Technology on Valuation

Opportunity or Challenges?

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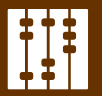
Agenda

Valuation Process & Tasks

Type of Technology

Case Study on Implementation



Implication and Opportunity

Issue and Challenge

Valuation Process

COMPLIANCE	STEPS	SUB-STEPS		TASKS		
	Scope of Work			Client Identification	Assignment Contract	Assignment Identification
Valuer Code of Ethics (KEPI)	Data Collection	Market Data	Subject Property Data	Data Gathering	Organizing & Verification	Documentation
Quality Control Standard (SPM)	Data Analysis	Market Analysis	Highest and Best Use	Comparable Analysis	Marketability Analysis	Property Identification
Valuation Standard (SPI)	Land Value Opinion	Market		Sales Comparison Analysis	Market Price Adjustment	
Law and Regulation (e.g., UU, PP, PMK, POJK)	Valuation Approach	Income		Financial Modelling	Capitalization Estimation	Revenue Cost Forecast
		Cost		Building Cost Model	Trend and Cost to Capacity Analysis	Depreciation Model
	Valuation Opinion and Reporting			Review Process	Report Writing	Value Reconciliation

Technology Implementation

STEPS	PHASE			TECHNOLOGICAL ASSISTANCE		
Scope of Work	Client Identification	Assignment Contract	Assignment Identification	ERP (Enterprise Resource Planning)	CRM (Customer Resource Management)	DBMS (Database Management System)
Data Collection	Data Gathering	Documentation	Organizing & Verification	DCS (Data Collection System)	Data Dashboard and Visualization	
Data Analysis	Property Identification	Market Overview	Marketability Analysis			Data Analytics
Land Value Opinion				AVM (Automated Valuation Model)		CAMA (Computer Assisted Mass Appraisal)
Valuation Approach	Sales Comparison Analysis	Market Price Adjustment		Property Valuation and Financial Modelling Tools & Software (Argus, Modano, Valusource)		
	Financial Modelling	Capitalization Estimation	Revenue Cost Forecast			
	Building Cost Model	Trend and Cost to Capacity Analysis	Depreciation Model			
Valuation Opinion and Reporting	Review Process	Report Writing	Value Reconciliation	Document Automation and Management System		

Valuation phase could be breakdown into several tasks which could be worked through conventional means or automation through developed system or tools

- Valuation task could be assisted with various system and software at each phase
- IT teams usually needed to assist the operational of the system and software

EXHIBIT A:
Data Collection Flow and Validation

General Steps	Conventional Means	Hybrid Method	Full System
Inspection and Market Survey	Valuer gather data through physical visit or desktop search for each property		
Notes, Data, Information, Brochure	Stored at Personal or Office desktop as files	Upload to system platform from personal desktop	Submitted to system directly from personal devices on real time basis
Data Verification	Recorded on a files (excel/word) on desktop	Inputted to the system with evidence	Categorized by system based on Data and Information Submitted
Create Market and Inspection Database	Database by excel files, shared online or at office network	Files upload manually to system as attachment	Data submitted in database format through form
Organizing and Validation	Done Manually in Excel files	Organized as files rather than database for various dataset	Data dashboard and rule-based system validation
Used for Analysis	Manually input or linked to working paper for analysis	Downloaded from system then manual input to working paper	Working paper export from system with necessary information for analysis

