

Does the Brussels Effect Extend from Data Protection to AI Governance in Africa? Examining the Relationship Between European Frameworks and African Policy Adoption

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Abstract

This study asks whether the Brussels Effect extends from data protection to AI governance in Africa. Computational text analysis compares 21 African data-protection documents with the GDPR and nine AI-governance documents with the EU AI Act. Data-protection documents generally show greater textual resemblance to the European model, but the matched-country difference is not statistically significant and reverses in one sensitivity test. African AI frameworks instead emphasize development, infrastructure, and capacity building, suggesting that divergence may reflect local priorities rather than weak adoption.

Background and Research Questions

The Brussels Effect describes the European Union's capacity to shape rules beyond its borders through market and regulatory influence (Bradford 2020). This influence is particularly visible in data protection, where GDPR-related principles have appeared across many national frameworks and strategies (Greenleaf 2021; Kuner 2019). The global reach of the GDPR has, in turn, produced an expectation that the EU AI Act will become a comparable model for AI governance. Specifically, Almada and Radu (2024) argue that the Act is likely to generate a Brussels Effect, although the influence may be limited to only its regulatory form and not the full set of European values associated with it. This is particularly important in Africa, where AI governance, according to Gwagwa et al. (2020), is emerging around development, infrastructure, skills, inclusion, and institutional capacity. If African states engage with the EU AI Act while organizing their policies around these priorities, European influence may take a different form than it did in data protection. This study therefore examines whether the Brussels Effect extends across both domains in comparable ways.

The study asks: (1) how closely do African data-protection documents resemble the GDPR, and how closely do African AI-governance documents resemble the EU AI Act? (2) How does textual similarity to these domain-specific European benchmarks differ across the two policy areas?

Data and Methods

The corpus contains 21 African data-protection documents, nine African AI-governance documents, and the two corresponding European benchmarks. Data-protection documents are compared only with the GDPR, while AI-governance documents are compared only with the EU AI Act. Textual resemblance is measured using cosine similarity based on term frequency-inverse document frequency (TF-IDF) representations of the documents. A separate descriptive dictionary analysis examines the relative presence of rights, accountability, development, infrastructure, innovation, and capacity-related vocabulary. Eight countries appear in both domains, allowing a matched-country comparison.

The analysis reports document-level means, percentile bootstrap 95% confidence intervals, and effect sizes. A paired sign-flip test evaluates the mean difference among the eight matched countries, and Holm adjustment accounts for the primary model and seven alternative specifications. A separate manual analysis scores 11 written implementation features from 0 when absent to 2 when concretely specified. The features are grouped into eight dimensions, averaged within each dimension, and then combined with equal weight. These measures capture textual similarity and formal provisions and not legal equivalence, regulatory influence, compliance, or implementation. This is because, according to Grimmer and Stewart (2013), automated text analysis still requires validation against the texts being studied.

Results

African data-protection documents have greater mean resemblance to the GDPR ($M = 0.2065$, 95% bootstrap CI [0.1743, 0.2417]) than African AI-governance documents have to the EU AI Act ($M = 0.1198$, 95% bootstrap CI [0.1063, 0.1310]). The full-group effect size is Cliff's delta = 0.7143, showing that a randomly selected data-protection document will usually have a higher domain-specific similarity score than a randomly selected AI-governance document.

Among the eight matched countries, six have higher scores for data protection. The mean paired difference is 0.0501, with a 95% bootstrap CI of [0.0070, 0.0912]. However, the exact paired sign-flip test gives $p = .09375$, and

Domain/benchmark	n	M	95% bootstrap CI
Data protection / GDPR	21	0.2065	[0.1743, 0.2417]
AI governance / EU AI Act	9	0.1198	[0.1063, 0.1310]

Table 1: Textual similarity to the domain-specific European benchmark.

the Holm-adjusted p -value is .5625. Across the alternative specifications, the matched difference ranges from -0.0062 to 0.1668 , with the text-length specification reversing direction. The descriptive pattern is therefore present in the primary model, but it is neither statistically significant nor consistent across all specifications. The descriptive dictionary analysis also shows that data-protection documents give greater attention to rights and accountability, while AI-governance documents give greater attention to development, infrastructure, innovation, and capacity building.

From the manual coding, on a 0–2 index of written implementation provisions, data protection averages 1.96 and AI governance averages 1.86. Both groups therefore contain detailed institutional and procedural provisions. These scores reflect what the documents contain, not whether the provisions are enforced, adequately funded, or effective.

Discussion and Implications

The findings provide limited support for a domain-sensitive account of the Brussels Effect. Data-protection documents show greater average resemblance to the GDPR than AI-governance documents show to the EU AI Act, but the matched-country test and sensitivity analysis do not support a robust cross-domain difference. The pattern is better read as indicative of uneven textual resemblance that may reflect selective adaptation, but it does not prove that European influence is present in one domain and absent in the other.

The comparison also reflects differences in what the documents are intended to do. Data-protection laws tend to define rights, duties, supervisory authority, and redress, while AI strategies commonly connect governance with innovation, infrastructure, data access, skills, and national development. These differences may reflect locally situated priorities instead of a wholesale adoption of the EU AI Act.

Limitations and Future Work

The findings apply to the selected documents, not to all African countries. The corpus mixes laws, bills, policies, and AI strategies that differ in legal status and communicative purpose. The lower similarity of AI-governance documents may therefore partly reflect the comparison of national strategies with binding EU legislation rather than a weaker Brussels Effect alone. Dates, English-language selection, OCR or extraction error, and dictionary design can affect the estimates. Manual validation covered selected lexical matches and implementation rows, not every automated hit. Future work should extend the multilingual corpus and combine textual analysis with institutional tracing and interviews.

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