Ministry of Manpower (Pusdatik.Kemnaker, 2023). The Employment Data and Information Technology Center collaborates with the National Cyber and Crypto Agency (BSSN) to conduct an IT Security Assessment to maintain the security of information systems at the Ministry of Manpower (Fadhil, 2020). Through this activity, the Ministry of Manpower becomes more alert and continues to improve the security of application information systems from cybercrime (BSSN.go.id, 2020). Assessment of network and employment information technology security at the Central Technical Implementation Unit with the results of assessments that have been carried out at UPTP as well as recommendations from Employment data center, which assists in developing infrastructure and security at UPTP (Jambi.Prov.go.id, 2022).

Additionally, ongoing maintenance and support are required once the integration is complete (Khairul anam, 2021). This includes continuously monitoring system performance, addressing changing business or technical requirements, and aiding users in resolving problems as they arise (Arnoldus Kristianus, 2021). With a thoughtful approach, good teamwork, and ongoing attention to system requirements, the technical challenges of interoperability can be addressed successfully, enabling organizations to take full advantage of the integration potential of complex and heterogeneous systems (Anam, 2021). Data interoperability in various sectors faces different chal-

lenges in implementing the One Data standard in Indonesia (Kemnaker.go.id, 2022). In the employment sector, the implementation of One Employment Data focuses on integrating data from various agencies. However, obstacles such as inconsistent data quality and lack of synchronization between agencies still need to be addressed (Islami, 2021).

Challenges in the employment sector are more complex because they involve many stakeholders and cross-sectoral policies (Leski Rizkinaswara, 2020). New technologies such as blockchain and AI play an essential role in improving data interoperability, with blockchain providing a secure storage mechanism and AI assisting in predicting workforce trends and data standardization (Lee et al., 2021). Recommendations in the context of One Employment Data include the development of digital infrastructure, collaboration between agencies, increasing HR capacity, and implementing innovative technology to support more efficient data integration (Islami, 2021).

ORGANIZATIONAL NEEDS AND BENEFITS ONE EMPLOYMENT DATA

Data interoperability gives organizations the ability to integrate their systems, applications, and software, overcome communication barriers, and enable seamless data exchange (Rizlia Khairun Nisa, 2021). In an ever-changing business environment, the organizational need for data interoperability is becoming increasingly important (Akbar et al., 2022). First, interoperability facilitates the consolidation of data from multiple sources into a single platform, increasing operational efficiency by reducing the need for separate systems (Puspitasari et al., 2021). Additionally, the ability to share data between departments enables more effective collaboration, avoids duplication of information, and speeds up the flow of vital information (Yaghoobirafi & Nazemi, 2019). In terms of benefits, data interoperability brings improved decision quality by providing easier access to complete and accurate data, enabling organizations to make more informed deci-

sions (Moreira et al., 2022).

Improved customer service and data security are other significant benefits, with interoperability enabling better personalization of services and the implementation of stricter access controls (Devanand et al., 2022). Data interoperability drives better collaboration with partners and third parties, expands collaboration networks, and strengthens information flows (Ren et al., 2023). Thus, data interoperability is not only an organizational need but also brings several significant benefits that are expected in various operational and strategic aspects (Keraron & Despujols, 2020). Through data interoperability, organizations can also respond to market changes faster and more flexibly (Sharma & Sharma, 2020).

With the ability to access and analyze data holistically from multiple sources, organizations can identify market trends, measure performance, and better anticipate changing customer needs (Spyropoulos et al., 2023). In addition, data interoperability also facilitates integration with external systems, such as marketing or customer service platforms hosted by third parties (Tshering & Anutariya, 2022). This allows organizations to expand their range of services, improve customer experience, and create a broader, connected business ecosystem (Najjar et al., 2022). Thus, data interoperability not only brings operational benefits and internal efficiency but also plays a crucial role in supporting business growth, innovation, and an organization's adaptability to changes in the external environment (Belchior et al., 2022).