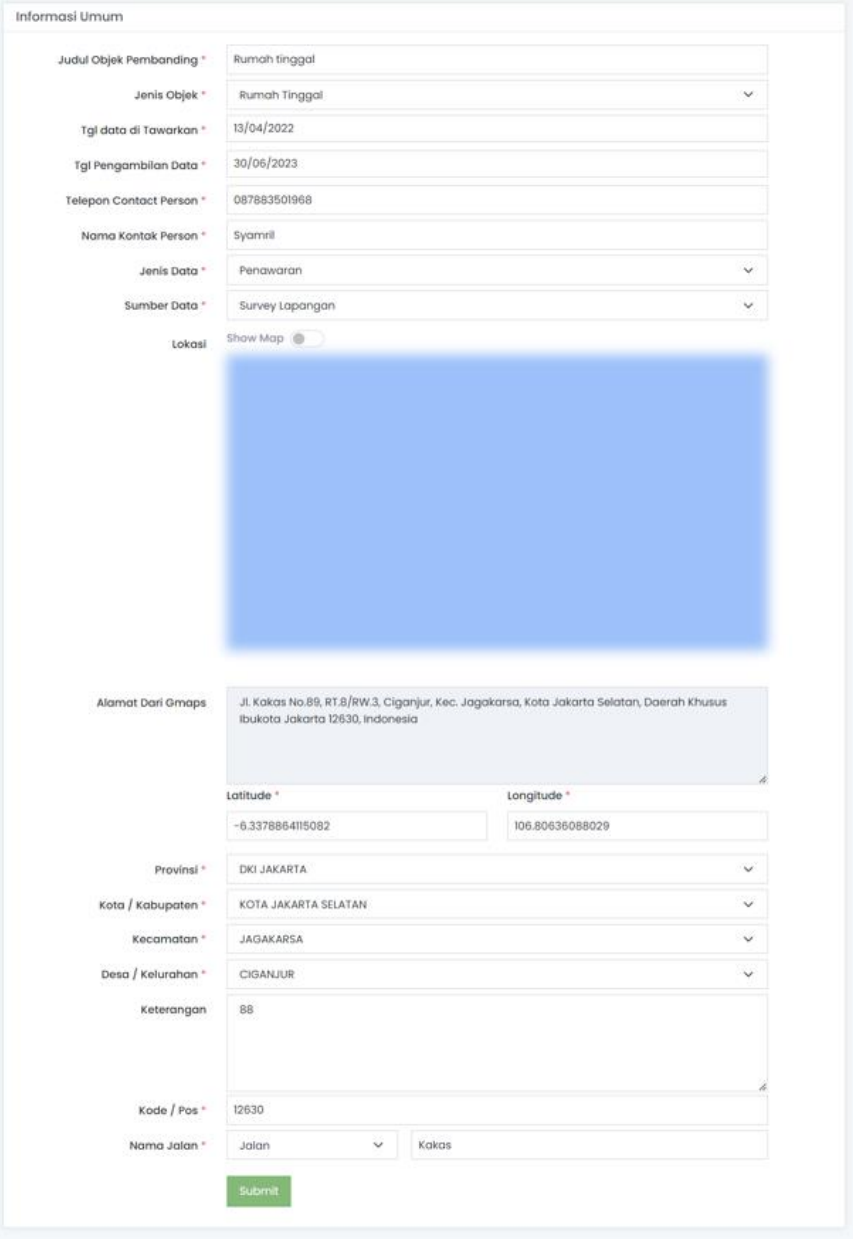
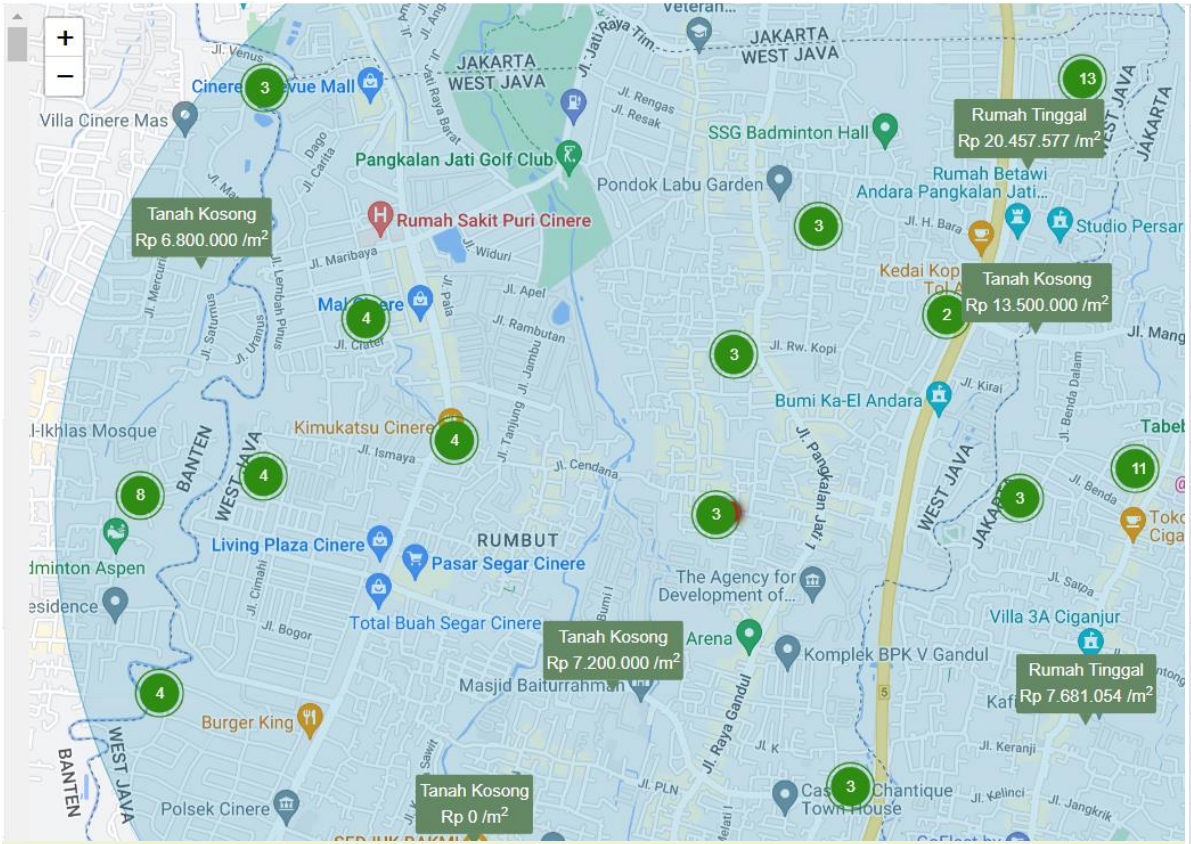


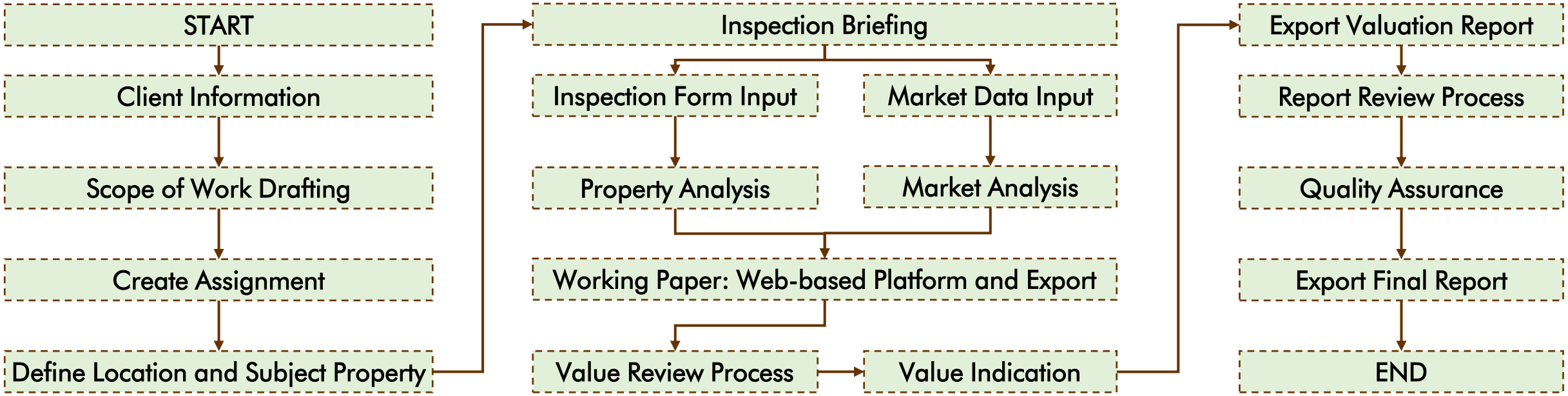
EXHIBIT B:
Database Management & Visualization



