

Get Survey Mobile from Indonesian Surveyor Association: Challenges in New Reality

Virgo Eresta JAYA, Fahmi Charish MUSTOFA and Reza ABDULLAH, Indonesia

Keywords: Get Survey, Profesional, eCommerce,

SUMMARY

At the start of the year, we never thought we would spend most of our months indoors. The coronavirus pandemic has changed lives around the world. The economy changed drastically and disruption occurred in various countries. Lifestyles and habits begin to change and adapt to social and physical distancing. the routine to go to work is divided into two rules. people are asked to avoid crowds to prevent the speed of transmission of the Corona virus. That means a lot of work environments. One of them, surveying is a very challenging part of the time, so that professional surveyors can adhere to social distancing regulations well. Surveys remain important for the economy, construction sector and property sector, so jobs continue. Another surprising shift is that companies are starting to rise to go-digital. they realize that if they are still slow in welcoming industry 4.0 in the current era, the covid-19 pandemic will suffer losses. Even better, if the survey companies across the country implement safe work practices in line with government regulations.

The Indonesian Surveyor Association welcomes the challenge in this new reality by building the "GetSurvey" application. This application was built to connect the public closer to the Surveyor. It is hoped that the community or anyone who needs a surveyor will find it easy to get a surveyor and an appointment to do a survey. This application is being tested by the Indonesian Surveyor Association in collaboration with the Government of DKI Jakarta to conduct a survey of building construction permits. the public can make an appointment to meet with the surveyor with a specified time limit and make online payments and provide a review of the surveyor. So, that it is expected to be able to improve services to the public and improve the professionalism of the Surveyor itself.

Get Survey Mobile from Indonesian Surveyors Association: Challenges in New Reality

Virgo Eresta JAYA, Fahmi Charish MUSTOFA and Reza ABDULLAH, Indonesia

INTRODUCTION

President Jokowi expressed his concern in facing the era of the Industrial Revolution 4.0 with his strategy of preparing human resources to be ready to optimize opportunities at high speed, artificial intelligence, big data, and advance robotic (Kompas.com, 2019). In line with that, President Jokowi launched an Industry 4.0 Roadmap which is expected to guide in achieving measurable, clear and integrated goals. The combination of several technological aspects allows Industry 4.0 and smart factories to become a reality. Various technologies have combined to form a paradigm building for the Industrial Revolution 4.0. The technology pillars include: mobile technology, smart computing, big data analysis, internet of things and cloud computing (Kantor Staf Presiden, 2019).

The characteristics of the Industrial Revolution 4.0: fast, automatic and smart. Industrial Revolution Timeline: 1.0 mechanization, steam engine (1784); 2.0 mass production, electric energy (1870); 3.0 automation, computers and electronics (1969); 4.0 cyber systems, internet and networks (2011) (Moneter.id, 2018; Costley, 2019). In addition, the growing trend of internet users, as revealed in the 2018 Tetra Pak Index, is estimated to grow to reach 119 million in 2020, especially during the Covid-19 pandemic (Tetra Pak, 2018), which forced people to do activities at home. Based on this research, as many as 1.2% of consumers in Jakarta had shopped for food online in 2016 and this figure is expected to continue to grow to 5.4% in 2030. Meanwhile, shopping activities in traditional markets may decline in 2030 to become 46.6% from the previous 56.3% in 2016, said Gabrielle Angriani, Communications Manager of Tetra Pak Indonesia (Suarakarya.co.id, 2018). In addition, the phenomenon of the Internet of Things (IoT) and the principle of one-stop shop forces all lines, both government and private, to be prepared with internet-based innovations. It is well known that the philosophy of the digital world, namely create once, use many, offers promising efficiency (Mustofa, Aditya and Sutanta, 2018).

METHODS

A brief literature review was done to silver lining related works and setting the context of DKI Jakarta (special region of Indonesian capital city) as a study area. The application development will conduct considering the following steps: collecting and analyzing user and system requirements, database and application design, implementing and evaluation (Mutambo, 2003; Afnarius *et al.*, 2017). Set of simple questionnaires was developed to catch feedback from user using comment feature in Playstore and Appstore. User testing is a widely used to gather information on how real users use the application. Users give feedback from their experience

when testing the application. Discussion and analysis being done based on the feedback. As to application development, the feedback could help improve the application by finding of bugs and errors.

