

FIGURE 1: SYSTEM ARCHITECTURE OVERVIEW

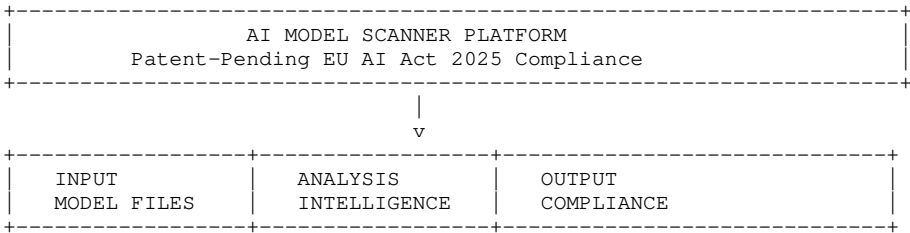


FIGURE 2: MULTI-FRAMEWORK ANALYZER

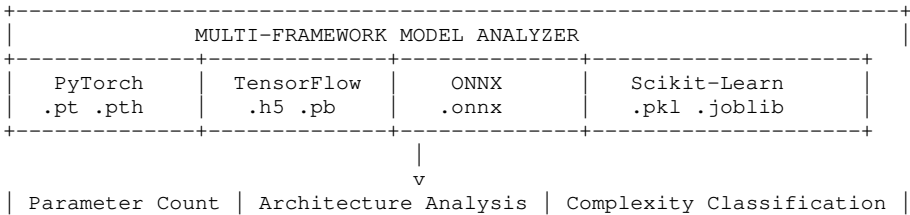


FIGURE 3: BIAS DETECTION ENGINE

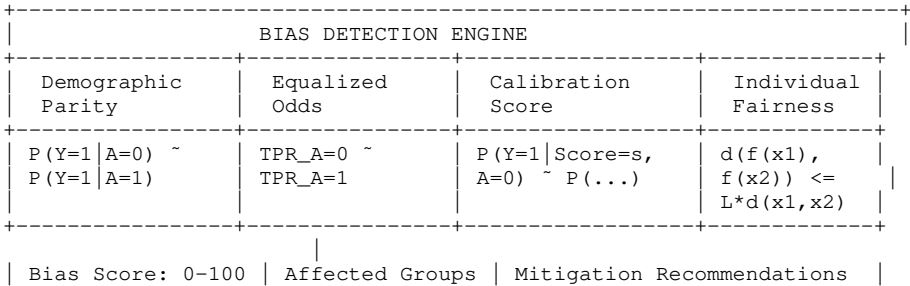
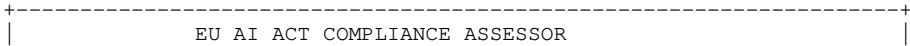


FIGURE 4: EU AI ACT COMPLIANCE ASSESSOR



ARTICLE 5 Prohibited Practices	ARTICLES 19-24 High-Risk Systems	ARTICLES 51-55 General Purpose AI (GPAI)
- Social Score - Manipulation - Subliminal - Biometric ID	- QMS Required - Tech Docs - Record Keeping - CE Marking	- Foundation Model - >1B Parameters - Compute Limits - Adversarial Test
EUR 35M or 7% Global Turnover	EUR 15M or 3% Global Turnover	EUR 15M or 3% Global Turnover

FIGURE 5: NETHERLANDS SPECIALIZATION

NETHERLANDS SPECIALIZATION		
BSN Detection	UAVG Compliance	Penalty Engine
- 9-digit BSN - Checksum Valid - Privacy Risk - GDPR Art.9	- AP Authority - Data Residency - Local Rules - NL Specific	- EUR 35M Max - 7% Turnover - Risk Scaling - Regional Multi

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FIGURE 6: MATHEMATICAL FORMULAS (CORRECTED)

85 BIAS DETECTION ALGORITHMS:

Formula 1 - Demographic Parity:
 $P(Y=1|A=0) \sim P(Y=1|A=1)$

90 Formula 2 - Equalized Odds:
 $TPR_A=0 \sim TPR_A=1 \text{ AND } FPR_A=0 \sim FPR_A=1$

Formula 3 - Calibration Score:
 $P(Y=1|Score=s,A=0) \sim P(Y=1|Score=s,A=1)$

95 Formula 4 - Individual Fairness:
 $d(f(x1),f(x2)) \leq L*d(x1,x2)$

BSN CHECKSUM VALIDATION (CORRECTED - Official Dutch Algorithm):

100 checksum = (digit_0 x 9) + (digit_1 x 8) + (digit_2 x 7) +
(digit_3 x 6) + (digit_4 x 5) + (digit_5 x 4) +
(digit_6 x 3) + (digit_7 x 2) - (digit_8 x 1)

