

Separating Compatibility, Supervisory Trust, Market Access and Infrastructure in African Cross-Border Payment Services

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Abstract

Digital payment services can cross networks whose reach is not naturally bounded by national borders, while authorization and supervision remain predominantly territorial. This article asks when an authorization issued in one African jurisdiction could safely support activity in another and whether portability can be organized as continuous supervisory trust rather than static licence recognition. It reports a mixed-method study comprising a 54-state regulatory census, a 48-state evidence-qualified quantitative Core sample, 2,862 directional home-to-host corridors, and seven structured comparative mechanism cases. Eritrea, Guinea, Libya, Sudan, South Africa, and Zimbabwe remain in the census but are excluded from Core quantitative inference at the 28 August 2026 evidence freeze. The model separates **Regulatory Compatibility Distance** (RCD), **Supervisory Trust Capacity** (STC), **Host Market-Access Friction** (HMAF), and **Infrastructure Interoperability** (II), and prohibits missing evidence from becoming a zero. Within the declared scope, 2,256 directional RCD observations (78.8% of the full universe) represent 1,128 unique unordered pairs; they are symmetric duplicates for corridor assembly and are not independent statistical observations. The RCD range is narrow (0.0000-0.0667), the median is zero, and differentiation is concentrated in two licensing variables. Evidence-qualified infrastructure exists for 498 corridors; 86 intra-UMOA/CEMAC corridors pass a narrowly provision-mapped common-supervisor STC gate; and 1,534 corridors across 30 hosts have eligible HMAF observations. Among the 398 corridors with both RCD and II, 158 add HMAF but lack eligible STC, 86 add STC but have HMAF deliberately suppressed, and 154 have neither additional component. No corridor has all four evidence-qualified components, so the **Passportability Readiness Index**(PRI) is withheld rather than imputed or reported as zero. The cases show that common rules, shared supervision, payment rails, and home-status reliance solve different problems and do not independently create territorial market-access rights. The article's central contribution is an evidence-gated four-component architecture showing that compatibility, supervisory reliance, territorial access, and infrastructure are non-substitutable and can mature asynchronously. It translates that result into a layered Regulatory Passport System, lifecycle-based Regulatory Passport Protocol, and Model Regulatory Framework Agreement. The findings support bounded testing; they do not establish a continent-wide passport, a country ranking, or causal effects on cost or inclusion.

Keywords: regulatory passporting; payment service providers; mutual recognition; home-host supervision; regulatory distance; cross-border payments; Africa; verifiable credentials

1. Introduction

Digital financial services reveal a persistent mismatch between technical reach and public authority. A payment service provider can connect users, merchants, accounts, and payment infrastructures across several jurisdictions through one operating platform. Its authorization, however, normally remains tied to a particular legal entity, activity, regulator, and territory. Cross-border expansion may therefore require repeated incorporation, licensing, capital, governance, safeguarding, anti-money-laundering, consumer-protection, data, operational-resilience, and reporting processes. Some repetition is necessary because the host state retains legitimate interests in market integrity, customer protection, monetary and financial stability, law enforcement, and emergency intervention. The regulatory question is not whether national control should disappear. It is which functions must remain local, which determinations can be relied upon, and what institutional machinery makes that reliance safe over time.

This question has become more pressing as policy efforts to reduce cross-border payment frictions move from infrastructure toward regulation and supervision. The Financial Stability Board identifies inconsistent legal, regulatory, and supervisory treatment of bank and non-bank payment service providers as a material source of cross-border friction and recommends more consistent, risk-proportionate licensing and stronger supervisory coordination (Financial Stability Board 2024).¹ At the same time, African institutions are pursuing several distinct forms of integration. PAPSS, SADC-RTGS, REPSS, and domestic instant-payment systems extend payment connectivity; monetary unions provide common institutions and rulebooks; bilateral announcements connect selected regulators; the East African Community is developing mutual-recognition and cooperative-oversight frameworks; and the AfCFTA digital-trade agenda supplies a continental policy layer. These initiatives are related, but they do not have the same legal effect.

The central danger is conceptual compression. A shared payment rail may be mistaken for a market-access right. Similar regulations may be described as legal equivalence. A common supervisor may be assumed to confer a region-wide authorization. A memorandum of understanding may be presented as an operative passport. A composite score may then average those differences away and produce an apparently precise ranking. Each shortcut confuses a different part of the institutional problem.