SETTING THE CONTEXT

The KRK/IRK (City Plan Information)

The KRK states the area of parcels that can be built as the basis for the IMB (document of building permit). The KRK is an initial procedures of generating the IMB, hopefully it acceleration will increase the investment in Jakarta. As it launch, the KRK satisfying the consumer (Bisnis.com, 2019). The system also reduced issues on the data history and clearing that physically distributed in the local server of the Districts (Victoria, 2019).

Ikatan Surveyor Indonesia (ISI)

The Indonesian Surveyor Association (ISI) is a professional association of surveying and mapping in Indonesia. Founded in 1972, ISI is member of The International Federation of Surveyor Professional Association (FIG), it plays an active role in the development of the surveyor in Indonesia. As of today, more than 5400 surveyors, and it still counting (ISI - The Indonesian FIG, 2021).

RESULT AND DISCUSSION

Get Survey

The Indonesian Surveyor Association welcomes the challenge in this new reality by building the "Get Survey" application. This application was built to connect the public closer to the Surveyor. It is hoped that the community or anyone who needs a surveyor will find it easy to get a surveyor and an appointment to do a survey. This application is being tested by the Indonesian Surveyor Association in collaboration with the Government of DKI Jakarta to conduct a survey of building construction permits. the public can make an appointment to meet with the surveyor with a specified time limit and make online payments and provide a review of the surveyor.