- Market databases are one of the most common system used in prop-tech both as marketplace or information basis with platform usually provide **map-based visualization** and **table format**
- Property database in Indonesia is **very limited** and usually handled privately for internal purposes, therefore property databased became **strategic advantages** for valuation and advisory services
- Property databases and map-based visualization are powerful tools for valuer and property services to maintain a good sense of the market overview and sanity check for valuation opinion

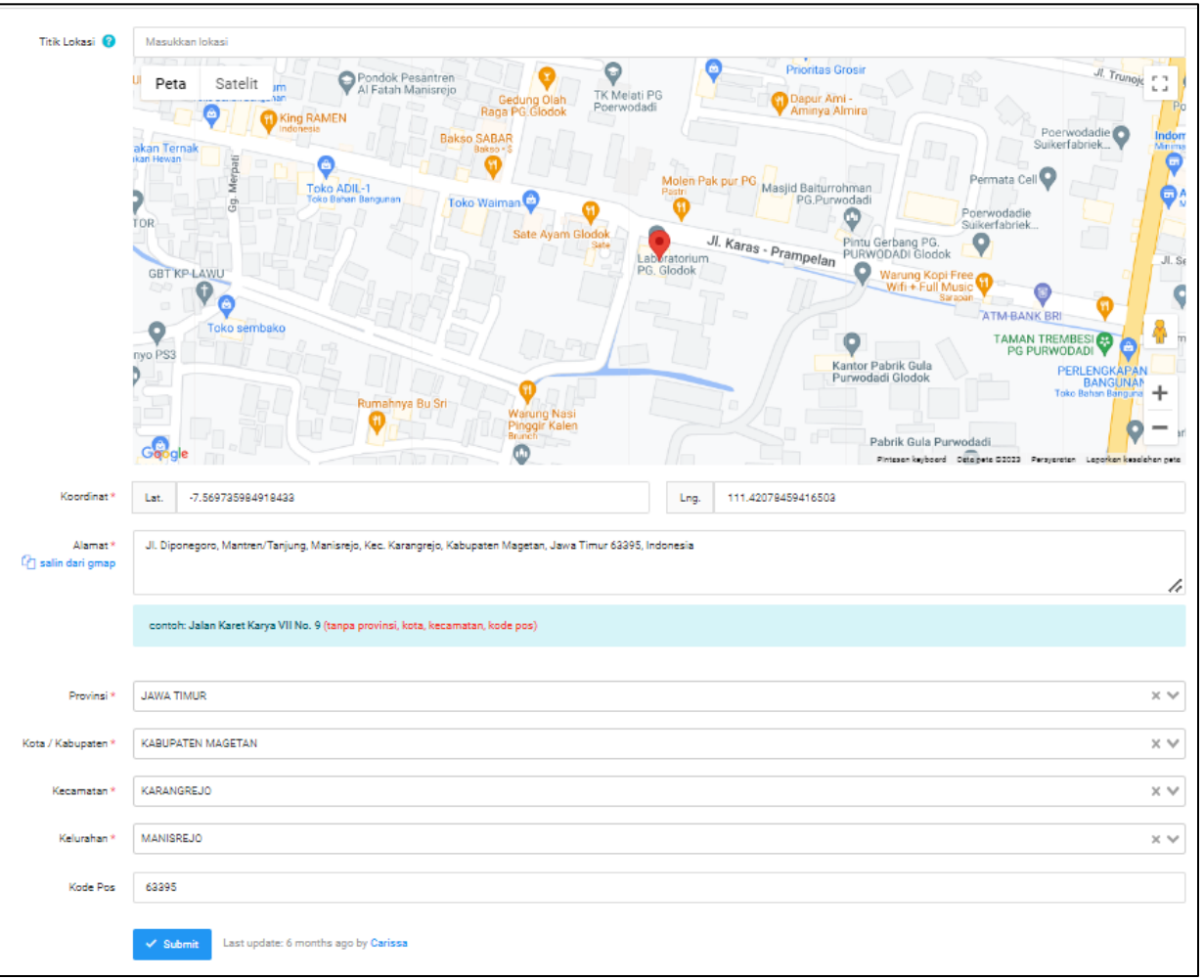
No.	Detail	Status	Jenis Objek	Lt (m^2)	Lb (m^2)	Jenis Data	Wilayah	Tanggal	PIC	Indikasi Harga Properti (Rp)
1	Lihat	Ready	Tanah Kosong	4.645	0	Penawaran	Perumahan	03/08/2023	NIM	24.749.998.092
2	Lihat	Ready	Tanah Kosong	2.000	0	Penawaran	Campuran	03/07/2023	NIM	27.000.000.000
3	Lihat	Ready	Tanah Kosong	120	0	Penawaran	Campuran	03/07/2023	NIM	810.000.000
4	Lihat	Ready	Tanah Kosong	44.816	0	Penawaran	Perumahan	06/06/2023	KEN	342.842.400.000
5	Lihat	Ready	Tanah Kosong	20.495	0	Penawaran	Hijau	05/06/2023	KEN	147.564.000.000
6	Lihat	Ready	Tanah Kosong	323	0	Penawaran	Perumahan	03/03/2023	RYN	6.863.750.000
7	Lihat	Ready	Tanah Kosong	274	0	Penawaran	Perumahan	03/03/2023	RYN	5.822.500.000
8	Lihat	Ready	Tanah Kosong	280	0	Penawaran	Perumahan	03/03/2023	RYN	5.950.000.000
9	Lihat	Ready	Tanah Kosong	285	0	Penawaran	Perumahan	03/03/2023	RYN	6.056.250.000
10	Lihat	Ready	Tanah Kosong	307	0	Penawaran	Perumahan	03/03/2023	RYN	6.523.750.000
11	Lihat	Ready	Tanah Kosong	257	0	Penawaran	Perumahan	15/02/2023	RYN	5.146.425.000
12	Lihat	Ready	Tanah Kosong	226	0	Penawaran	Perumahan	15/02/2023	RYN	4.525.650.000
13	Lihat	Ready	Tanah Kosong	360	0	Penawaran	Perumahan	15/02/2023	RYN	7.209.000.000
14	Lihat	Ready	Tanah Kosong	275	0	Penawaran	Perumahan	15/02/2023	RYN	4.833.125.000
15	Lihat	Ready	Tanah Kosong	700	250	Penawaran	Perumahan	15/02/2023	ADN	5.087.500.000
16	Lihat	Ready	Tanah Kosong	252	0	Penawaran	Perumahan	20/01/2023	RNL	3.628.800.000
17	Lihat	Ready	Tanah Kosong	43.000	0	Penawaran	Perumahan	13/01/2023	HDR	292.400.000.000
18	Lihat	Ready	Tanah Kosong	151	0	Penawaran	Perumahan	26/12/2022	HDR	1.668.550.000
19	Lihat	Ready	Tanah Kosong	151	0	Penawaran	Perumahan	26/12/2022	HDR	1.668.550.000
20	Lihat	Ready	Tanah Kosong	665	0	Penawaran	Perumahan	27/12/2022	RYN	10.115.000.000
21	Lihat	Ready	Tanah Kosong	151	0	Penawaran	Perumahan	26/12/2022	HDR	1.668.550.000
22	Lihat	Ready	Tanah Kosong	900	0	Penawaran	Perumahan	17/10/2022	RNL	6.120.000.000
23	Lihat	Ready	Tanah Kosong	592	0	Penawaran	Perumahan	04/10/2022	RNL	4.528.800.000