This study addresses that problem by treating passportability as a directional, activity-specific property of a home-to-host corridor rather than as an intrinsic national characteristic. It asks two linked questions. First, under what legal, regulatory, supervisory, institutional, and technological conditions can authorization to provide regulated payment and adjacent fintech services become safely portable across African jurisdictions? Second, can such portability evolve from a one-time recognition decision into a federated system of continuous supervisory trust without requiring a single continental financial regulator?

The analysis proceeds through four deliberately separate mechanisms. Regulatory Compatibility Distance (RCD) measures observed substantive difference across jointly evidenced rules. Supervisory Trust Capacity (STC) measures whether a host can lawfully and operationally rely on defined home-

supervisory functions. Host Market-Access Friction (HMAF) measures what authorization and establishment burden remains in the host after home status is considered. Infrastructure Interoperability (II) records whether a relevant cross-border payment or settlement route is evidenced and under what access conditions. Only when all four components independently satisfy their evidence gates may a composite Passportability Readiness Index (PRI) be computed. That rule makes the absence of a composite an interpretable result rather than a reason to fill gaps. The paper's central contribution is this evidence-gated decomposition: it makes compatibility, supervisory reliance, territorial market access, and infrastructure analytically non-substitutable and exposes asynchronous institutional development that a single readiness score would conceal.

Africa is analytically valuable because it contains a wide range of institutional forms within one continental policy environment. UMOA combines a common central bank and payment-services instruction across eight states. CEMAC combines regional payment-services rules and common supervisory institutions with a sector-specific unified banking authorization that must not be assumed to extend to payment service providers. SADC demonstrates deep settlement integration alongside national licensing. The EAC and Ghana-Rwanda-Kenya initiatives show recognition and supervisory cooperation being developed through proposed regional and bilateral pathways. Egypt provides an intermediate case in which foreign regulatory status informs, but does not replace, host authorization. The European Union supplies a mature functional comparator in which notification, home-host cooperation, and host precautionary powers are legally connected. This variation permits the study to ask not merely whether integration exists, but which institutional function it actually performs.

The study makes four bounded contributions. First, it constructs a source-controlled 54-state research census and a 48-state evidence-qualified Core sample for quantitative corridor analysis. Eritrea, Guinea, Libya, Sudan, South Africa, and Zimbabwe remain in the census and qualitative scope but are excluded from Core quantitative inference because they do not meet the formal 19-of-20 operational evidence threshold at the 28 August 2026 freeze. Second, it applies an activity-sensitive, mixed-data distance framework while keeping substantive compatibility separate from direction-specific trust, market access, and infrastructure. Regulatory-distance methods are established prior art; the contribution is the controlled decomposition and African payments application, not invention of distance measurement (Gower 1971; Capelle et al. 2026). Third, it uses seven structured comparative mechanism cases to test whether the quantitative non-overlaps correspond to recognizable legal mechanisms rather than spreadsheet artifacts. Fourth, it translates the observed weak links into a technology-neutral design for a Regulatory Passport System (RPS), Regulatory Passport Protocol (RPP), and Model Regulatory Framework Agreement (MRFA), while marking which controls arise directly from the dataset and which rest on comparator or public-governance reasoning.

The empirical result is simultaneously encouraging and cautionary. Of the full 2,862 directional jurisdiction pairs, 2,256 pass the baseline RCD gate. Because RCD is symmetric, those observations represent 1,128 unique unordered pairs, not 2,256 independent comparisons. The eligible distance range is only 0.0000-0.0667, the median is zero, and observed differentiation is concentrated in two licensing variables. Infrastructure evidence is available for 498 corridors, common-supervisor STC for 86, and HMAF for 1,534 corridors across 30 hosts. The overlaps shrink sharply: 398 corridors have both RCD

and II; 158 have RCD, II, and HMAF; 86 have RCD, II, and STC; none has all four. The null composite is not a finding that African jurisdictions have zero readiness. It means the evidence does not support a publication-grade composite for any corridor without inferring one component from another or treating missingness as an adverse value.