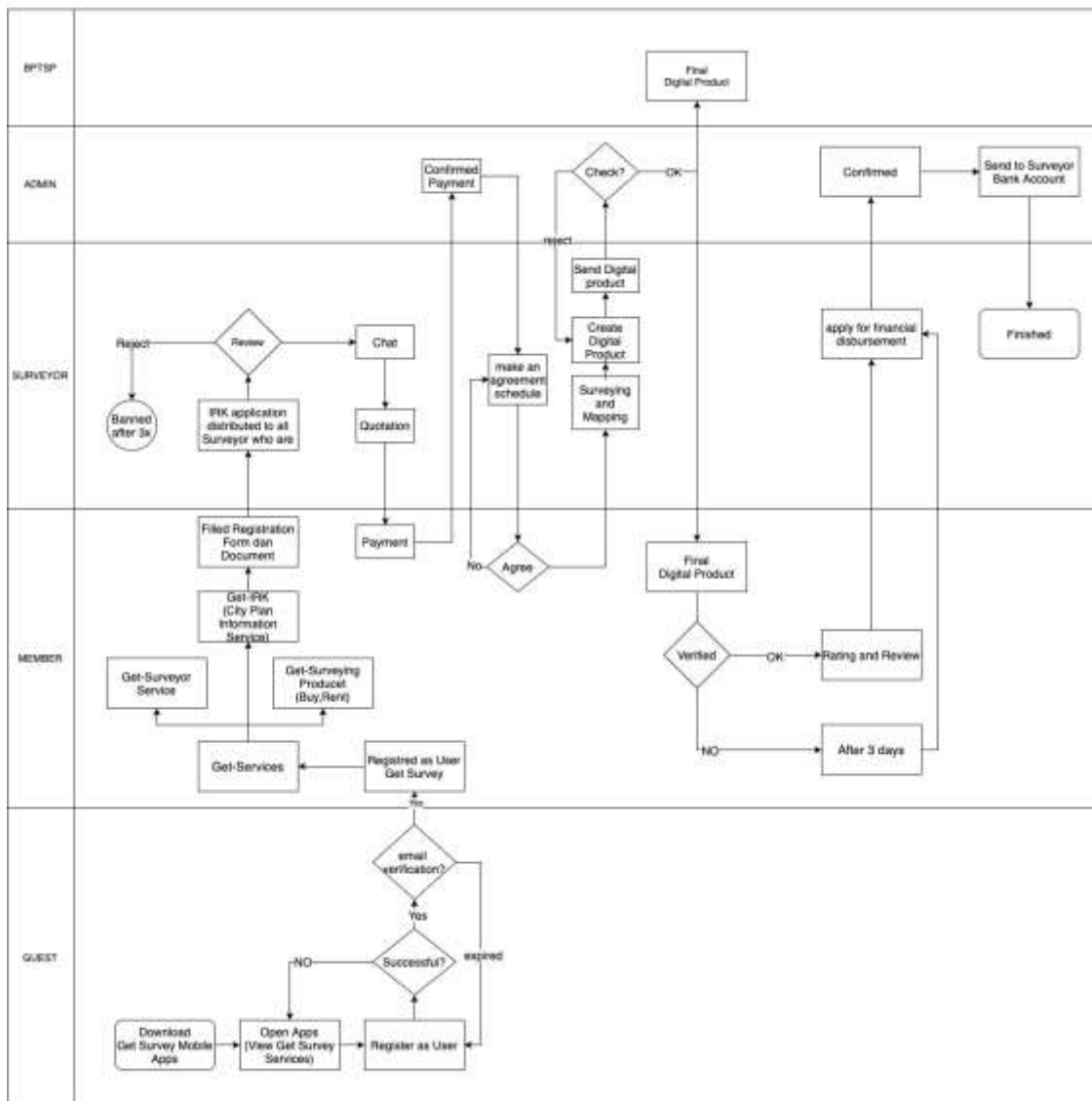


Figure 1. Business Process GetSurvey Apps

There are five user roles in the GetSurvey Application:

1. Guest: Users can view the services and products offered on the GetSurvey application. If the Guest wants to ask questions or get the services and products offered, the Guest will be directed to raise the level to the Member level
2. Member: Users who have registered by filling in their identity and uploading their ID. This user will have an access to communicate with the Surveyor, get the location of the nearest surveyors and get the products offered by the Surveyor.
3. Surveyor: is a Member who upgrades to the next level by completing proof of Skills/competency in the form of a recognized competency certificate. Before the Surveyor

completes the form, they are required to have an ISI membership number, so they must be part of the ISI Member. Surveyors will be able to provide / post services and products to offer on the GetSurvey application. They will also be able to offer to receive IRK services offered by members / the community.

4. Admin: in charge of monitoring and quality control of services and products in the GetSurvey application. For example, in IRK services, the admin is tasked with ensuring that the communication / control chat between the user and the surveyor is in accordance with the guidance ISI. Validate the transaction between user and surveyor. Quality Control and Approve the final results from the Surveyor service before the data is sent to the Member and the DKI government, in this case BPTSP. Admin is a group of teams assigned from the ISI secretariat.

5. BPTSP is an agency under the DKI provincial government that receives and utilizes measurement results from surveyors for further processing for licensing according to the needs of members/communities.

