

Compliance for Data/Al Pipelines





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DATAPACT: COMPLIANCE BY DESIGN OF DATA/AI OPERATIONS AND PIPELINES







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http://cordis.europa.eu/project/id/101189771

A data pipeline with compliance requirements

General Personal Data Processing Sensitive Data Mixed Datasets Encrypted/Anonymized Data Data Intermediation Service Product Data/Related Services Data Data Portability Across Providers **High-risk AI** Data Act Al Act Sectoral legislation **GDPR** DGA **Ethics** Medical doctor Devices installed at patient home Automatic data analysis w.r.t. Elderly patient patient care plan Publish data to cloud service Send notifications to Perform measurement care physician Send notification to patient device Data generation, pre-Data storage and End user processing and routing analytics application logic Deployed on: Edge Deployed on: Cloud Create notification for Receive data, check against patient

plan, build DB records, store to DB

(Programming language:

Javascript)

healthcare personnel

(Programming language:

Javascript)

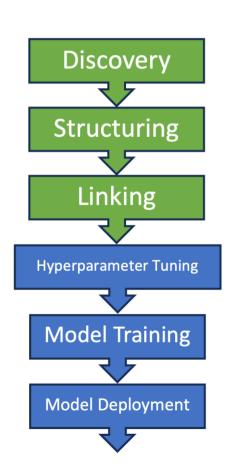
Generate sensor data, reformat,

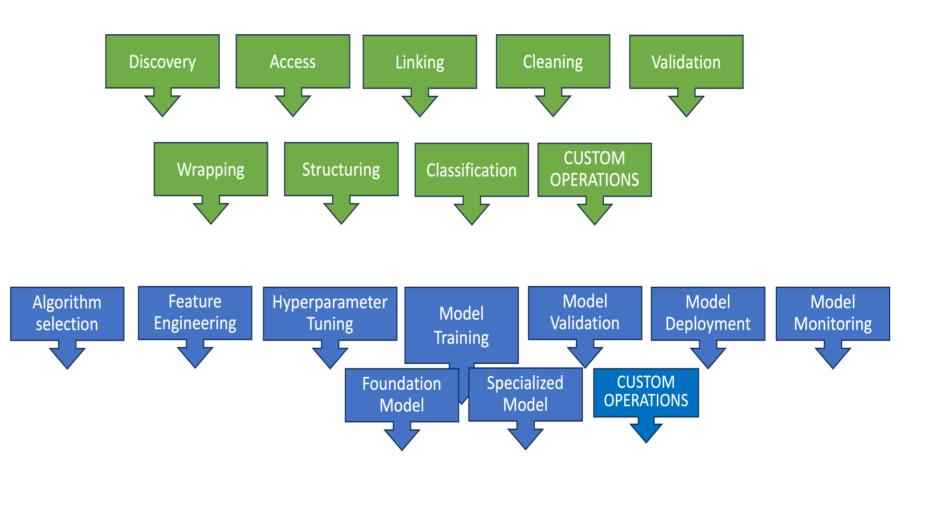
push in MQTT

(Programming language: C)