The paper is organized accordingly. Section 2 defines passporting and positions the study within the literatures on mutual recognition, equivalence, home-host supervision, regulatory distance, African integration, and programmable compliance. Section 3 describes the evidence architecture, sample rule, component measures, missingness controls, robustness plan, and case-selection logic. Section 4 reports decomposed results and the withheld composite. Section 5 uses the seven cases to interpret the mechanisms. Section 6 presents the proposed RPS/RPP/MRFA architecture. Sections 7 and 8 state the limitations and conclusions. Throughout, empirical findings, mechanism interpretations, and normative design proposals remain separate.

2. Conceptual Framework and Prior Art

2.1 Passporting is a legal effect, not a metaphor

The term passporting is often used loosely to describe harmonization, foreign licensing, regulatory cooperation, or simple cross-border ambition. This study uses a narrower definition. Passporting exists when a home authorization, together with prescribed notification or conditions, produces a legally defined ability to conduct covered services or establish in the host without a completely independent authorization of the same scope. The definition requires an operative market-access consequence. It does not require the host to abandon conduct, consumer, anti-money-laundering, data, reporting, or emergency powers, and it does not imply that all activities of a legal group travel with one licence.

Several adjacent concepts must therefore be kept distinct. Harmonization aligns substantive requirements but does not itself create access. Equivalence is a determination that another regime or rule set achieves sufficiently comparable outcomes for a defined purpose. Regulatory reliance means that the host takes account of a home authorization, assessment, information set, or supervisory action. Substituted compliance permits home compliance to satisfy part of a host obligation, even where host authorization remains. Mutual recognition gives legal or supervisory effect to another authority's determination under agreed conditions. A notification procedure may be part of a passport, but notification is not passporting if the host still conducts a substantively *de novo* authorization. Shared infrastructure concerns movement of value or data, not the public-law permission to provide the service. These boundaries are not semantic niceties. They identify different allocations of authority. A provider may face low substantive regulatory distance but still require a new host licence. A host may recognize the quality of a home authorization yet retain its own decision. A common rulebook may ease comparison while leaving territorial authorization unchanged. A rail may permit settlement after a provider is legally admitted but cannot admit the provider. The corridor approach makes each of these states observable.

2.2 Mutual recognition, equivalence, and deference are established fields

The broad ideas underlying regulatory passporting are not novel. Mutual recognition has a developed lineage in European financial services, where minimum harmonization, home-state control, notification,

institutional cooperation, and supranational law interact (Ortino 2008). WTO General Agreement on Trade in Services Article VII recognizes that states may give effect to education, experience, licences, or certifications through harmonization or otherwise, subject to treaty disciplines.² The Asia Region Funds Passport and ASEAN Collective Investment Schemes framework demonstrate that sector-specific recognition can also be organized outside the European Union.

The literature on equivalence, substituted compliance, deference, and trust further constrains any claim of conceptual novelty. Foster (2024) organizes exemption, relief, equivalence, recognition, substitution, deference, and trust as related ways to reduce duplicative cross-border financial regulation. Schurger (2023) shows how equivalence and substituted compliance can calibrate host reliance without necessarily creating a general passport. This study accordingly does not claim to discover regulatory trust. It asks whether the particular capacity needed for continuing home-host reliance can be operationalized as a directional construct and embedded in a status and intervention architecture.

The European payment-services framework is a useful functional comparator because it legally connects several steps that policy discussions often collapse. Under PSD2, cross-border provision is organized through home-state notification, information exchange, supervisory allocation, and bounded host precautionary measures (Directive (EU) 2015/2366, arts. 28-30).³ MiCA provides a more recent authorization and cross-border-services comparator for crypto-asset service providers. Neither instrument is a constitutional template for Africa. They operate within a legal order with institutional and judicial features that cannot be presumed in bilateral, regional-economic-community, or continental African arrangements. Their value lies in identifying functions that a passport must allocate.

2.3 Home-host supervision is a continuing relationship

A licence is a time-bounded legal decision about a defined institution and activity. Safe portability depends on what happens after that decision. The host may need current information about authorization status, governance and ownership changes, safeguarding or prudential breaches, serious consumer or financial-crime events, operational incidents, restrictions, remediation, and revocation. It must also know which authority investigates, who can inspect, which confidentiality gateway permits information exchange, and how emergency action is coordinated.