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105 BSN is valid if: checksum mod 11 == 0

Example: BSN 111222333
= (1x9) + (1x8) + (1x7) + (2x6) + (2x5) + (2x4) + (3x3) + (3x2) - (3x1)
= 9 + 8 + 7 + 12 + 10 + 8 + 9 + 6 - 3
110 = 66 mod 11 = 0 ? VALID

PENALTY CALCULATION:

115 penalty = MAX(
fixed_amount x regional_multiplier,
revenue x percentage x regional_multiplier
)

120 where:
fixed_amount = EUR 35,000,000 (Article 5) or EUR 15,000,000 (Articles 19-24)
percentage = 7% (Article 5) or 3% (Articles 19-24)
regional_multiplier = Netherlands-specific compliance factor

125 FIGURE 7: SYSTEM FLOW DIAGRAM

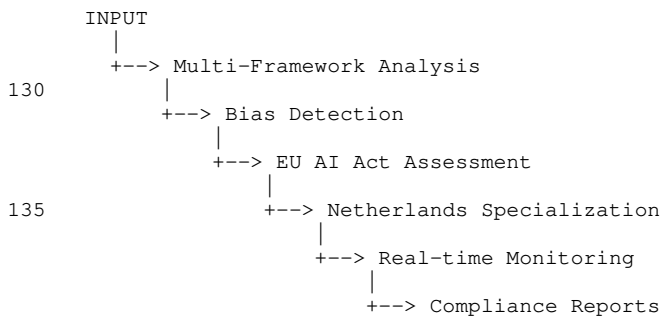
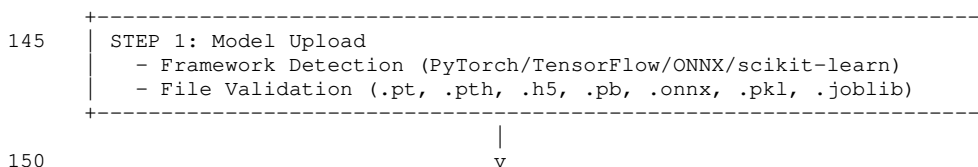


FIGURE 8: PROCESSING PIPELINE



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| STEP 2: Architecture Analysis |