STRATEGIC STEPS THAT CAN BE TAKEN TO ENSURE SUCCESSFUL IMPLEMENTATION ONE EMPLOYMENT DATA

To ensure successful implementation of data interoperability, strategic steps must be taken carefully (Power et al., 2024). First of all, a thorough analysis of organizational needs, stakeholders, and data interoperability goals needs to be carried out (Winter et al., 2023). This is followed by the establishment of consistent

and compatible data standards and the development of infrastructure that supports secure and efficient data exchange (Nassar et al., 2022). It is also important to implement data quality management processes so that the data exchanged remains accurate and clean (Kannisto & Hästbacka, 2022). Alignment between the departments or business units involved and prioritization of data security are also crucial factors (Rankinen et al., 2022).

Training and awareness on data interoperability needs to be provided to personnel to ensure proper use of the infrastructure (Rojas-Andrade & Bravo, 2022). Regular monitoring and evaluation are necessary to identify areas for improvement (Escher & Brzustewicz, 2020). In addition, scalability, flexibility, partnerships, and collaboration are essential aspects of ensuring the successful implementation of data interoperability (Kronlid & Baraldi, 2020). By following these steps, organizations can increase the likelihood of success in exchanging data between systems (Haghighi Talab et al., 2020). The organizers of One Employment Data consist of the Employment Data supervisor, Director, Employment Data Guardian, and Employment Data Producer, as shown in Figure 3.

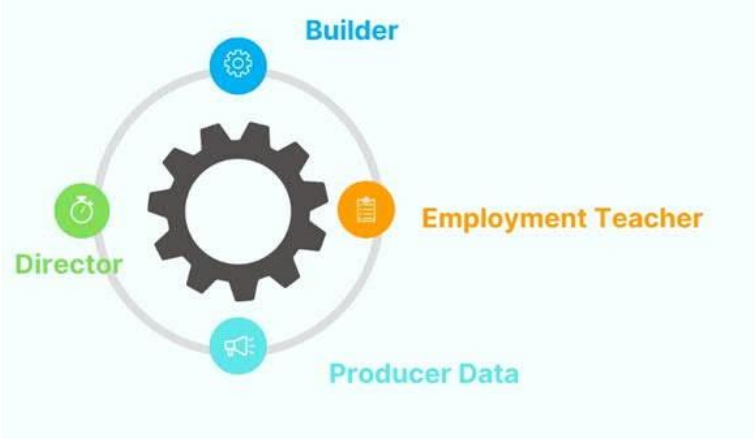

Figure 3. Organizer of one Employment Data
Source: (Kemnaker.go.id, 2021)

The organizer of One Employment Data consists of a data

supervisor who is the minister who organizes government affairs in the field of Employment (Bappeda Kaltim, 2020). Data producers are work units in central agencies and regional agencies that produce employment data (Panrb, 2022). The central-level data guardian is a work unit in the Ministry that manages employment data (Kemnaker.go.id, 2021a). The regional-level data guardian is the department in charge of communicating information and statistics (Jpnn.com, 2021). Each data organizer has a task and collaborates to produce sound and quality data (Lidya Yuniartha, 2020). Employment data producers at both central and regional levels produce employment data, which must be submitted to their respective Employment Data Guardians (Anam, 2021).

As a proactive step, the data literacy culture socialization instrument was implemented in video form, following recommendations from (Lidya Yuniartha, 2020). This approach not only makes it easier for related parties to absorb information but also facilitates the sharing and utilization of knowledge more effectively (Leski Rizkinaswara, 2020). Thus, harmony between values, consistency, and methods of disseminating data literacy culture is an essential foundation for achieving efficiency and sustainability within the organization (Bappeda Kaltim, 2022).

Employment data relates to the workforce before, during, and after the employment period, which includes Job training, workforce productivity, workforce placement, development and expansion of job opportunities, labor market information, labor inspection, occupational health and safety, industrial relations, social security for workers, and other data as needed (Rizky Maulidya, 2022). Coordination and collaboration are carried out by the Central Statistics Agency (BPS) and the Ministry of Manpower of the Republic of Indonesia in preparing statistical metadata, which is carried out online and face-to-face (Islami, 2021).