Home-host cooperation is established in banking and infrastructure oversight. Basel Core Principle 13 emphasizes relationships between home and host supervisors, including information sharing and cooperation. The Principles for Financial Market Infrastructures distinguish system oversight from participant regulation (Basel Committee on Banking Supervision 2024; CPSS-IOSCO 2012). The present study adapts those institutional insights to payment and adjacent fintech activities, where the risk profile may differ but the allocation problem remains.

The EAC policy process independently illustrates the distinction. Its August 2026 technical work treated a Mutual Recognition Framework for payment service providers and a Regional Cooperative Oversight Framework as separate but linked projects, with the latter addressing home-host responsibilities, information sharing, crisis management, and dispute resolution (East African Community 2026).⁴ This does not establish operative regional rights. It does show that recognition and continuing supervision are separate design tasks.

2.4 Regulatory distance and asymmetric friction

Regulatory-distance measurement is also established. Gower's coefficient allows mixed binary, ordinal, nominal, and continuous variables to be compared while excluding unavailable pairs from the relevant denominator (Gower 1971). Capelle et al. (2026) apply a Gower-style method to more than 500 European banking-regulation variables and relate bilateral policy distance to cross-border banking frictions. Their work removes any basis for claiming that this project invents regulatory distance.

The methodological opportunity is narrower. First, the relevant comparison is conditioned by payment activity: safeguarding has different significance for an e-money issuer holding customer value than for a non-custodial account-information service. Second, substantive distance is separated from direction-specific host-entry friction. If two jurisdictions have similar licensing and conduct requirements but only one permits foreign branches, the RCD can be low while HMAF differs by direction. Third, the model isolates infrastructure and supervisory trust rather than folding them into a general index of regulatory similarity. Fourth, coverage and evidence-class rules suppress scores that would otherwise be driven by sparse, easy-to-find variables.

2.5 African integration is plural and overlapping

African passporting is not a blank-slate policy idea. AfricaNenda addressed financial-service-provider licensing and passporting in 2023 and later advanced work toward a Payment Services Directive for Africa. A June 2026 industry open letter also reports continuing provider concerns about fragmented licensing, foreign exchange, identity, and compliance, but is used here only as contextual stakeholder evidence rather than proof of regulatory or market effects.⁵ The AfCFTA Protocol on Digital Trade and its annex agenda provide a continental layer for digital integration. Bilateral announcements between Ghana and Rwanda and between Kenya and Rwanda expressly invoke licence passporting or mutual recognition. UMOA and CEMAC provide common-rulebook and common-supervisor settings. PAPSS, SADC-RTGS, and REPSS extend payment connectivity. Overlapping membership in regional economic communities and the COMESA-EAC-SADC Tripartite framework create possible bridge relationships.

This plurality makes legal status and institutional function more important than labels. An announced framework is not an effective instrument. A monetary-union instruction may create a common rulebook without creating a cross-border services right. A sector-specific CEMAC unified banking authorization cannot be transferred to payment service providers by analogy. A bilateral relationship cannot be propagated through an intermediary unless an instrument expressly creates multilateral effect. The analysis therefore separates current legal-effect networks, common-supervisor structures, broader formal-cooperation relationships, and policy scenarios.

The Asia Region Funds Passport (ARFP) adds a useful negative comparator. It has an institutional and legal architecture for cross-border fund recognition, yet its 2024-2025 implementation report recorded only one passport fund and no applications in Australia or Thailand during 2025.⁶ The lesson is not that passporting is ineffective. It is that legal availability, supervisory machinery, provider incentives, distribution economics, tax, product fit, and operational uptake must be assessed separately. A well-formed passport can remain underused.

Table 1. Functional comparison, including an underused passporting arrangement.

Arrange ment	Legal basis	Access effect	Supervision / operation	Bounded lesson
EU PSD2	Binding directive and national implementation	Notification-based cross-border payment services	Home-host allocation and host precautionary powers	Legal effect, supervision, intervention, and exit must be connected.
ARFP	Multilateral memorandum and domestic implementation	Recognized funds may be offered in participating economies	Joint Committee plus national regulators	Legal architecture does not guarantee uptake: one passport fund was reported and Australia/Thailand had no 2025 applications.
UMOA	Common payment-services instruction	No Union-wide PSP entitlement established in the reviewed text	Common central-bank functions are provision-mapped	Supervisory capacity can mature ahead of market-access effect.
CEMAC	Common PSP regulation; separate banking instrument	National PSP authorization remains material	Common supervisory functions are provision-mapped	Sector-specific legal effect must not leak from banking to PSPs.
SADC	Regional settlement arrangements	No regional PSP passport identified	Operational infrastructure with national licensing	Rail integration can outpace regulatory admission.
EAC	Frameworks under development	No operative regional PSP right at the freeze	Recognition and oversight workstreams are separate	Policy intent must remain distinct from operative entitlement.

