

# Business Intelligence for IP Offices

Jakarta, 8 Mei 2024

# List Of Content

- Business Intelligence
- Extract, Transform, Load
- Data Warehouse
  - Dimension
  - Dashboard
- Self Service Business Intelligence

# Business Intelligence

Business intelligence (BI) is a technology-driven process for analyzing data and delivering actionable information that helps executives, managers and workers make informed business decisions. As part of the BI process, organizations collect data from internal IT systems and external sources, prepare it for analysis, run queries against the data and create data visualizations, Dashboards and reports to make the analytics results available to business users for operational decision-making and strategic planning.

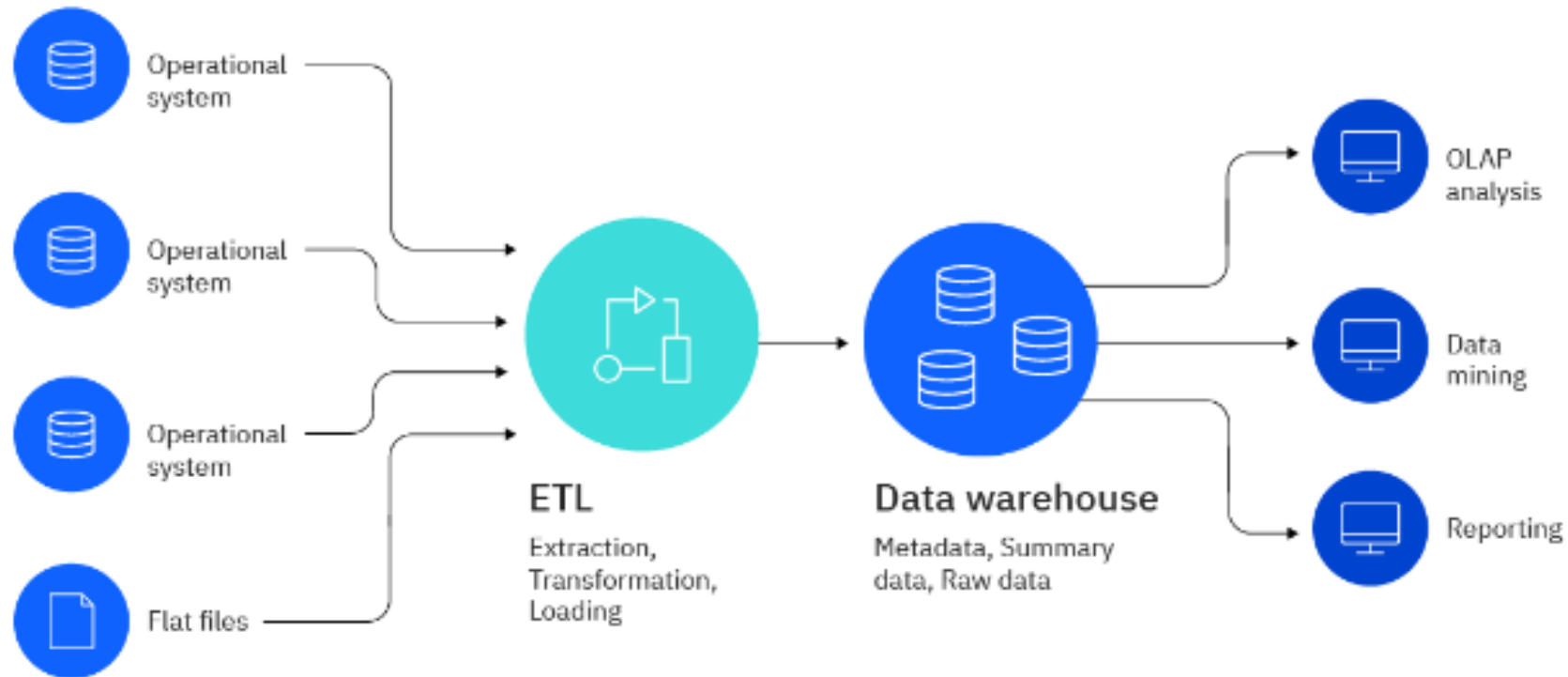


**Business Intelligence Process**

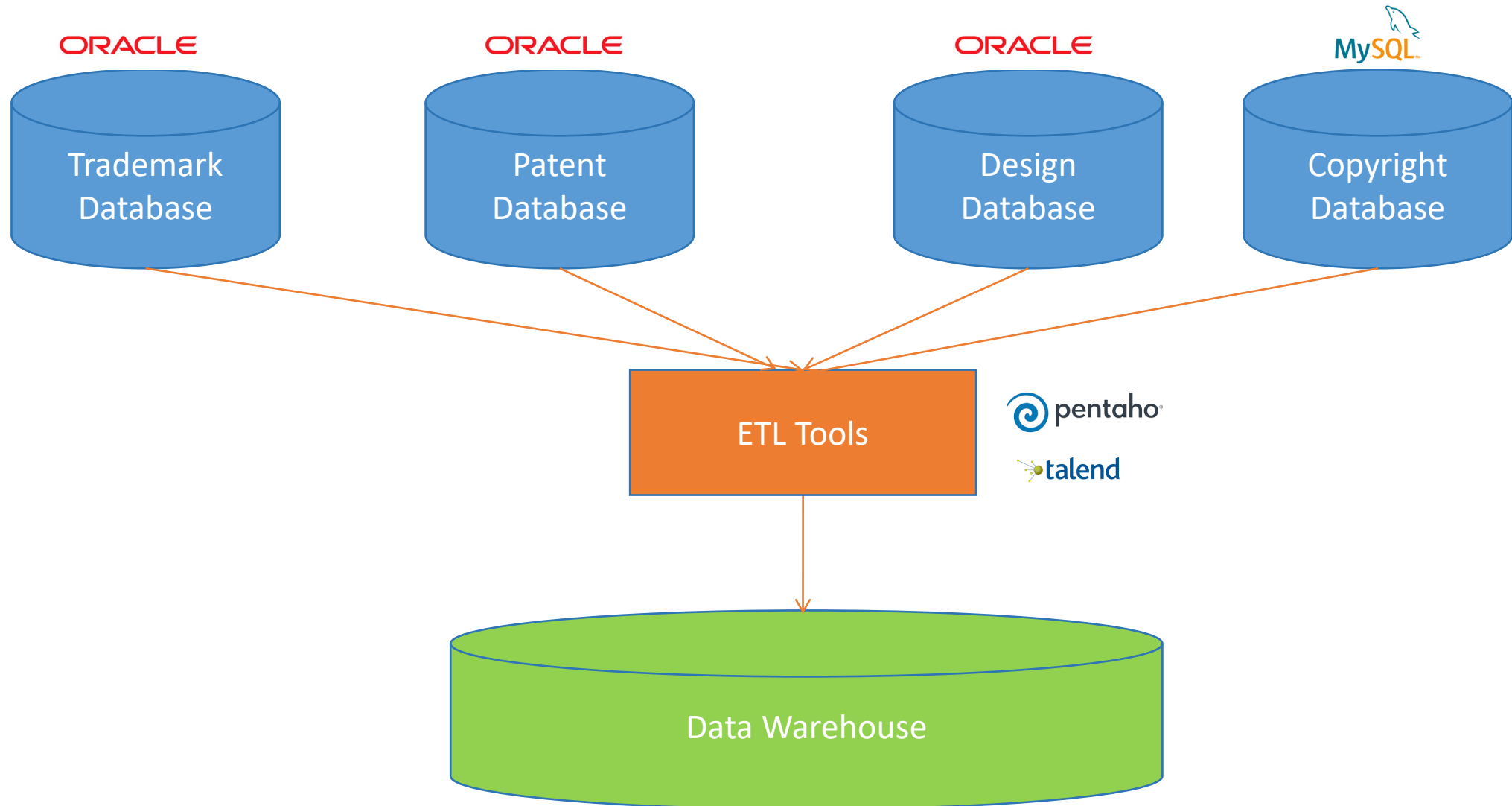
# Extract, Transform, Load

- Extract
  - Get Data From Data Source
- Transform
  - Data Cleansing
- Load
  - Insert Data has cleansing Into Data Warehouse

# Extract, Transform, Load



# ETL Process DGIP



# Data Warehouse

Data Warehouse (DW) is a relational database that is designed for query and analysis rather than transaction processing. It includes historical data derived from transaction data from single and multiple sources.