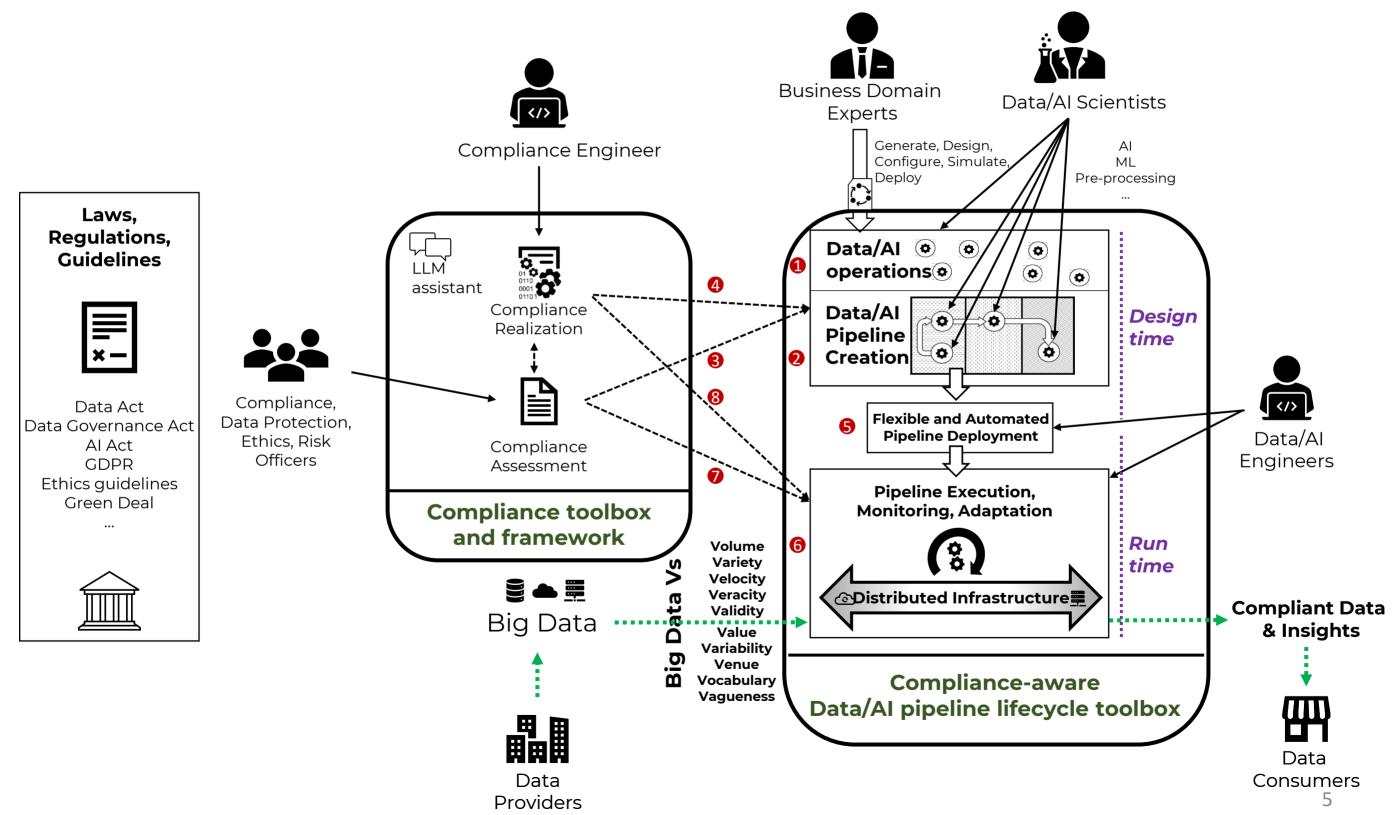
Key concepts related to data pipelines

- Data
- Data/Al operations
- Data/Al pipelines

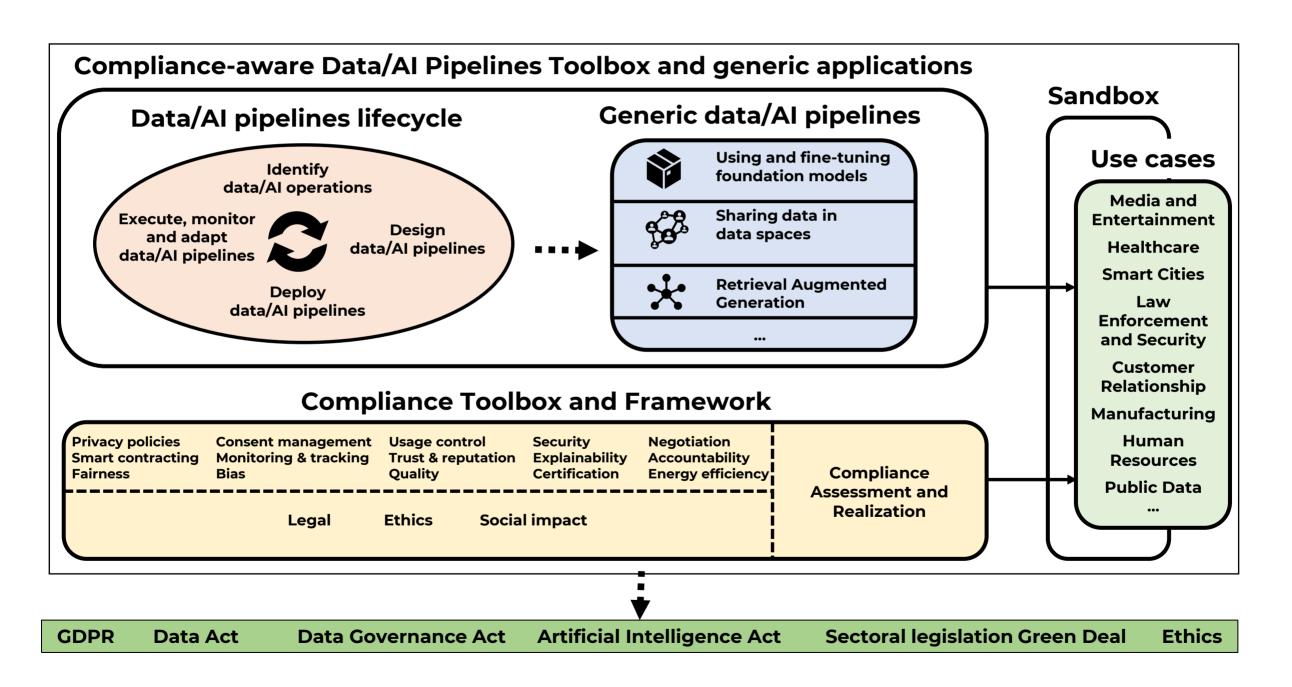




DataPACT envisioned ecosystem for COMPLIANCE-BY-DESIGN DATA PIPELINES



Compliance toolbox, framework, and sandbox for data pipelines



Compliance triggers, tools, and projects





enRichMyData

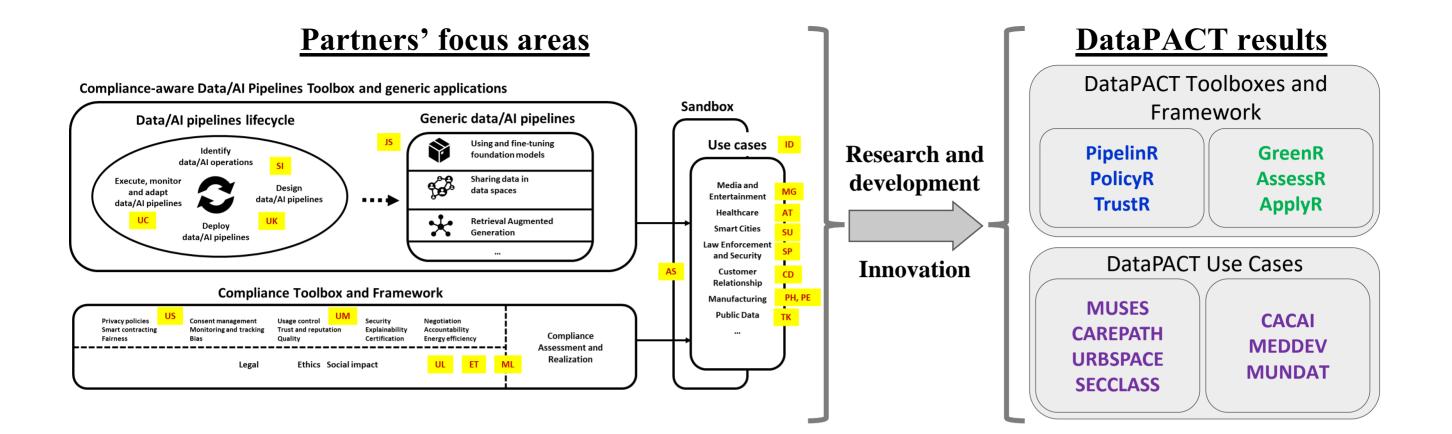
https://enrichmydata.eu

https://www.upcast-project.eu

Regulations and <u>essential</u> triggers in the context of data pipelines			
GDPR	General Personal Data Processing		
	Mixed Datasets		
	Encrypted/Anonymized Data		
	Sensitive Data		
	Synthetic Data		
DGA	Public Sector Protected Data		
	Data Intermediation		
Data Act	Product Data/Related Services Data		
	(Smart) Contracts		
Al Act	High Risk Al		
	AI with Transparency Obligations		
	General-purpose AI		
Sectoral legislation			
Other rele	vant legislation and ethics guidelines		

Compliance Toolbox and Framework	Compliance Assessment	Compliance Realization
Privacy policies & usage control	✓	✓
Consent management	✓	✓
Access control		✓
Secure execution	✓	✓
Negotiation		✓
Smart contracting		✓
Monitoring and tracking	✓	
Trust and reputation	✓	
Explainability	✓	
Bias	✓	✓
Quality measurement	✓	
Energy efficiency	✓	✓
Certification	✓	
Accountability/Transparency	✓	
Legal assessment	✓	
Ethical assessment	✓	
Social impact assessment	✓	

Compliance-aware Data/AI Pipeline Toolbox			
Data/Al Operation Modelling			
Interactive pipeline specification & visualization			
LLM-assisted pipeline generation			
Pipeline simulation			
Pipeline deployment & secure execution			
Pipeline monitoring & adaptation			
Energy monitoring			
Compliance-aware data/Al pipelines development			
 Privacy, consent and access policies for data pipelines 			
 Trust, fairness, and explainability for compliance 			
 Environmental sustainability of data pipelines 			
 Compliance assessment and certification 			
• Compliant generic data/AI pipelines			





compliance-by-design data pipelines

compliance-aware data pipeline toolbox



compliance toolbox

compliance framework

sandbox



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