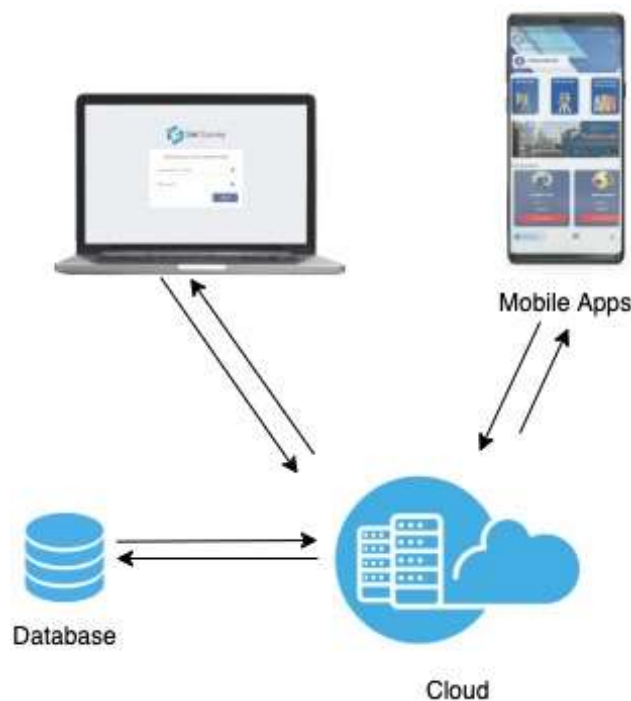


Figure 2. Application Architecture

The GetSurvey application consists of 2 platforms, mobile (Android) and Web. Android application is used for data acquisition. Moreover, as a media of communication between members and surveyors. Furthermore, The web application is used by the admin for monitoring and presenting information. The GetSurvey application is connected to the database using a Cloud service in the form of a Virtual Private Network (VPN). The data synchronization

scheme between users on the mobile and web platforms in the GetSurvey application can be seen in the figure 3 below.



Figure 3. Sync Data

	Nama Pemilik	Alamat Tanah	Pengaju Izin	Tanggal Pengajuan	
1	Wang lan soen	Sunter Agung, Jakarta, DKI Jakarta, -	Fitriaty wijaya	23/4/2021 7:17:37	Lihat
2	WONG TJIEN MALIW	Sunter Agung, Jakarta, DKI Jakarta, -	Fitriaty wijaya	17/4/2021 18:57:9	Lihat
3	SAKARUDIN	Jatinegara, Jakarta, DKI Jakarta, 13330, 13340	Yenrice	16/4/2021 21:8:54	Lihat
4	LO FREDY	Pedemangan Timur, Jakarta, DKI Jakarta, -	Muhamad waluyo	13/4/2021 10:50:43	Lihat
5	Susi Sudarsiwati	Cakung, Jakarta, DKI Jakarta, 13930	Nia ayuningnih	12/4/2021 18:37:40	Lihat
6	Rupinah	Kebayoran Lama, Jakarta, DKI Jakarta, 12330	Rupinah	8/4/2021 15:44:26	Lihat

Figure 4. List of IRK applications from communities that are being processed by Surveyors (Admin Console)

Admin and BPTSP can access and find out the recapitulation of incoming data. This data is used for monitoring and as an accountability report for requests for IRK services from the public.

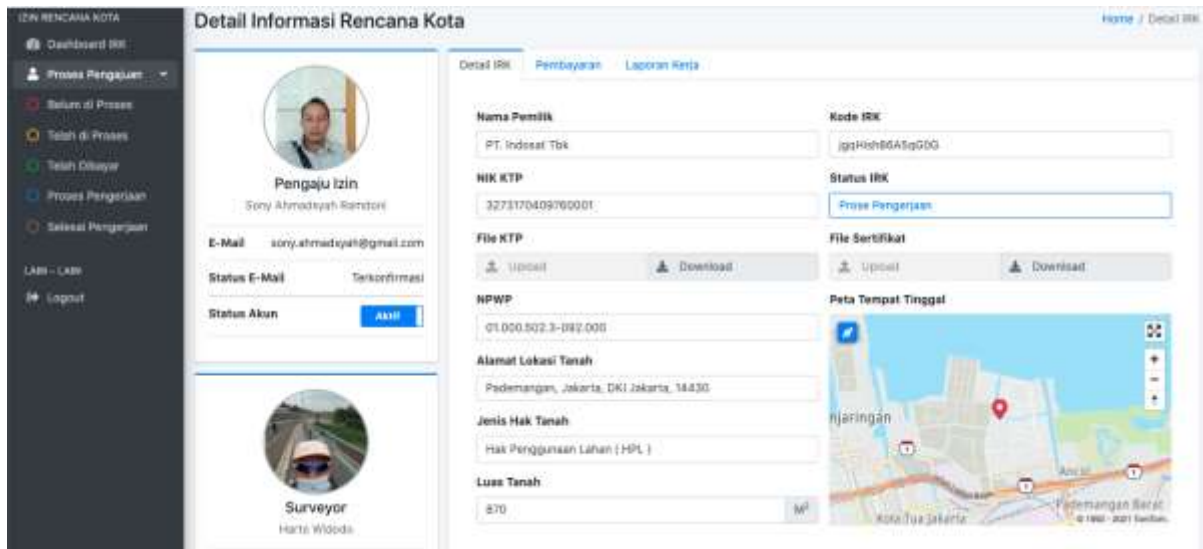


Figure 5. IRK Service Details (in Process)

The following is an example of a detailed IRK service between the surveyor and the member / community as the applicant. We can see the identity of the applicant, information and location of the object / land for which measurement is proposed, the status of payment including the work report.