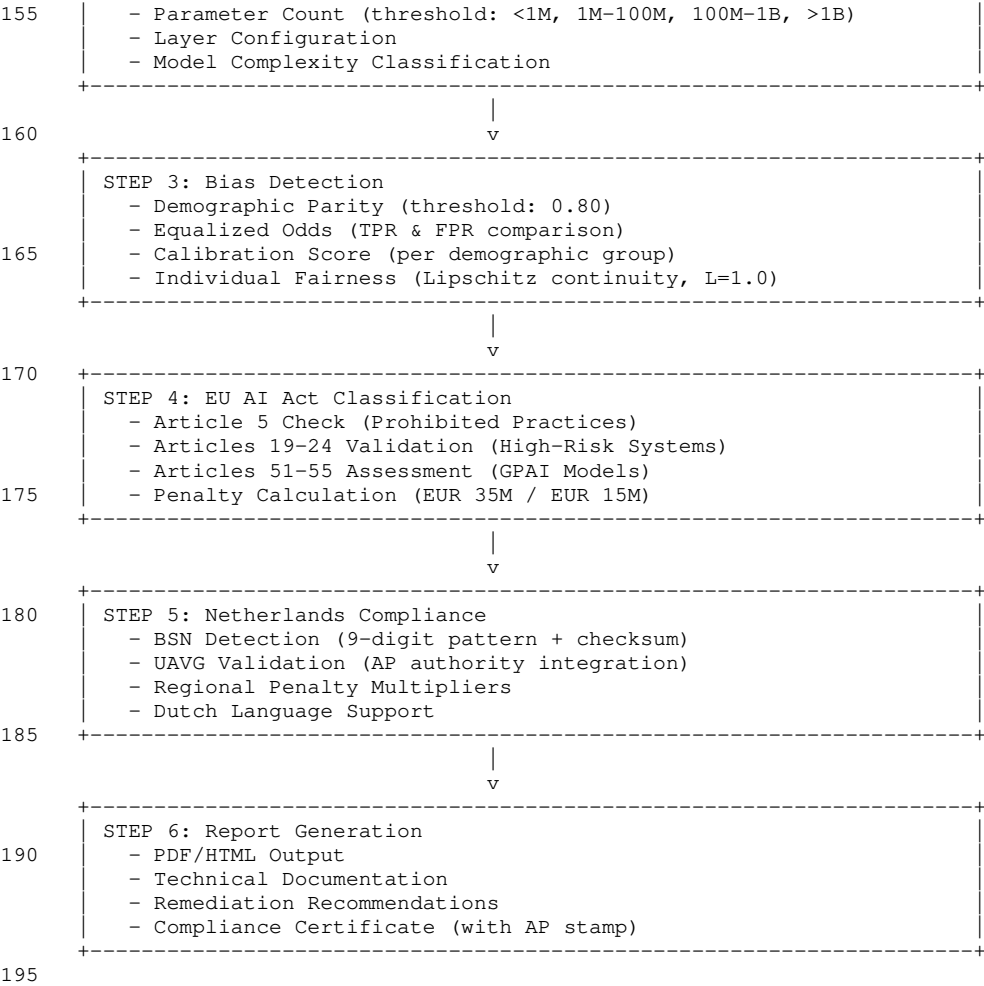


FIGURE 9: DEPLOYMENT ARCHITECTURE

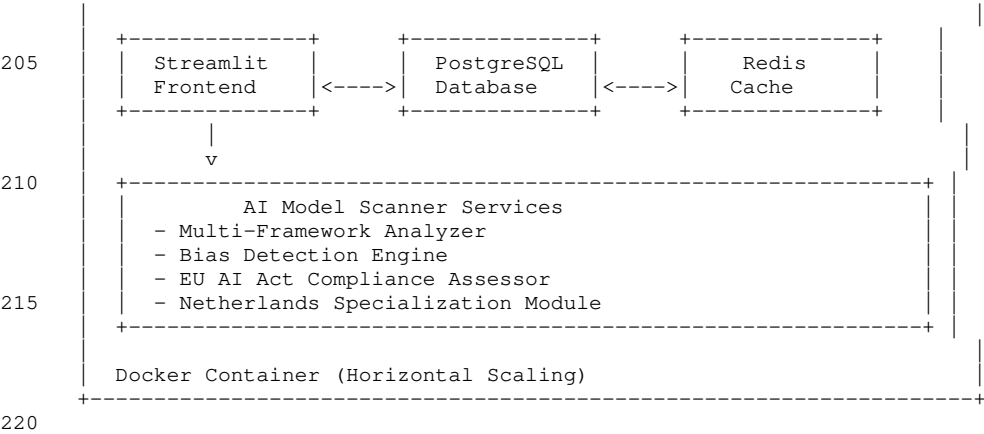
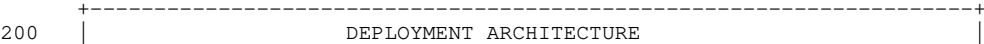


FIGURE 10: COMPETITIVE ADVANTAGE MATRIX

225	FEATURE	DataGuardian	System A	System B	System C
	Automated Bias	?	x	x	!
	Multi-Framework	?	x	x	!
	BSN Detection	?	x	x	x
230	EU AI Act 2025	?	!	!	!
	Cost (Annual)	EUR2.5K-25K	EUR50K-500K	EUR75K-400K	EUR100K+
	Cost Savings	BASELINE	95%	96%	97%

235 Legend: ? = Full Support, ! = Partial Support, x = No Support

FIGURE 11: VALUE PROPOSITION

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PATENT VALUE PROPOSITION	
Market Opportunity:	EUR447M (EU-wide AI compliance market)
Target Market:	1.8M EU companies using AI
Netherlands Market:	EUR23M (150,000 companies)
Penalty Prevention:	Up to EUR 35M per violation
Cost Savings:	95% vs System A/System B
Processing Speed:	<30s (vs hours manually)

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Accuracy:

95%+ bias, 98%+ compliance

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First-Mover Advantage:

EU AI Act enforced Feb 2025

Patent Protection:

20 years (until 2045)

Patent Value:

EUR1M - EUR2.5M

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IMPORTANT TECHNICAL CORRECTIONS

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BSN FORMULA CORRECTION:

OLD (INCORRECT):

$$\text{checksum} = \text{SUM}(\text{digit}_i \times (9-i)) \bmod 11 \quad \text{x WRONG}$$

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NEW (CORRECT):

$$\text{checksum} = (\text{digit}_0 \times 9) + (\text{digit}_1 \times 8) + \dots - (\text{digit}_8 \times 1) \quad \text{? CORRECT}$$

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The last digit (digit_8) uses multiplication factor 1 with subtraction,
not derived from the general formula pattern. This is the official Dutch
government BSN 11-proof algorithm specification.

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END OF DRAWINGS AND FORMULAS

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