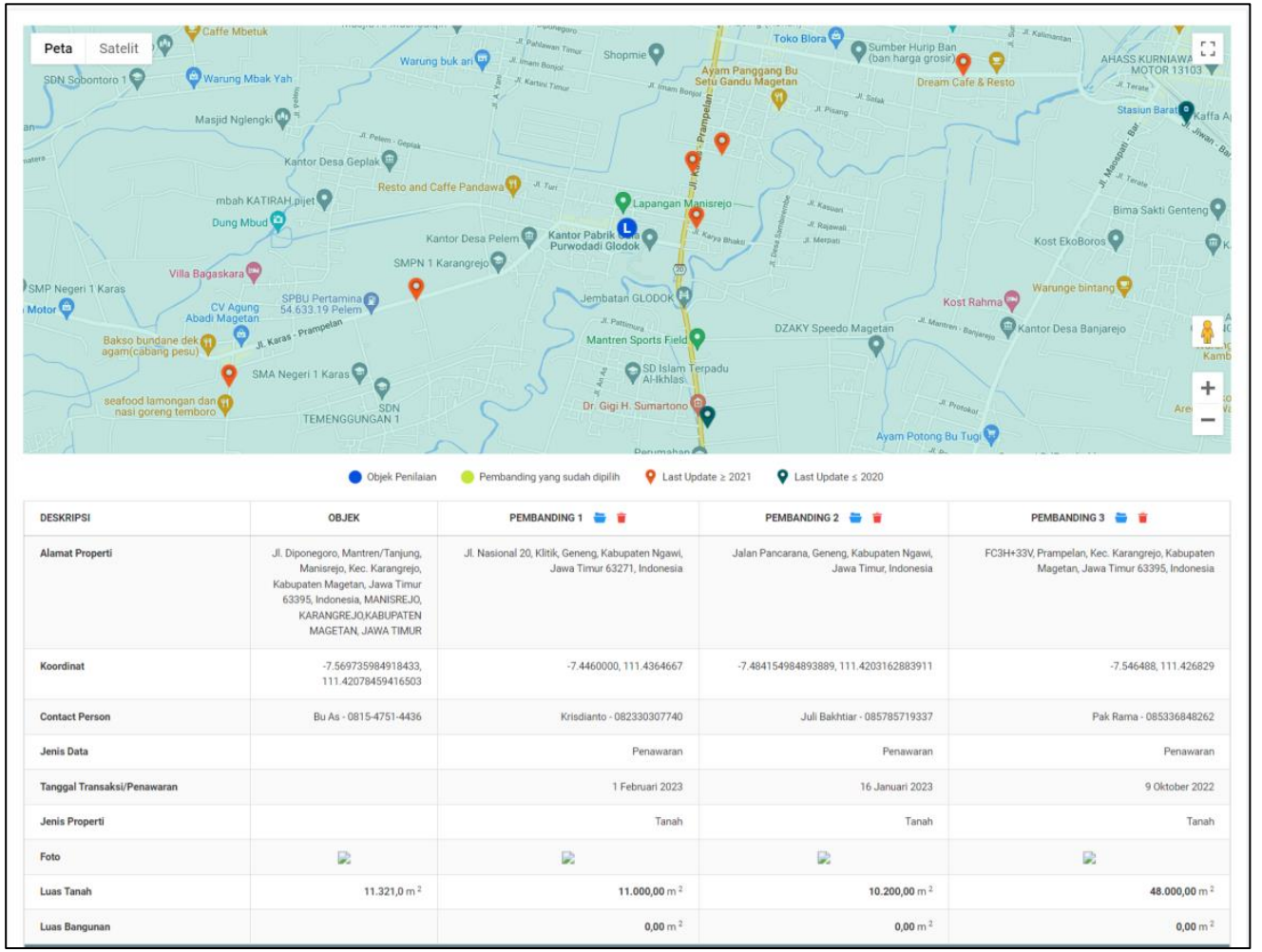
EXHIBIT C:
Valuation System Flow Process



System was developed according to Quality Control Guideline (SPM) which comply with Standard Valuation of Indonesia (SPI) and related regulation