A Data Warehouse provides integrated, organization-wide, historical data and focuses on providing support for decision-makers for data modeling and analysis.

Data Warehouse consists of Dimension Tables and Fact Tables where the dimension table is the master table and the fact table is an aggregated collection of data obtained from data sources and related to the dimension table

# Dashboard

Dashboard, is a data visualization and analysis tool that displays on one screen the status of key performance indicators (KPIs) and other important business metrics and data points for an organization, department, team or process.

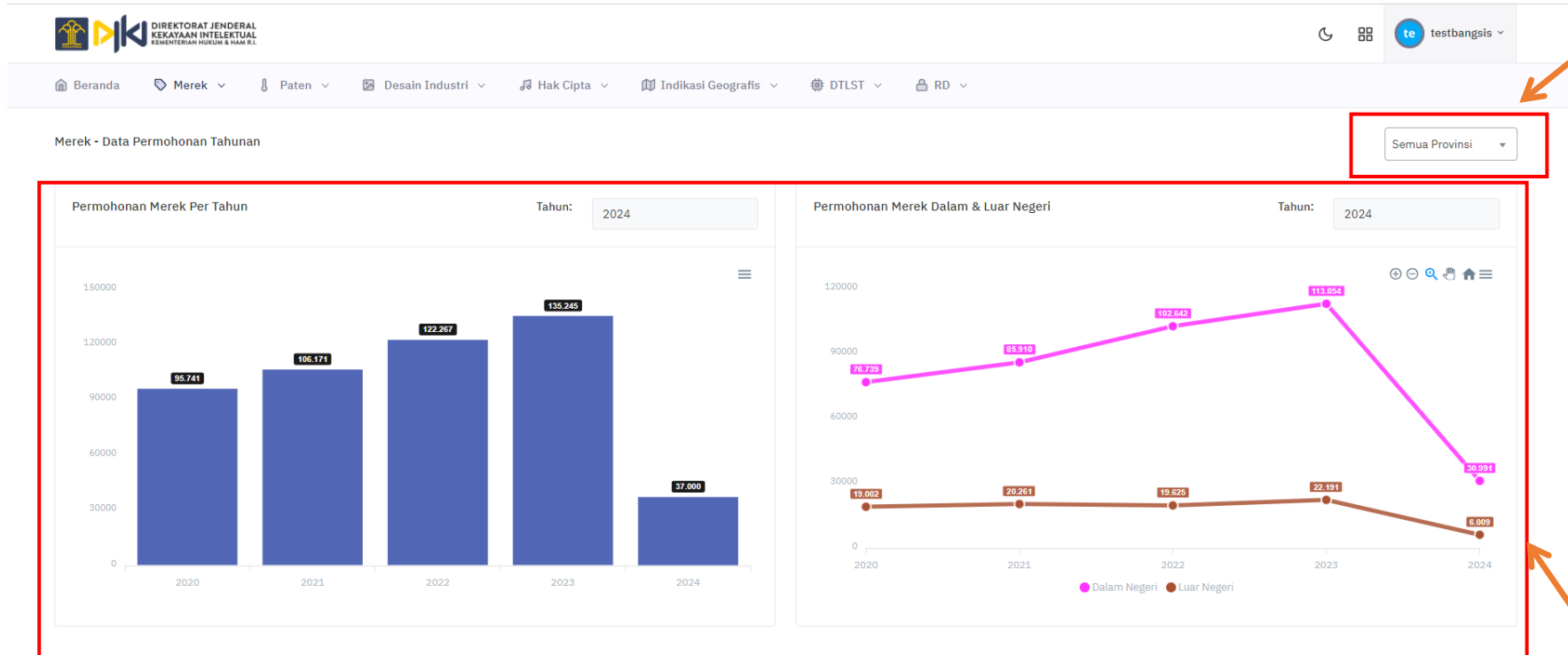
Dashboards are used to deliver analytics information to business executives and other employees.

