

Mengenal lebih dekat JF ADI dalam Riset dan Inovasi

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Outline

- Konsep Data
- Siklus Data
- Track Kegiatan Analisis Data Ilmiah
- Tugas Analisis Data Ilmiah

Konsep Data

Konsep Data : Secara definisi, data merupakan kumpulan fakta dalam berbagai bentuk dan format mentah seperti angka, karakter, image, video, rekaman suara, atau simbol (DAMA : 2021)

Data Terstruktur : Data terstruktur biasanya disimpan dalam format tabulasi, seperti spreadsheet Excel dan [basis data relasional](#) (atau basis data SQL). Pengguna dapat memasukkan input, mencari, dan memanipulasi data terstruktur secara efisien dalam sistem manajemen basis data relasional (RDBMS) dengan menggunakan [bahasa kueri terstruktur](#) (SQL).

Data Tidak Terstruktur : informasi yang tidak memiliki format, model, atau struktur yang telah ditentukan sebelumnya (tidak dalam baris/kolom). Data ini seringkali berukuran sangat besar (terabytes/petabytes), mencakup hingga 90% data perusahaan, dan mencakup teks, gambar, video, email, dan file media sosial



Contoh :

File Multimedia: Gambar (JPG/PNG), video (MP4), berkas audio (MP3), citra satelit, dan rekaman kamera pengawas (CCTV).

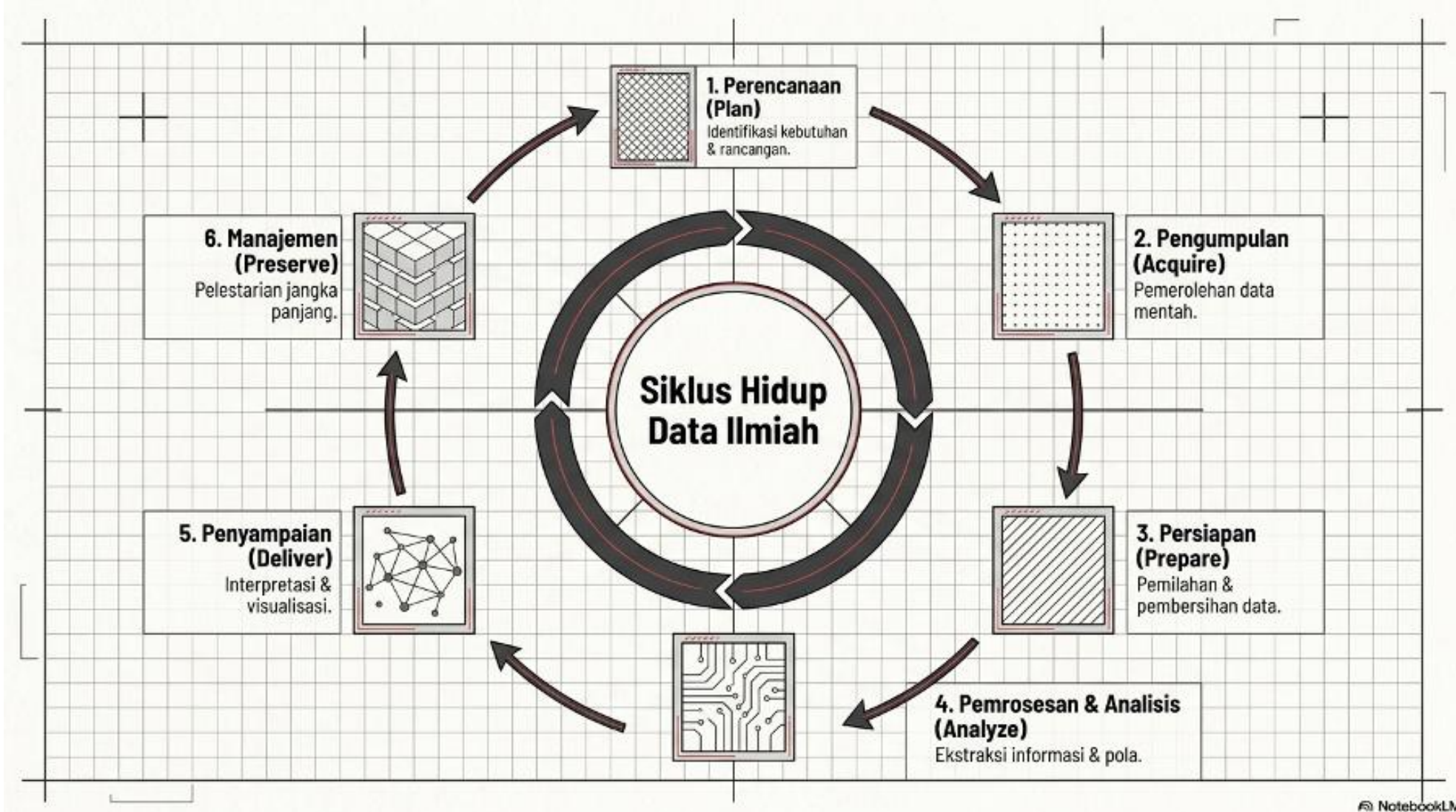
Dokumen Teks: Laporan perusahaan, file PDF, dokumen Word, presentasi PowerPoint (PPT).