EXHIBIT D:
System Assisted Valuation Calculation





DESKRIPSI	OBJEK	PEMBANDING 1	PEMBANDING 2	PEMBANDING 3
Alamat Properti	Jl. Diponegoro, Mantren/Tanjung, Manisrejo, Kec. Karangrejo, Kabupaten Magetan, Jawa Timur 63395, Indonesia, MANISREJO, KARANGREJO,KABUPATEN MAGETAN, JAWA TIMUR	Jl. Nasional 20, Klitik, Geneng, Kabupaten Ngawi, Jawa Timur 63271, Indonesia	Jalan Pancarana, Geneng, Kabupaten Ngawi, Jawa Timur, Indonesia	FC3H+33V, Prampelan, Kec. Karangrejo, Kabupaten Magetan, Jawa Timur 63395, Indonesia
Koordinat	-7.569735984918433, 111.42078459416503	-7.4460000, 111.4364667	-7.484154984893889, 111.4203162883911	-7.546488, 111.426829
Contact Person	Bu As - 0815-4751-4436	Krisdianto - 082330307740	Juli Bakhtiar - 085785719337	Pak Rama - 085336848262
Jenis Data		Penawaran	Penawaran	Penawaran
Tanggal Transaksi/Penawaran		1 Februari 2023	16 Januari 2023	9 Oktober 2022
Jenis Properti		Tanah	Tanah	Tanah
Foto				
Luas Tanah	11.321,0 m²	11.000,00 m²	10.200,00 m²	48.000,00 m²
Luas Bangunan		0,00 m²	0,00 m²	0,00 m²

DATA INPUT

EXTRACT TO WORKING PAPER

EXHIBIT D:
Valuation Assisted by System Interface

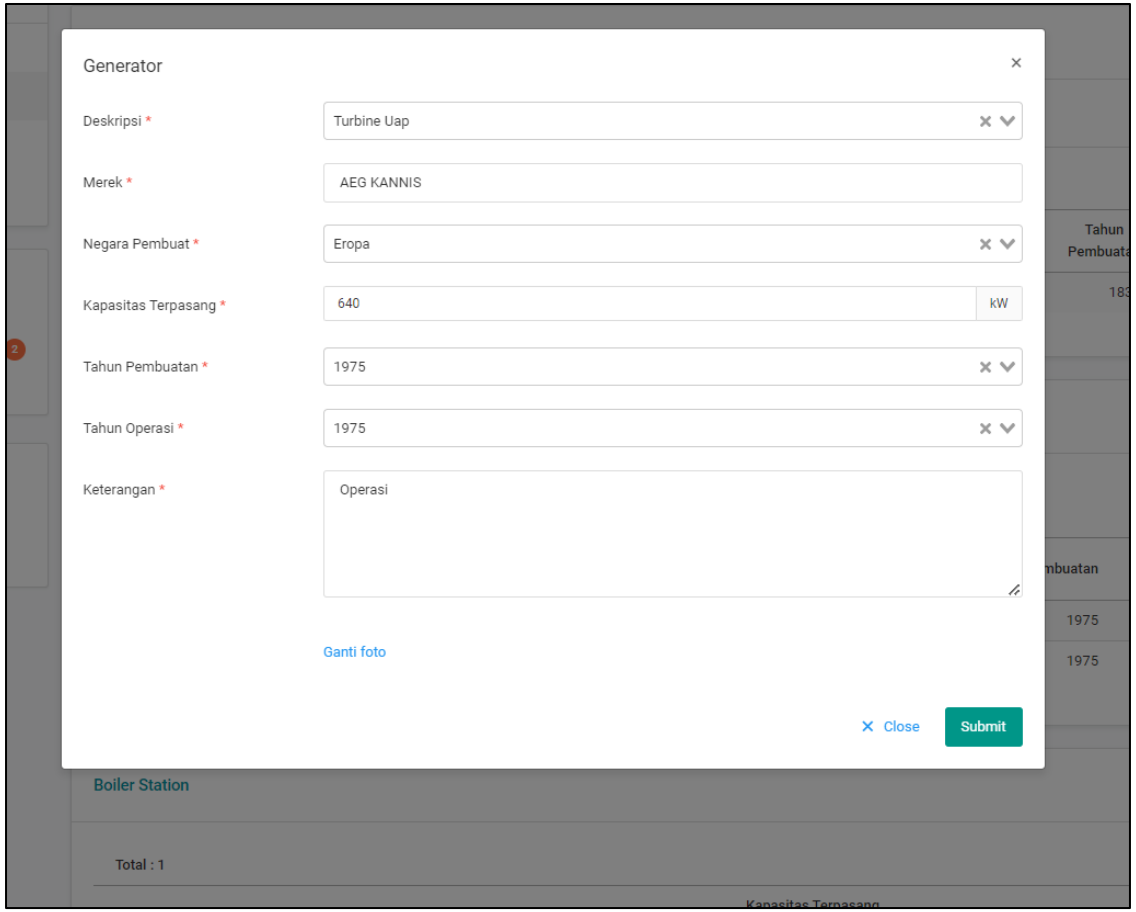
PENYESUAIAN PROPERTI							
LOKASI	DESKRIPSI	DESKRIPSI	%	PENYESUAIAN	DESKRIPSI	%	PENYESUAIAN
Jarak Terhadap Ngawi	19.660,0 m	5.378,0 m	-16,55	-109.063	11.053,0 m	-14,86	-65.734
Kelas Jalan	Jalan Kolektor	Jalan Arteri	-18,56	-122.299	Jalan Kolektor	0,00	0
Lebar Jalan	6,0 m	8 m	0,00	0	8 m	0,00	0
Jumlah Jalur	2	2	0,00	0	2	0,00	0
Jumlah Lajur	1	2	0,00	0	1	0,00	0
Perkerasan Jalan	Aspal	Aspal	0,00	0	Aspal	0,00	0
Aksesibilitas	Baik	Lancar	0,00	0	Baik	0,00	0
Kondisi Lingkungan Sekitar	Perumahan	Campuran	0,00	0	Campuran	0,00	0
KARAKTERISTIK FISIK							
Luas Tanah (m^2)	11.321,00	11.000,00	-0,08	-527	10.200,00	-0,40	-1.769
Lebar Muka	200	75 m	0,00	0	129 m	0,00	0
Bentuk Tapak	Persegi Panjang	Persegi Panjang	0,00	0	Tidak Beraturan	0,00	0
Elevasi	0.5	- 0	11,87	78.222	- 0.5	35,37	156.461
Posisi	Tengah	Tengah	0,00	0	Tengah	0,00	0
Kondisi Tapak	Darat	Darat / Kering	0,00	0	Sawah	0,00	0
Topografi	Datar	Datar	0,00	0	Datar	0,00	0
KARAKTERISTIK EKONOMI							
Kualitas Pendapatan	Cukup	Baik	0,00	0	Cukup	0,00	0
Biaya Operasional	Ada	Tidak Ada	0,00	0	Tidak Ada	0,00	0
Ketentuan Sewa	Ada	Tidak Ada	0,00	0	Ada	0,00	0
Manajemen	Ada	Tidak Ada	0,00	0	Tidak Ada	0,00	0
Bauran Penyewa	Cukup	Baik	0,00	0	Cukup	0,00	0