Dashboard In Business Intellegence Like a car dashboard that shows the condition of the vehicle when in use.





# Dashboard Trademark Example

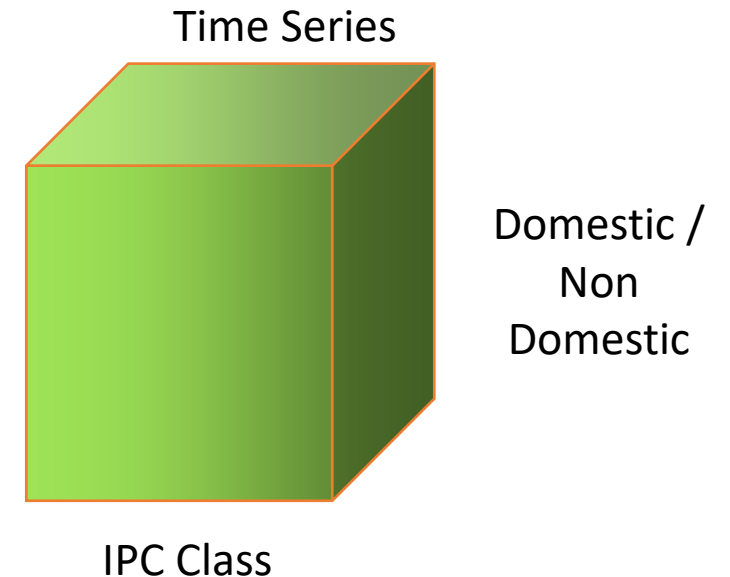


Filter

Dashboard Show Graphic

# Dimension (Cube/Pivoting)

Dimensions in Business Intelligence are capabilities where BI can enable users to see data from various points of view and drill down more information detailed. Example : *How many patent applications in the last 5 years and detail them based on domestic and non-domestic patents and IPC class*



# Result for Example

ASAL	KELAS	2020	2021	2022	2023	2024	Grand Total
Dalam Negeri	A-HUMAN NECESSITIES	1,886	2,183	2,877	2,704	251	9,901
	B-PERFORMING OPERATIONS; TRANSPORTING	496	746	833	756	87	2,918
	C-CHEMISTRY; METALLURGY	551	653	835	907	86	3,032
	C-TEXTILES; PAPER	21	44	57	43	5	170
	D-FIXED CONSTRUCTIONS	103	121	162	151	32	569
	F-MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING	171	265	291	261	35	1,023
	G-PHYSICS	464	700	932	819	102	3,017
	H-ELECTRICITY	139	188	268	186	23	804
	Undefined	306	483	108	390	277	1,564
	Luar Negeri	A-HUMAN NECESSITIES	2,280	2,572	2,591	2,591	761
B-PERFORMING OPERATIONS; TRANSPORTING		1,565	1,596	1,541	1,623	430	6,755
C-CHEMISTRY, METALLURGY		1,012	1,103	1,122	1,241	446	4,924
C-TEXTILES; PAPER		128	89	135	82	20	454
D-FIXED CONSTRUCTIONS		196	168	189	218	90	861
F-MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING		432	426	387	400	104	1,749
G-PHYSICS		628	668	760	1,019	306	3,381
H-ELECTRICITY		1,005	1,188	1,742	1,691	675	6,301
Undefined		60	33	13	117	201	424
<b>Grand Total</b>		<b>11,443</b>	<b>13,226</b>	<b>14,843</b>	<b>15,199</b>	<b>3,931</b>	<b>58,642</b>