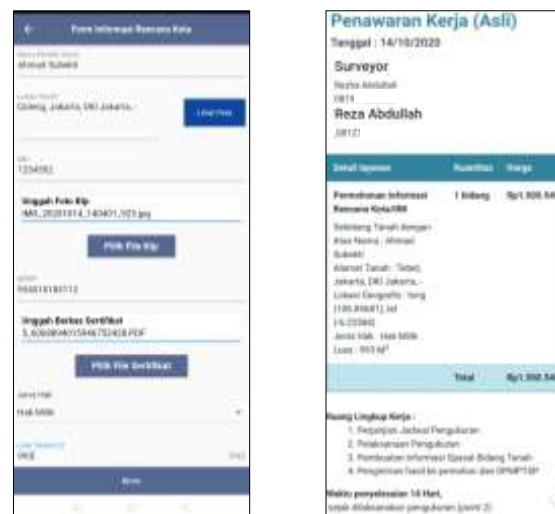


Figure 6. Payment Method

The payment method for IRK Services is done by bank transfer where the destination account number is written in the form of a Quotation template on the GetSurvey application. Based on a predetermined price. Then, add 3 unique digits to the last digit.

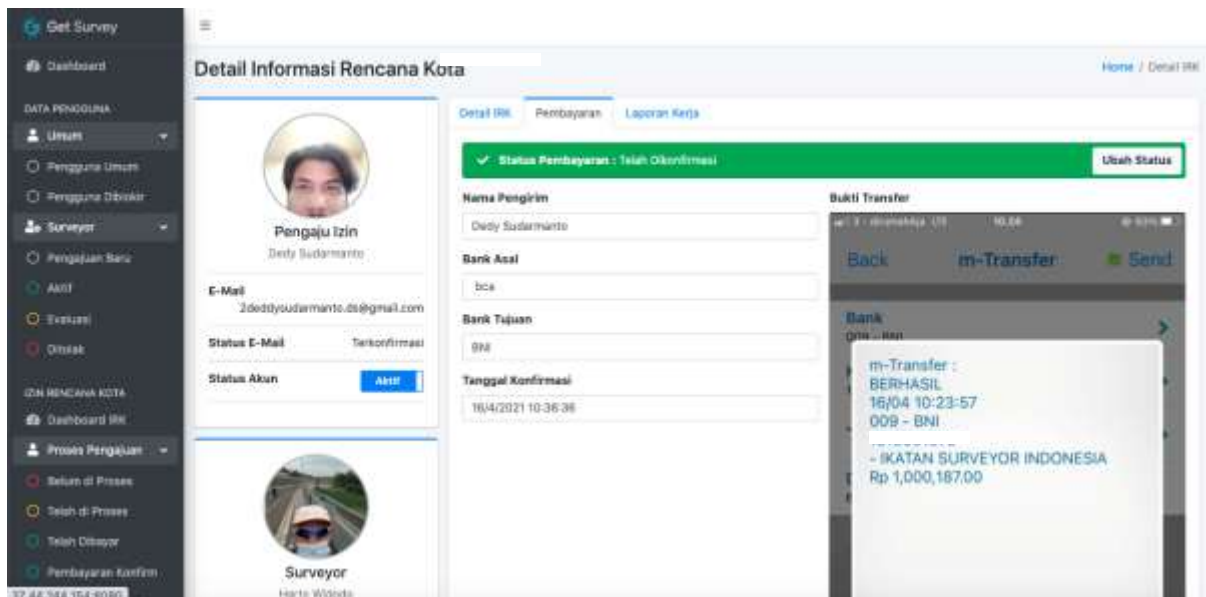


Figure 7. IRK - Payment details

IRK Service Details in this process are used to validate payments / transactions between members and surveyors. Admin validates it, then the IRK service will enter the next stage, namely the surveyor making a measurement agreement with the members / community.