WORKING PAPER

	C	D	E	F	G	H	I	J	K	L	M
PENYESUAIAN PROPERTI	**Lokasi & Aksesibilitas**										
	Jarak terhadap Ngawi (m)	19660	5378	-16,55%	(103.063)	11053	-14,86%	(65.734)	17030	-4,70%	(20.084)
	Kelas Jalan	Jalan Kolektor	Jalan Arteri	-18,6%	(122.299)	Jalan Kolektor	0,0%	-	Jalan Arteri	-18,6%	(73.304)
	Lebar Jalan	6	8	0,0%	-	8	0,0%	-	11	0,0%	-
	Jumlah Jalur	2	2	0,0%	-	2	0,0%	-	2	0,0%	-
	Jumlah Lajur	1	2	0,0%	-	1	0,0%	-	2	0,0%	-
	Perkerasan Jalan	Aspal	Aspal	0,0%	-	Aspal	0,0%	-	Aspal	0,0%	-
	Aksesibilitas	Baik	Lancar	0,0%	-	Baik	0,0%	-	Baik	0,0%	-
	Kondisi Lingkungan Sekitar	Perumahan	Campuran	0,0%	-	Campuran	0,0%	-	Industri	0,0%	-
					-			-			-
	Karakteristik Fisik										
	Luas Tanah	11321,00	11000	-0,1%	(527)	10200	-0,4%	(1.769)	48000	13,4%	57.432
	Lebar Muka (frontage) - (m)	200,00	75	0,0%	-	129	0,0%	-	72	0,0%	-
	Bentuk Tapak	Persegi Panjang	Persegi Panjang	0,0%	-	Tidak Beraturan	0,0%	-	Tidak Beraturan	0,0%	-
	Elevasi	0,50	0	11,87%	78.222	-0,5	35,37%	156.461	0	18,30%	78.200
	Posisi Tapak	Tengah	Tengah	0,0%	-	Tengah	0,0%	-	Tengah	0,0%	-
	Kondisi Tapak	Darat	Darat / Kering	0,0%	-	Sawah	0,0%	-	Darat	0,0%	-
	Topografi	Datar	Datar	0,0%	-	Datar	0,0%	-	Datar	0,0%	-
	Karakteristik Ekonomi										
	Kualitas Pendapatan	Cukup	Baik	0,0%	-	Cukup	0,0%	-	Cukup	0,0%	-
	Biaya Operasional	Ada	Tidak Ada	0,0%	-	Tidak Ada	0,0%	-	Tidak Ada	0,0%	-
	Ketentuan Sewa	Ada	Tidak Ada	0,0%	-	Ada	0,0%	-	Tidak Ada	0,0%	-
	Manajemen	Ada	Tidak Ada	0,0%	-	Tidak Ada	0,0%	-	Tidak Ada	0,0%	-
	Bauran Penyewa	Cukup	Baik	0,0%	-	Cukup	0,0%	-	Cukup	0,0%	-
	Penggunaan										
	Peruntukan	Zona Perumahan Kampung	Zona Campuran	0,0%	-	Zona Campuran	0,0%	-	a Industri dan Pergudar	0,0%	-
	Koefisien Dasar Bangunan (KDB)	0	0	0,0%	-	0	0,0%	-		0,0%	-
	Koefisien Lantai Bangunan (KLB)	0	0	0,0%	-	0	0,0%	-		0,0%	-
	Manajemen	0	0	0,0%	-	0	0,0%	-		0,0%	-
	GSB	0	0	0,0%	-	0	0,0%	-		0,0%	-
	Penyesuaian Lainnya										
	.....			0,0%	-		0,0%	-		0,0%	-
	.....			0,0%	-		0,0%	-		0,0%	-
	.....			0,0%	-		0,0%	-		0,0%	-
					-			-			-
	Net Adjustment			-28,33%	(153.667)		15,10%	88.958		3,44%	36.244
	Harga setelah Penyesuaian				**505.326**			**531.313**			**463.564**
	REKONSILIASI										
	Gross Adjustment	**168%**		**52%**			**56%**			**60%**	
	Bobot Absolut	100%		31%			33%			35,8%	
	Inverse	200%		69%			67%			64,2%	
	Bobot Inverse	100%		34%	174.237		33%	177.541		32,1%	148.825