IPC Class

Domestic & Non Domestic

Time Series

# Result can be More Detailed And Flexibel

IPC Class

Sum of JUMLAH		KELAS	TAHUN				
ASAL	PCT		2020	2021	2022	2023	2024
Dalam Negeri	Non PCT		4,137	5,383	6,363	6,217	898
	PCT		4,055	5,330	6,318	6,190	881
Luar Negeri	Non PCT		1,859	2,166	2,864	2,702	248
	PCT		483	733	825	749	84
		A-HUMAN NECESSITIES	538	648	827	898	81
		B-PERFORMING OPERATIONS; TRANSPORTING	21	43	56	43	5
		C-CHEMISTRY; METALLURGY	102	118	157	151	32
		D-FIXED CONSTRUCTIONS	162	261	290	261	35
		F-MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING	452	698	931	819	102
		G-PHYSICS	133	181	260	183	22
		H-ELECTRICITY	305	482	108	384	274
		Undefined	82	53	45	27	15
		A-HUMAN NECESSITIES	27	17	13	2	3
		B-PERFORMING OPERATIONS; TRANSPORTING	13	13	8	7	3
		C-CHEMISTRY; METALLURGY	13	5	8	9	5
		C-TEXTILES; PAPER		1	1		
		D-FIXED CONSTRUCTIONS	1	3	5		
		F-MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING	9	4	1		
		G-PHYSICS	12	2	1		
		H-ELECTRICITY	6	7	8	3	1
		Undefined	1	1		6	3
			7,306	7,843	8,480	8,982	3,033
		Luar Negeri (ASAL) Row: Luar Negeri	884	1,008	986	869	298
		A-HUMAN NECESSITIES	127	119	73	117	19
		B-PERFORMING OPERATIONS; TRANSPORTING	353	364	385	291	68
		C-CHEMISTRY; METALLURGY	44	143	97	54	6
		C-TEXTILES; PAPER	25	21	16	10	1
		D-FIXED CONSTRUCTIONS	34	23	20	17	4
		F-MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING	123	107	119	100	19
		G-PHYSICS	87	114	129	118	11
		H-ELECTRICITY	61	95	135	96	22
		Undefined	30	22	12	66	148
			6,422	6,835	7,494	8,113	2,735
		A-HUMAN NECESSITIES	2,153	2,453	2,518	2,474	742
		B-PERFORMING OPERATIONS; TRANSPORTING	1,212	1,232	1,156	1,332	362
		C-CHEMISTRY; METALLURGY	968	960	1,025	1,187	440

PCT & Non PCT

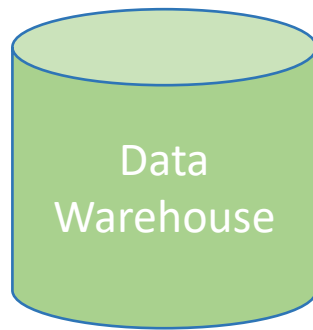
Domestic & Non Domestic

Time Series

# Self Service Business Intelligence

Self Service Business Intelligence is the ability of Business Intelligence to accommodate user needs in creating dashboards independently, so that IT Department does not need to concentrate too much on creating dashboards for users.

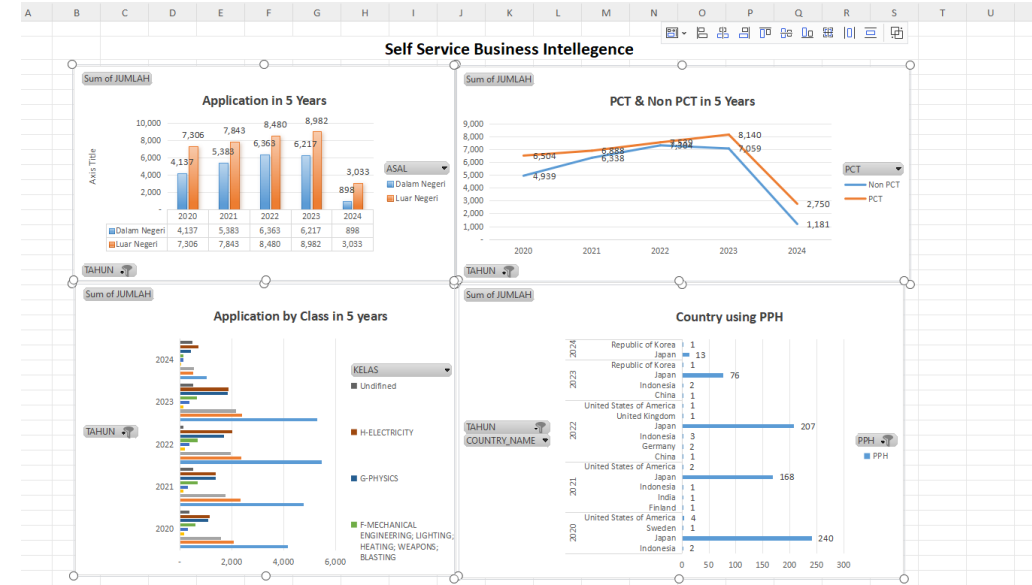
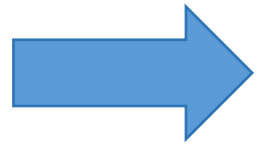
- User can download data / access data generated from Data Warehouse