Source: Official instruments and implementation reports current to 28 August 2026. ARFP is a bounded funds-sector comparator, not a payment-services analogue.

2.6 Programmable compliance is adjacent, not dispositive

Technology can make regulatory assertions portable, but it cannot supply legal authority. Project Mandala demonstrates how jurisdiction-specific compliance requirements and proofs can be represented in a common, technology-enabled workflow without replacing sovereign rules (BIS Innovation Hub 2024). Verifiable credentials, signed status services, and machine-readable rules are likewise established

technical ideas. The candidate contribution here is not a specific ledger or cryptographic primitive. It is the legal and supervisory data model needed to assert the current scope of an authorization, the audience entitled to rely on it, material conditions, host acceptance, status change, and revocation while preserving confidentiality and contestability.

2.7 Hypotheses and analytical expectations

Seven propositions organize the empirical inquiry. Greater substantive compatibility should reduce one barrier to passporting, but compatibility alone may be insufficient (H1). Home-host supervisory capacity should explain differences that rule similarity cannot (H2). Infrastructure should neither be necessary nor sufficient for regulatory access, so strong rails may coexist with national licensing (H3). The equivalence and trust thresholds appropriate to custodial and value-holding activities should be stronger than those appropriate to lower-risk non-custodial services (H4). Common regional institutions should reduce selected frictions only when they hold operative powers (H5). Overlapping arrangements may create bridge nodes, but centrality should depend on the legal definition of an edge (H6). Finally, recognition should not be inferred transitively: A-to-B and B-to-C do not create A-to-C rights absent express multilateral legal effect (H7).

The completed study supports some of these propositions only as mechanisms. It does not estimate population-level causal coefficients, and the activity-specific panel remains incomplete. The distinction between mechanism evidence and causal effect is maintained in Sections 4 and 5.

3. Methods

3.1 Research design

The study uses a sequential mixed-method design: describe, measure, explain, and design. The descriptive stage created a controlled vocabulary, literature and prior-art review, source register, codebook, 54-state regulatory census, jurisdiction dossiers, regional compendium, and comparative benchmark. The measurement stage fixed the four-component model specification before any final results were interpreted. The explanatory stage used structured comparative mechanism analysis to test whether quantitative patterns corresponded to legal and institutional mechanisms. The design stage converted verified weak links and failure modes into RPS, RPP, and MRFA requirements. Material changes to the specification were documented, dated, and carried through to the affected computations.

The primary observational unit is a directional corridor from home jurisdiction **i** to host jurisdiction **j**, conditioned by regulated activity **a**. Directionality is essential because host-entry pathways, establishment requirements, foreign-status reliance, exchange constraints, cooperation arrangements, and emergency powers can differ by direction. RCD is symmetric after activity conditioning because it compares substantive requirements. STC and HMAF are directional. II is corridor-specific and may be symmetric or asymmetric depending on the route and access model.

The principal empirical domain covers payment execution, e-money issuance, remittance, merchant acquiring, payment initiation, account information, switching and processing, payment aggregation, and wallet services where those functions are legally material. Banking, crypto-assets, collective investment

schemes, and financial-market-infrastructure standards are used as bounded comparators rather than included in the full country coding program.

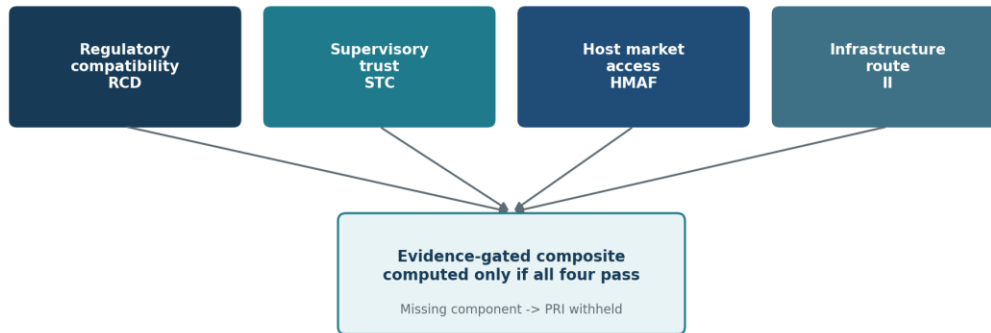


Figure 1. Analytical separation before composite inference.