EXPORT TO EXCEL

EXHIBIT E:
Valuation Assisted by System Calculation



Deskripsi	Negara Pembuatan	Tahun Pembuatan	Tahun Operasi	Kapasitas	RCN / Kapasitas	Index RCN	RCN (Rp.)	Penyusutan				Indikasi Nilai Wajar
								Fisik	Fungsi	Ekonomi	Total	
A. Mesin dan Peralatan												
n/a	Eropa	1832	1832	2350	157.356.228	0.8	295.829.709.235	82.5	2.8	0	85.27	43.565.175.501
Total A							295.829.709.235					43.565.175.501
B. Power Station												
Turbine Uap	Eropa	1975	1975	640	2.712.967	1	1.736.298.951	80	3.2	0	83.17	292.222.822
Turbine Uap	Eropa	1975	1975	640	2.712.967	1	1.736.298.951	80	3.2	0	83.17	292.222.822
Total B							3.472.597.902					584.445.645
C. Boiler Station												
Boiler	Eropa	1832	1832	60	841.818.525	1	50.509.111.516	80	3.2	0	83.17	8.500.791.363
Total C							50.509.111.516					8.500.791.363
Total							349.811.418.653				84 %	52.650.412.509

SUMMARY

RCN	349.811.418.653
RCN USD/TCD	9.938
Nilai Pasar	52.650.412.509

DATA INPUT

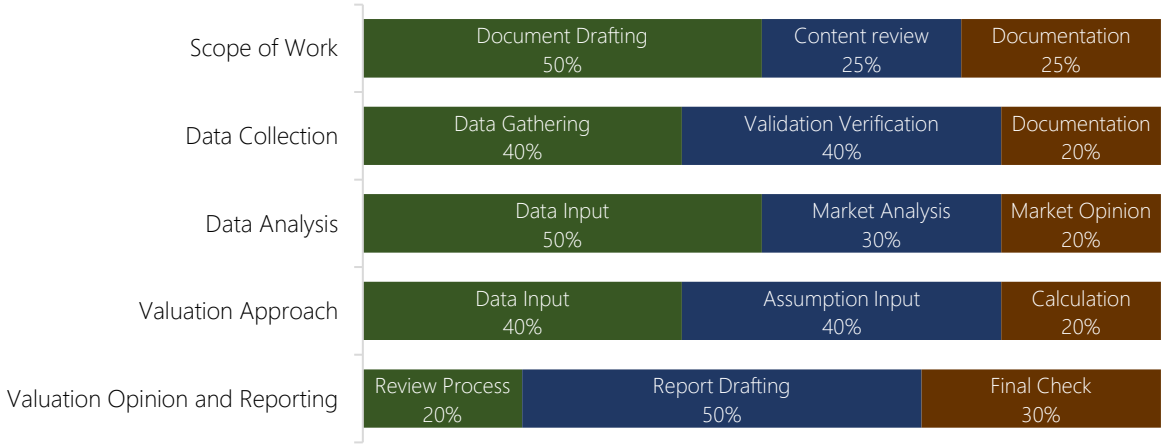
SYSTEM CALCULATION

Tasks Workload Implication

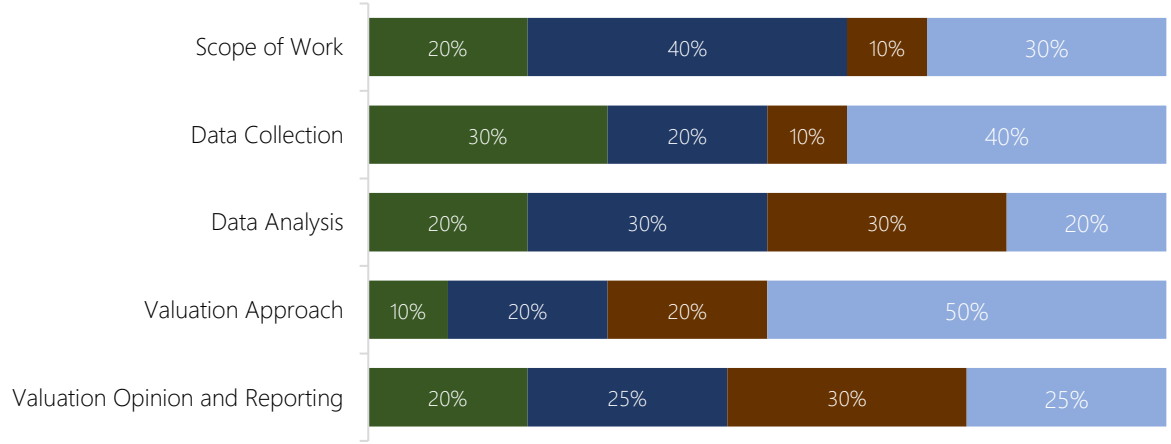
STEPS	ROLE	TASKS		
Scope of Work	Partner and Procurement	Document Drafting	Content Review	Documentation
Data Collection	Valuer and Surveyor	Data Gathering	Validation Verification	Documentation
Data Analysis	Valuer and Surveyor	Data Input	Market Analysis	Market Opinion
Valuation Analysis	Team Leader, Reviewer, and Valuer	Data Input	Assumption Input	Calculation
Valuation Opinion and Reporting	Team Leader, Reviewer, and Valuer	Review Process	Report Drafting	Final Check

- System utilization on daily valuation tasks could improve workload efficiency without costing productivity.
- As task duplication minimized through system, time used for valuer at several steps significantly decreased
- Lower time used for detailed task such as writes and data input could be increasing valuer allocated time for analysis and sanity check of market and valuation analysis

Conventional Process



System Assisted Process



Tasks Quality Implication

STEPS	ROLE	TASKS			QUALITY RISKS	SYSTEM MITIGATION
Scope of Work	Partner and Procurement	Document Drafting	Content Review	Documentation	• Typo, misspelling, and wording mistake • Inconsistent format due to reusable document • Inconsistent content with desired purpose and standard	System generate **standardized** report in word format with important information was filled by system
Data Collection	Valuer and Surveyor	Data Gathering	Validation Verification	Documentation	• Wrong numerical or wording data input • Inconsistent detail on data and information to be gathered • Loss of data due to scattered data documentation	All data must be submitted to system before analysis with **mandatory** input must be satisfied
Data Analysis	Valuer and Surveyor	Data Input	Market Analysis	Market Opinion	• Wrong numerical or wording data input • Limited data sensing and high potential to miss important data • Higher Subjectivity and inconsistencies with data pattern	Data selection, visual mapping, and **dashboard** will be provided for valuer to have comprehensive sense of market
Valuation Analysis	Team Leader, Reviewer, and Valuer	Data Input	Assumption Input	Calculation	• Wrong input on assumption and necessary information • Mistake on formula or linked data on calculation • Unstandardized working paper due to reuse	Working paper available in system in various format such as **web interface**, **exported file**, and file attachment to be used by valuer
Valuation Opinion and Reporting	Team Leader, Reviewer, and Valuer	Review Process	Report Drafting	Final Check	• Inconsistencies between report, working paper, and other data • Unstandardized report due to document reuse • Mismatch document or working paper on review process	All data and information will be exported to standardized template by system including submitted value opinion in working paper.