TAHUN	BULAN	COUNTRY_NAME	JENIS	ASAL	KAWIL	PCT	STATUS_LIKRM	ASPEC	PPH	KAMPUS_CLEAN	NAMA_KONSULTAN	KEJAS
2019	11	China	Patent	Luar Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH		MARPOUN SUKAT	B-PEB
2019	12	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH			D-FRII
2019	01	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	UMKM	Non-ASPEC	Non-PPH	INSTITUT TEKNOLOGI SEPULUH NOVENBER		G-PPH
2019	03	Denmark	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		MIGNI MYRIASANDRA NDERWADI	H-ELEI
2019	02	Malaysia	Patent	Luar Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH		MARINDRA ARISTANTO	B-PEB
2019	12	Switzerland	Patent	Luar Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH		CIKA CITRAWANDA	C-TRC
2019	04	Thailand	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		INDRA AGUNG PRABAWIS	C-CHE
2019	01	China	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		MARPOUN SUKAT	C-ELEI
2019	07	United States of America	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH			B-PEB
2019	08	Japan	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		MARIA CAROLA D MORNITIA	B-PEB
2019	02	Japan	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		EMRYSH DIALAM	G-PPH
2019	02	Republic of Korea	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		LANNY SETIAWAN	G-PPH
2019	03	Belgium	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		MIGNI MYRIASANDRA NDERWADI	A-HUP
2019	12	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	UMKM	Non-ASPEC	Non-PPH			G-PPH
2019	12	United States of America	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH	UNIVERSITAS SAM RATULANGI		C-CHE
2019	03	India	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		IRENE KURNIATI DIALAM	A-HUP
2019	09	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH		ANNISA ANI BACAER	B-PEB
2019	04	Japan	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH	UNIVERSITAS NEGERI MALANG	BUDI RAHMAT	A-HUP
2019	02	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	UMKM	Non-ASPEC	Non-PPH			B-PEB
2019	08	Japan	Patent	Luar Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH		INDAH HANIDAYANI	B-PEB
2019	03	Finland	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		MIGNI MYRIASANDRA NDERWADI	B-PEB
2019	11	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH			A-HUP
2019	09	Japan	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		JANLUH EREBY	D-FRII
2019	02	China	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		WILLY TANANGSA TUNGSAI	C-CHE
2019	08	Japan	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		MAROLITA SETIATI	B-PEB
2019	11	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	UMKM	Non-ASPEC	Non-PPH	UNIVERSITAS BRANJALAYA		A-HUP
2019	11	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH			H-ELEI
2019	01	Indonesia	Patent	Dalam Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		INSAN BUDI MAULANA	F-MEC
2019	02	Indonesia	Patent	Dalam Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH			D-ELEI
2019	12	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH	UNIVERSITAS NEGERI MALANG		A-HUP
2019	11	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH			H-ELEI
2019	08	Japan	Patent	Luar Negeri	China	Non-PCT	NON-UMKM	Non-ASPEC	Non-PPH		RIHALDY MELUK	B-PEB
2019	09	Japan	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		DIAN PRABAWATI KUSUMABHARGANI	C-CHE
2019	01	Switzerland	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		ANNISA AMBADAER	B-PEB
2019	01	Indonesia	Patent	Dalam Negeri	China	Non-PCT	UMKM	Non-ASPEC	Non-PPH			G-PPH
2019	10	Singapore	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		DARUS LUKRIANTONO	B-PEB
2019	02	Indonesia	Sederhana	Dalam Negeri	China	Non-PCT	UMKM	Non-ASPEC	Non-PPH	UNIVERSITAS ISLAM NUSANTARA		A-HUP
2019	04	China	Patent	Luar Negeri	China	PCT	NON-UMKM	Non-ASPEC	Non-PPH		MARPOUN SUKAT	G-PPH