Head of the Ministry of Manpower's Employment Planning and Development Agency, Bambang Satrio Lelono, said that re-

forming employment data governance through the one employment data policy is fundamental to realizing the availability of accurate, up-to-date, integrated, easily accessible, and usable employment data (Arnoldus Kristianus, 2021). In the end, every employment decision and policy are supported by quality data and information, relevant, accurate, up to date, complete and sustainable, and based on facts/evidence (evidence-based) (Baheramsyah, 2021).

Preparations for implementing One Employment Data start from assessing employment data governance, compiling data lists, data standards, metadata, collaboration be- tween SPBE and SDK, building an SDK Portal, improving the quality of human resources through training, and National SDK Consolidation (Bambang Satrio, 2020). The Technical Coordination Meeting for SDK Implementation was a follow-up to the SDK National Consolidation activities on June 30, 2021, which was attended by 1,187 participants from central and regional agencies (Maarif, 2021). Coordination Meeting is the second activity after previously being held from 22 to September 24, 2021, in Jakarta (Ady Thea, 2022).

Improving training and more structured communication planning, as well as strengthening collaboration and coordination between parts of the organization, is expected to support increased overall readiness and guarantee a more effective response in facing various challenges and emergencies, making it a solid foundation for organizational sustainability and safety (Fabiola Febrinastri, 2022). Stakeholder engagement in managing employment data in Indonesia still faces several significant challenges (Rizky Maulidya, 2022). Coordination between the government, private sector, academics, and civil society is often lacking, with each party tending to work separately, hindering data integration and holistic solutions (Kemnaker.go.id, 2020).

In addition, employment data collection needs to be more standardized and consistent, making accurate analysis and data-driven decision-making complex (Ardani & Cahyani, 2022). The

need for education and training programs also limits stakeholders' understanding and skills in data management (Ozturk, 2020). Furthermore, community participation in decision-making related to employment policies is often limited, so their input is only sometimes adequately considered (Lelono, 2021).

To address this issue, integrated efforts are needed, such as the establishment of a multi-stakeholder forum, development of a common framework, increasing data transparency, and providing training programs, with the aim of increasing stakeholder engagement and producing more inclusive and practical solutions (Rachmat et al., 2024). Increasing stakeholder engagement in the management of employment data in Indonesia, it is necessary to build a multi-stakeholder forum that facilitates discussion and collaboration between the government, private sector, academics, and civil society (Jpnn.com, 2021).

The preparation of a clear common framework and training programs will help improve understanding and skills (Lidya Yuniartha, 2020). Innovation initiatives, collaboration in research, and the development of open data platforms can encourage new solutions and transparency (Nidia Zuraya, 2022). In addition, community involvement through public dialogue and partnerships between the public and private academic sectors will produce more inclusive and practical solutions (Muhammad Firdaus, 2022).

CONCLUSION

Implementation of the One Employment Data standard includes policies and regulations for data collection and exchange, development of adequate technological infrastructure Adoption of consistent data standards by increasing personnel capacity through training and involving various stakeholders. In employment, coordination between agencies and regular reporting and validation of data are needed to prevent duplication. Effective monitoring and evaluation, as well as adequate resource allocation, support efficiency, transparency, and innovation in data

management. Technical challenges in system integration include differences in communication protocols, data formats, and security. The results of the implementation show that with a careful and collaborative approach, these technical challenges can be overcome, as seen from the network revitalization and increased data security at the Ministry of Manpower with the assistance of BSSN and Employment data center. Data interoperability overcomes communication barriers and supports seamless data exchange to improve operational efficiency, interdepartmental collaboration, and decision quality, as well as customer service, data security, and flexibility in responding to the market. Successful implementation of data interoperability requires needs analysis, standard setting, infrastructure development, and data quality management. Alignment between departments, training, regular monitoring, scalability, and collaboration are also critical. One Employment Data organizers produce quality data through the coordination of various work units and one data policy. Implementation preparation includes assessment, preparation of data standards, collaboration, training, and structured communication.

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