Conventional means which heavily depend on human action prone to error due to various factors. While quality control measures always implemented, within limited timeframe, potential trade off between product quality and meet the deadline still might be happening.

System implementation could reduce most potential error due to users especially in terms of technicalities such as inconsistencies, typo, and wrong input. Validation and automation, aside from organized database, are powerful feature within any system as it could minimize human error while assist the user through several tasks correctly.

Automation : A process where system will operate with minimum user intervention

Mandatory : Specific requirement which are obligatory to be fulfilled by user

Validation : Set of actions used to check the compliance a system requirement

Dashboard : Data visualizations tool that receives data from a linked database

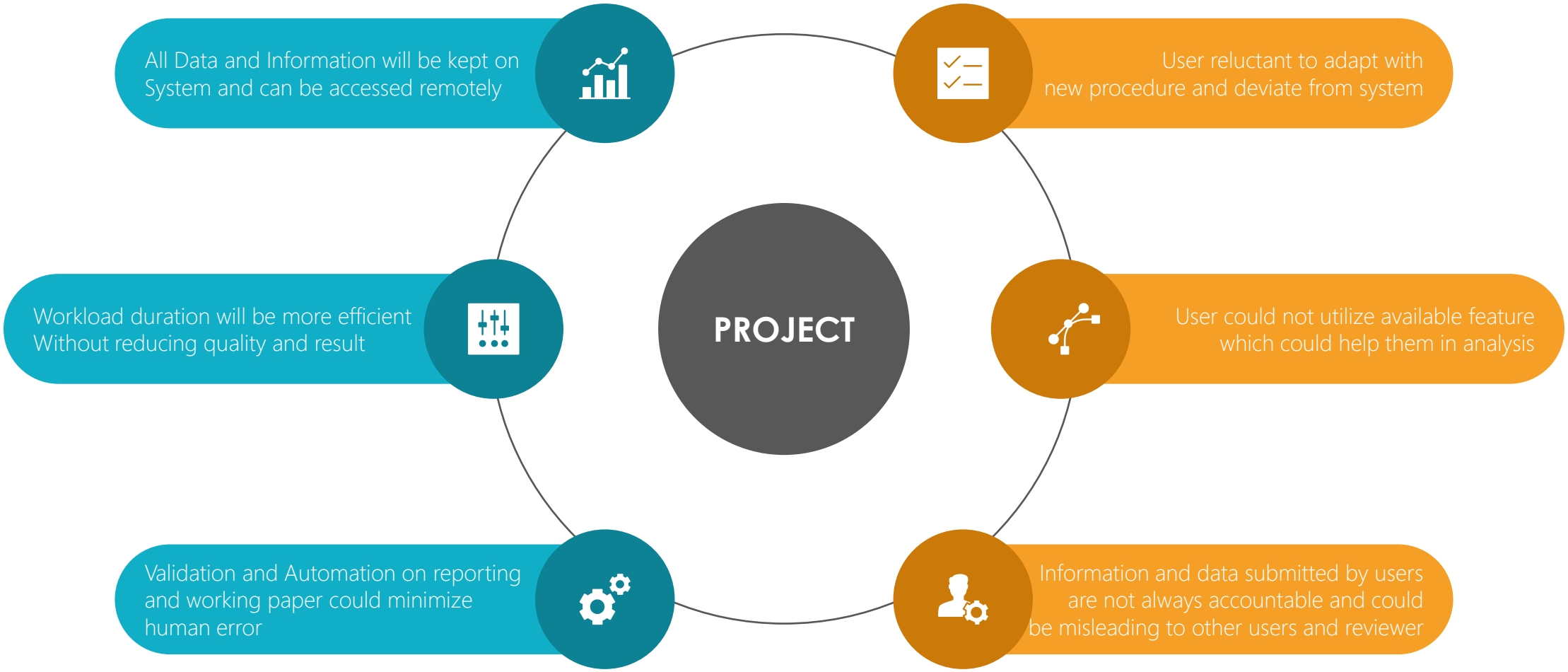
Export : a feature which automate a report or excel generation from system

Web Interface: Interactive content or software which running through web browser

CONCERN ON IMPLEMENTATION

	SYSTEM	USER
SHORT TERM	› Do system already accommodate every possible scenario? › Are there any inconsistencies between database, front-end, and valuation context? › Are the systems could be understood easily by users?	› Does the system used on daily basis? Are there any procedure deviate from system? › Does the users input the data according to procedure and guide? › How reluctant are the users to use the current system?
LONG TERM	› Is the system already accommodating new standard and regulation? › What is the backup strategy for a large amount of past data, and can the backups still be accessed? › Who was the previous developer of the system? Can the current developer or in-house IT maintain and revise the current system?	› Did users use any trick to bypass or deceive the systems? › How familiar users with the system after long periode of utilization? › What is the most complained feature on the system which make the user to not used it?

Challenges and Opportunity



Thank You!

Personal Information

Handphone/Whatsapp : +62 821 64204414
Work Email : fauzan.favian@rhr.co.id
Personal Email : fauzan.fvian@gmail.com
Company Website : https://kjpp.rhr.co.id/