# Self Service Business Intelligence using Excel

TAHUN	BULAN	COUNTRY_NAME	JENIS	ASAL	KANWIL	PCT	STATUS_UMKM	ASPEK	PPH	KAMPUS_CLEAN	NAMA_KONSULTAN	KELAS
2023	11	China	Paten	Luar Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH		MARODIN SIABAT	B-PER
2023	12	Indonesia	Sederhana	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH			D-FIXI
2022	01	Indonesia	Sederhana	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH	INSTITUT TEKNOLOGI SEPULUH NOPEMBER		G-PHY
2019	10	Denmark	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		MIGNI MYRIASANDRA NOERHADI	H-ELE
2022	02	Malaysia	Paten	Luar Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH		MAHENDRA ARISTANTO	B-PER
2019	12	Switzerland	Paten	Luar Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH		CITA CITRAWINDA	C-TEX
2022	04	Thailand	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		ENDRA AGUNG PRABAWA	C-CHE
2022	01	China	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		MARODIN SIABAT	H-ELE
2022	07	United States of America	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		MARIA CAKOLA D'NONINTIA	B-PER
2020	08	Japan	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		EMIRSIYAH DINAR	G-PHY
2020	02	Republic of Korea	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		LANNY SETIAWAN	G-PHY
2016	02	Belgium	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		MIGNI MYRIASANDRA NOERHADI	A-HUP
2023	12	Indonesia	Sederhana	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH	UNIVERSITAS SAM RATULANGI		G-PHY
2023	12	United States of America	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		IRENE KURNIATI DIALIM	C-CHE
2021	03	India	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		ANNISA AM BADAR	A-HUP
2023	09	Indonesia	Sederhana	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH			B-PER
2021	04	Japan	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		BUDI RAHMAT	A-HUP
2020	02	Indonesia	Sederhana	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH	UNIVERSITAS NEGERI MALANG		B-PER
2020	08	Japan	Paten	Luar Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH		INDAH HANDAYANI	B-PER
2023	02	Finland	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		MIGNI MYRIASANDRA NOERHADI	B-PER
2023	11	Indonesia	Sederhana	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH			A-HUP
2023	09	Japan	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		JANUAR FERRY	D-FIXI
2024	02	China	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		WILLY ISANANDA TUNGGA	C-CHE
2021	08	Japan	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		MARUKITA SETIATI	B-PER
2021	11	Indonesia	Sederhana	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH	UNIVERSITAS BRAWIJAYA		A-HUP
2020	11	Indonesia	Sederhana	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH			H-ELE
2021	01	Indonesia	Sederhana	Dalam Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		INSAN BUDI MALLANA	D-FIXI
2021	02	Indonesia	Paten	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH	UNIVERSITAS NEGERI MALANG		A-HUP
2023	11	Indonesia	Sederhana	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH			H-ELE
2023	08	Japan	Paten	Luar Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH		ROHALLID MULLIK	F-MEC
2023	09	Japan	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		DYAH PARAMATAWIDYA KUSUMAWARDANI	C-CHE
2022	01	Switzerland	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		ANNISA AMBADAR	A-HUP
2021	01	Indonesia	Paten	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH			B-PER
2021	10	Singapore	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		DARULILKANTONO	G-PHY
2021	02	Indonesia	Sederhana	Dalam Negeri	DIKI	Non PCT	NON UMKM	Non ASPEC	Non PPH	UNIVERSITAS ISLAM NUSANTARA		A-HUP
2022	10	China	Paten	Luar Negeri	DIKI	PCT	NON UMKM	Non ASPEC	Non PPH		MARODIN SIABAT	G-PHY



Not Every users use same perspective, sometimes they needs to create their own dashboard to analytic or using data for Data Mining or Storytelling with graphic.

With Self Service Dashboard users can download or using Data generated from Data Warehouse and create own dashboard with their perspective.

Other Tools than excel

- Tableau
- Power BI

**Thank You**