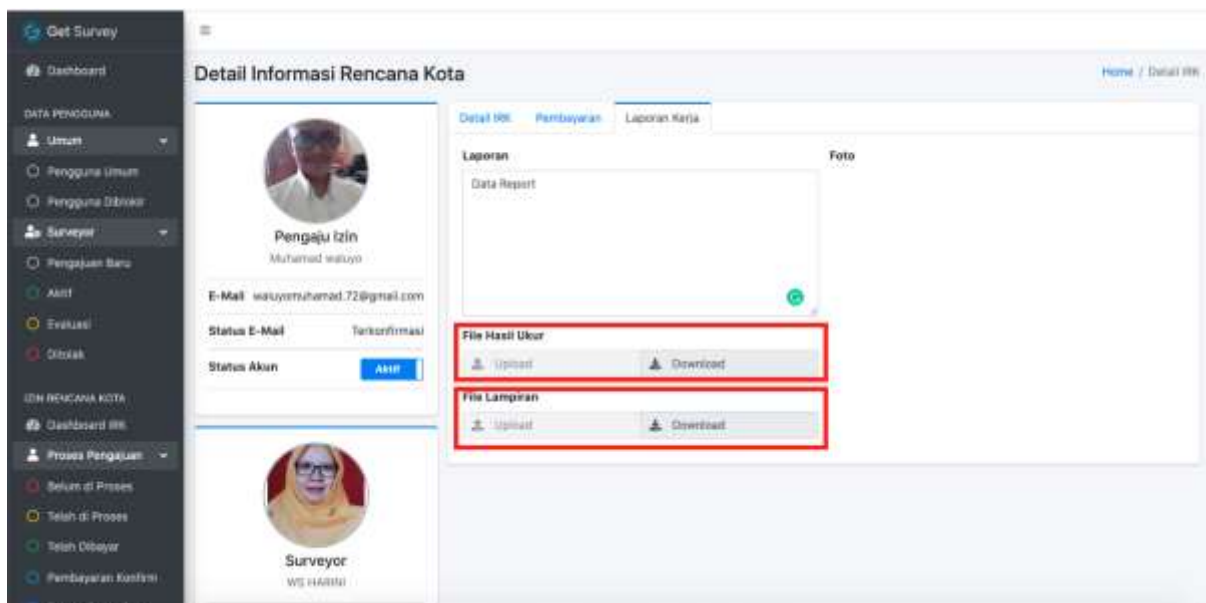


Figure 8. Data Report

This figure above is an example of a data report. The measurement result data is not emailed to the user and admin as well as the BPTSP. The data is processed through the GetSurvey application, the surveyor sends data in the form of a map of land parcels in pdf format (below)

and meta data in zip format. Data in the form of a pdf is sent to the applicant, while the pdf and zip are sent to the admin and BTSP.

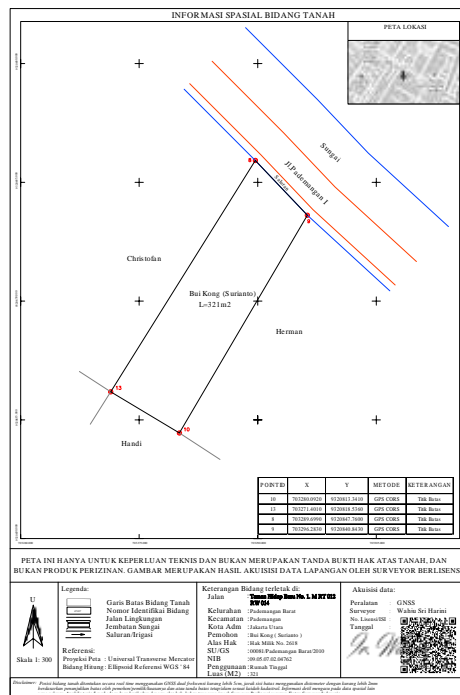


Figure 9. Land Plot Map of IRK Services measurement results upload into the GetSurvey application