Komunikasi & Media Sosial: Konten *postingan* media sosial (tweet, unggahan Facebook), komentar, email, transkrip percakapan telepon, pesan teks (Slack/Teams).

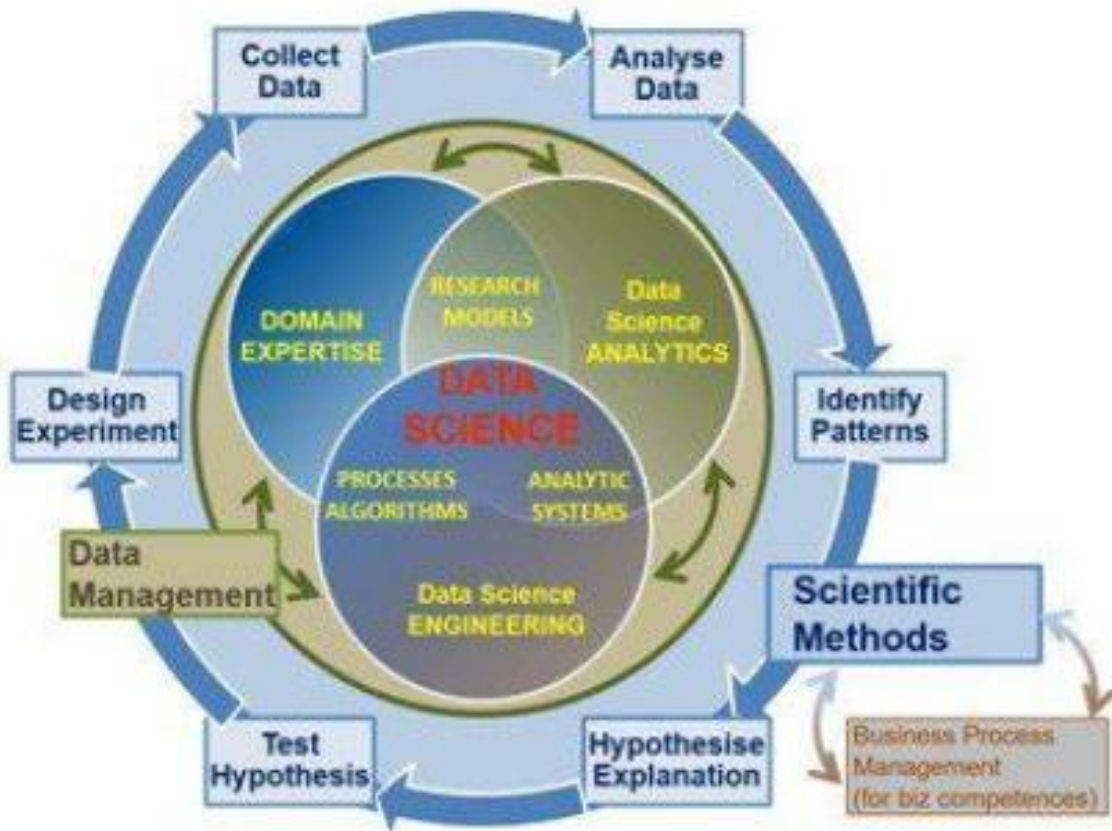
Format Data

Format Diagnostic Matrix	
Format Disarankan 	Format Tidak Disarankan 
PDF/A (.pdf)	Microsoft Word (.doc/.docx)
ODT (.odt)	Microsoft Excel (.xls/.xlsx)
Unicode Text (.txt)	PDF biasa (.pdf)
XML/HTML	Non-Unicode text
ODS (.ods)	Microsoft Access (.mdb)
CSV (.csv)	
SQL (.sql)	
FLAC/WAVE	
SVG	

Siklus Data



© NotebookLM



(a)



(b)

Sumber : Edison Data Science Framework

Track Kegiatan Data Ilmiah

Kerangka Kompetensi EDISON

Konteks Global

EDISON Framework (Horizon 2020) & ESCO (European Skills Competency Qualification).

Mekanisme Transisi (Tengah)

Data Science Professional Profiles (DSPP) memetakan profil karir dan transfer keterampilan.

Penerapan Nasional/BRIN

Disetarakan dengan SKKNI, menghasilkan 3 Jalur (Tracks) Spesialisasi ADI:

1. Data Science Analytics




2. Data Science Engineering

3. Data Management & Governance

Table 3.1. Competences definition for different Data Science competence groups

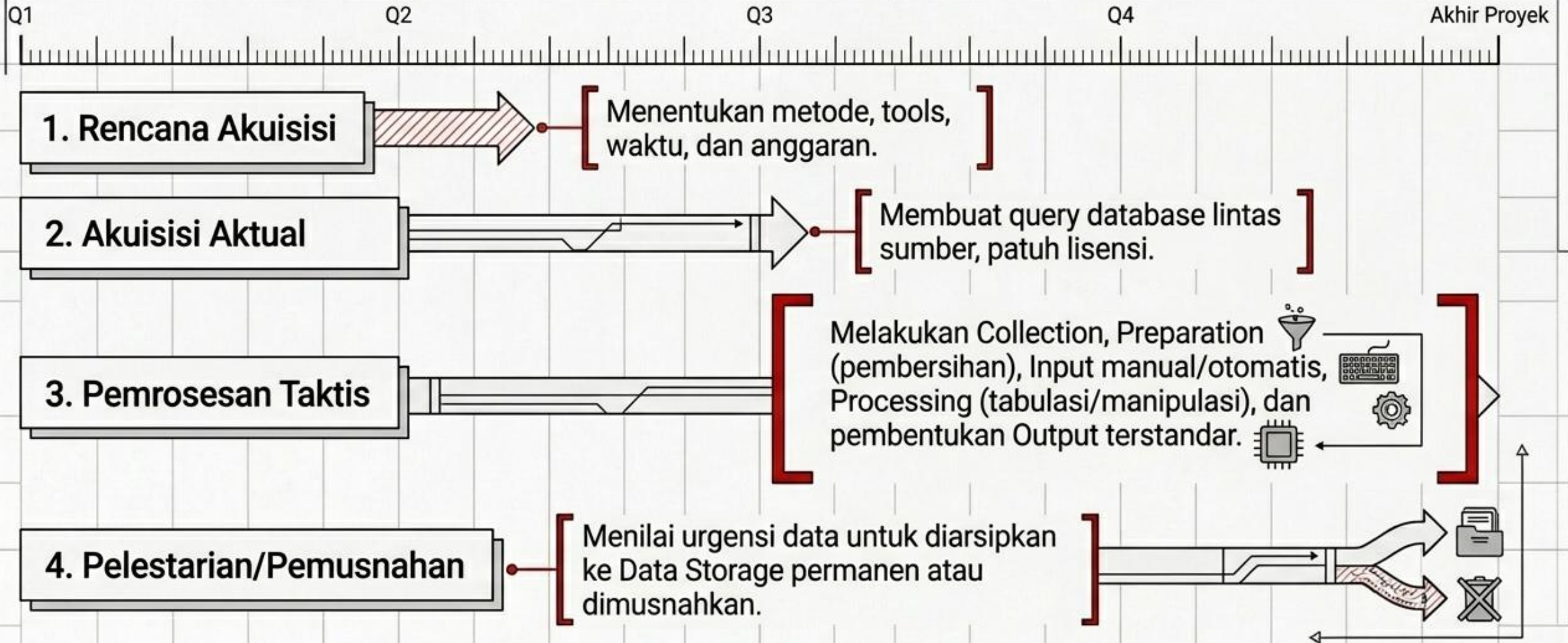
Data Analytics (DSDA)	Data Science Engineering (DSENG)	Data Management (DSDM)	Research Methods and Project Management (DSRM)	Domain related Competences (DSDK): Applied to Business Analytics (DSBA)
<p>DSDA Use appropriate data analytics and statistical techniques on available data to discover new relations and deliver insights into research problem or organizational processes and support decision-making.</p>	<p>DSENG Use engineering principles and modern computer technologies to research, design, implement new data analytics applications; develop experiments, processes, instruments, systems, infrastructures to support data handling during the whole data lifecycle.</p>	<p>DSDM Develop and implement data management strategy for data collection, storage, preservation, and availability for further processing.</p>	<p>DSRM Create new understandings and capabilities by using the scientific method (hypothesis, test/artefact, evaluation) or similar engineering methods to discover new approaches to create new knowledge and achieve research or organisational goals</p>	<p>DSDK Use domain knowledge (scientific or business) to develop relevant data analytics applications; adopt general Data Science methods to domain specific data types and presentations, data and process models, organisational roles and relations</p>