Source: Authors' model specification (Supplement S2). The composite is eligible only when all four components independently pass.

3.2 Evidence hierarchy and coding states

Every analytical value is linked to an evidence state. P1 denotes primary confirmed law or an operative instrument. O2 denotes official corroborated material that may support an operational fact or a provisional legal mapping when the primary provision has not yet been located. S3 denotes secondary corroborated evidence and is excluded from the primary baseline except in a flagged sensitivity analysis. U4 denotes uncertainty; N5 means the evidence was not found; and X means the variable is not applicable to the activity or jurisdiction. U4 and N5 are missing, not zero. Announcements, consultations, memoranda describing future work, and proposed frameworks are isolated in policy scenarios unless an operative instrument gives them current legal effect.

The coding architecture preserves the local legal label while mapping the underlying function to a normalized activity and variable. Binary requirements are coded 0/1 only when the legal state is evidenced. Ordinal variables follow predefined anchors. Comparable continuous variables are range-normalized within the relevant sample. Nominal variables use match/mismatch distance unless the codebook defines an order. Each bridge observation retains jurisdiction, variable, value, evidence state, source identifier, locator where available, reviewer, and coding note.

The evidence package contains 1,080 bridge provenance rows, of which 113 carry exact provision-level locators. A source-and-locator check was completed for every claim-critical legal proposition retained in this article; exact article-level locators were not completed for every supplemental cell. Public authoritative original-language text controls. An official translation is used where identified; any author translation must be labelled, and no inference about unpublished administrative practice is made from translated wording alone. A 72-cell analytical second pass across six institutionally diverse jurisdictions yielded 97.22% raw agreement and 100% agreement where both passes assigned an observed numeric value. This recoding occurred within the same research environment and is not described as external human inter-coder validation.

3.3 Census, Core analytical sample, and formal scoping rule

The research universe contains all 54 UN-recognized African sovereign states. This differs from the African Union's 55-member institutional universe: the Sahrawi Arab Democratic Republic/Western Sahara is retained in institutional and mapping context but is not a country-level observation in the quantitative panel.⁷ The census remains continent-wide for source search, descriptive mapping, and limitations. Quantitative Core inference uses a formally scoped sample of jurisdictions with at least 19 of the 20 variables implemented in the operational Core bridge. Forty-eight jurisdictions meet that 95% Core completeness threshold. Eritrea, Guinea, Libya, Sudan, South Africa, and Zimbabwe remain below it and are excluded from quantitative Core corridor claims; no missing value for those jurisdictions is assigned a favorable, adverse, or zero meaning.

This census-plus-sample rule was adopted as a documented amendment to the original scoping rule, after the evidence program exposed a structural mismatch between the operational bridge and the model specification. The specification defines 47 potential variables, but only 20 are populated in the operational bridge. Maximum observable coverage is therefore 20/47, or 42.55%. The amendment altered no coded value, formula weight, or computed result. It established that evidence completeness is assessed against the 20-variable operational layer, while the 47-variable specification remains the reference for computation and sensitivity analysis. The 48 Core jurisdictions generate $48 \times 47 = 2,256$ directional corridor rows, which are the RCD-eligible baseline. Because RCD is symmetric, they contain 1,128 unique unordered comparisons repeated in the two corridor directions. The repeated rows are retained only to join RCD to directional STC, HMAF, and II; no independence-based inference or significance test is made. The full 54-state directional universe remains $54 \times 53 = 2,862$.

Table 2. Evidence universe, Core analytical sample, and model-specification controls.