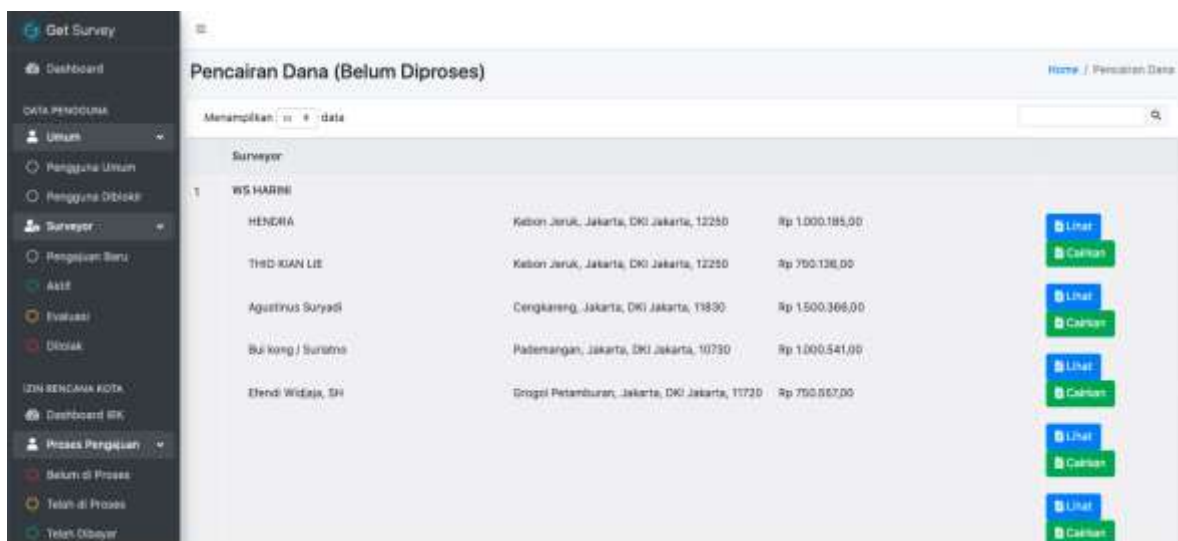


Figure 10. Details of services that are entered in each Surveyor

This feature is used not only to find out the details of the services performed by each surveyor, even as financial reports. This financial report is used to process fees to surveyors and income for ISI.

CONCLUSION

The Indonesian Surveyor Association welcomes the challenge in this new reality by building the "GetSurvey" application. This application was built to connect the public closer to the Surveyor. It is hoped that the community or anyone who needs a surveyor will find it easy to get a surveyor and an appointment to do a survey. This application is being tested by the Indonesian Surveyor Association in collaboration with the Government of DKI Jakarta to conduct a survey of building construction permits. the public can make an appointment to meet with the surveyor with a specified time limit and make online payments and provide a review of the surveyor. So, that it is expected to be able to improve services to the public and improve the professionalism of the Surveyor itself.