<p>DSDA01 Effectively use variety of data analytics techniques, such as Machine Learning (including supervised, unsupervised, semi-supervised learning), Data Mining, Prescriptive and Predictive Analytics, for complex data analysis through the whole data lifecycle</p>	<p>DSENG01 Use engineering principles (general and software) to research, design, develop and implement new instruments and applications for data collection, storage, analysis and visualisation</p>	<p>DSDM01 Develop and implement data strategy, in particular, in a form of data management policy and Data Management Plan (DMP)</p>	<p>DSRM01 Create new understandings by using the research methods (including hypothesis, artefact/experiment, evaluation) or similar engineering research and development methods</p>	<p>DSBA01 Analyse information needs, assess existing data and suggest/identify new data required for specific business context to achieve organizational goal, including using social network and open data sources</p>

3 Spesialisasi Analisis Data Ilmiah

	Data Analisis 	Data Engineer 	Data Management 
1.	Fokus Analisis Statistik, Machine Learning , Business Analytics.	Fokus Infrastruktur, Software/App Engineering, Data Warehousing.	Fokus Tata Kelola (Governance), Kurasi, Pelestarian.
2.	Ruang Lingkup Business understanding, pemodelan, menemukan insight, visualisasi.	Ruang Lingkup Merancang aplikasi akuisisi data, rekayasa fitur, memelihara pipeline .	Ruang Lingkup Kebijakan tata kelola, penilaian kelayakan data, lisensi.
3.	Kompetensi Penggunaan teknik analitik & statistik untuk dataset kompleks.	Kompetensi Prinsip engineering, Big Data storage (Hadoop, MongoDB, Data Lakes).	Kompetensi Strategi pengumpulan, standar metadata, HKI/Lisensi dataset.

Kegiatan atau Tugas Analisis Data Ilmiah

Rincian Tugas Utama ADI



Terima Kasih