REFERENCE

- Afnarius, S. *et al.* (2017) "Web GIS Development for Minangkabau customary village: a case study of Padang Lua village, West Sumatra, Indonesia," *International Journal of Geoinformatics*, 13(4), pp. 1–12.
- Biraro, M. and Zevenbergen, J. (2021) "Good Practices in Updating Land Information Systems that Used Unconventional Approaches in Systematic Land Registration," *Land*, 10(437). doi: 10.3390/land10040437.
- Bisnis.com (2019) *Luncurkan e-KRK, DPMPSTSP DKI Jamin Proses Perizinan Hanya Satu Hari Kerja*, *Surat Kabar Online: Bisnis.com, jurnalis: Aziz Rahardyan*. Available at: <https://jakarta.bisnis.com/read/20191026/384/1163533/luncurkan-e-krk-dpmpstsp-dki-jamin-proses-perizinan-hanya-satu-hari-kerja> (Accessed: February 9, 2021).
- Costley, P. (2019) "What Is Industry 4.0 and Its Impacts on Education." London, UK: MentalUp Ltd. Available at: <https://www.mentalup.co/blog/industry-4-and-its-impact-on-education>.
- ISI - The Indonesian FIG (2021) *Profile ISI (The Indonesian FIG)*. Available at: <https://isi.or.id/tentang-isi/profil/>.
- Kantor Staf Presiden (2019) *Presiden Jokowi bahas implementasi Peta Jalan Industri 4.0*. Available at: <http://ksp.go.id/presiden-jokowi-bahas-implementasi-peta-jalan-industri-4-0/index.html> (Accessed: April 20, 2020).
- Kompas.com (2019) *Hadapi Revolusi Industri 4.0, Jokowi Tekankan Pembangunan SDM*, *Surat Kabar Online: kompas.com, jurnalis: Dylan P Rachman*. Available at: <https://nasional.kompas.com/read/2019/02/17/21020351/hadapi-revolusi-industri-40-jokowi-tekankan-pembangunan-sdm> (Accessed: April 30, 2020).
- Moneter.id (2018) "Strategi Energi 4.0 Hadapi Tantangan Industri 4.0," *Surat Kabar Online: moneter.id, jurnalis: Eko Setiadi*. Available at: <https://moneter.id/57444/strategi-energi-4-0-hadapi-tantangan-industri-4-0>.
- Mustofa, F. C., Aditya, T. and Sutanta, H. (2018) "Evaluation of participatory mapping to develop parcel-based maps for village-based land registration purpose," *International Journal*

of *Geoinformatics*, 14(2), pp. 45–55. doi: 10.5281/zenodo.1409285.

Mutambo, L. S. (2003) *The Unified Modelling Language (UML) in Cadastral System Development, Master Thesis*. ITC.

Suarakarya.co.id (2018) *Tetra Pak Index 2018 Paparkan Tren Belanja di Indonesia*, *Surat Kabar Online: suarakarya.co.id*. Available at: <https://suarakarya.co.id/tetra-pak-index-2018-paparkan-tren-belanja-di-indonesia/5560/> (Accessed: April 30, 2020).

Tetra Pak (2018) “The Tetra Pak Index 2018: Online Grocery.” Pully, Swiss: Tetra Pak International.

Victoria, W. (2019) *Judul Layanan e-KRK Percepat Penerbitan Izin, Cukup Dengan 3 Langkah*, *AyoJakarta.com*. Available at: <https://www.ayojakarta.com/read/2019/10/27/6735/layanan-e-krk-percepat-penerbitan-izin-cukup-dengan-3-langkah> (Accessed: October 10, 2020).

BIOGRAPHICAL NOTES

1. Virgo Eresta Jaya is Head of Data and Information Center, Ministry of Agrarian Affairs and Spatial Planning/National Land Agency of The Republic of Indonesia. He is also as the Head of Indonesian Surveyor Association (ISI). He holds a BSc in Geodesy and M.Sc in Remote Sensing. Email: erestajaya@gmail.com
2. Fahmi Charish Mustofa is researcher at The STPN (National Land College). He received Doctoral degree in Geomatic Engineering from Department of Geodetic Engineering Universitas Gadjah Mada (UGM). Email: fahmicmdw@stpn.ac.id.
3. Reza Abdullah is Analyst of Information System and Network in Data and Information Center, Ministry of Land Affairs and Spatial Planning/ National Land Agency, Indonesia. He received bachelor degree in applied science of Surveying and Mapping from The STPN (National Land College). Email: rezhaabdullah@gmail.com.

CONTACTS

Reza Abdullah

Data and Information Center, Ministry of Agrarian Affairs and Spatial Planning/National Land Agency Indonesia.

Jl. Akses Tol Cimanggis, Cikeas Udik, Kec. Gn. Putri, Bogor, Jawa Barat 16966, INDONESIA
Tel. +6221 8674586

Email: rezhaabdullah@gmail.com