Control	Rule	Manuscript treatment
Research census	54 UN-recognized African sovereign states	The AU's 55-member institutional universe is retained separately; Western Sahara/SADR is outside the country-level quantitative panel.
Core sample	48 jurisdictions with at least 19 of 20 operational Core observations	Supports 2,256 directional RCD-eligible corridors.
Disclosed exclusions	ERI, GIN, LBY, SDN, ZAF, ZWE	No missing value is imputed or treated as regulatory absence.
Model specification	47 specified variables; 20 populated in the operational bridge	Maximum observed coverage is 42.55%; 50% sensitivity is structural.
Legal freeze	28 August 2026	Proposed, operative, and transitional measures remain distinct.

Source: Authors' evidence register and scoping rule at the 28 August 2026 freeze

3.4 Measurement architecture

The model decomposes four mechanisms before considering any composite. Table 3 summarizes their questions, direction, evidence gate, and interpretation.

Table 3. Four-component measurement architecture.

Construct	Question	Direction scale /	Evidence and interpretation
RCD	How different are activity-relevant substantive requirements?	Symmetric; 0-1 distance	Pairwise evidence gates; not legal equivalence or a ranking.
STC	Can the host rely on defined home-supervisory functions over time?	Directional; 0-1 capacity	At least 4 of 7 functions or documented common-supervisor allocation.
HMAF	What host-entry burden remains after home status is considered?	Directional; 0-1 friction	Six-point legal-effect ladder; activity and territorial effect required.
II	Is a relevant interoperable route evidenced and accessible?	Corridor-specific; 0-1	Route and participation evidence; no market-access inference.
PRI	Do C, T, M, and I jointly support an evidence-qualified composite?	Directional; 0-100	Computed only when all four are eligible; otherwise withheld.

Source: Authors' pre-specified model specification.

3.4.1 Regulatory Compatibility Distance

RCD measures observed substantive policy difference, not market-entry burden or legal equivalence. For each activity-relevant variable k , the distance d is defined on $[0,1]$. Binary and nominal values have distance 0 when matched and 1 when different. Ordinal and continuous values are normalized by the admissible range. A pairwise evidence indicator s equals 1 only when both jurisdictions have eligible observations. Variables are aggregated within substantive domains and the domains are equally weighted:

$RCD(i,j,a) = \text{sum over domains } g \text{ of } w(g) \text{ multiplied by the weighted mean of eligible variable distances within } g.$

The substantive domains are licensing and activity; governance and control; prudential and safeguarding; AML/CFT and identity; consumer conduct; data and operational resilience; and supervision and enforcement. To prevent an apparently low distance from being driven by a few variables, the pre-specified baseline requires at least two jointly observed variables and at least 40% coverage within an eligible domain, at least four eligible substantive domains, and at least 40% overall joint coverage of the activity-relevant map. The controlled operational bridge meets that historical gate only for pairs among the 48 Core jurisdictions.

RCD = 0 means that no difference was observed among the eligible coded variables. It does not mean that the legal regimes are textually identical, functionally equivalent for every purpose, or mutually recognized. RCD is reported as a descriptive compatibility measure and never as a legal opinion or country ranking.

3.4.2 Supervisory Trust Capacity

STC measures whether the host can lawfully and operationally rely on the home supervisor over time. Seven equally weighted functions are examined: authority for information sharing; home-host role allocation; inspection cooperation; material-event notification; crisis and intervention coordination; a confidentiality and lawful-sharing gateway; and propagation of restriction or revocation. Each component is anchored at 0 (absent or unverified), 0.5 (partial or conditional), or 1 (operative and evidenced). A numeric score requires evidence for at least four of the seven functions or a documented common-supervisor regime that directly resolves the relevant functions.

STC(i to j) = the eligible weighted mean of the seven function scores.

Common membership in a regional economic community does not generate STC. A common central bank or supervisor is structural evidence, but the relevant functions still require provision-level mapping. Bilateral announcements are not numerically scored where the operative instrument or function allocation is unavailable. The baseline consequently restricts numeric STC to provision-mapped UMOA and CEMAC common-supervisor corridors.

3.4.3 Host Market-Access Friction

HMAF measures the burden that remains in the host after the originating authorization is considered. It begins with a six-point legal-effect ladder: 0, no lawful route identified or prohibited; 1, full local incorporation and de novo licensing; 2, foreign branch or subsidiary route with independent host authorization; 3, formal reliance on home authorization or materially accelerated host authorization; 4, conditional mutual recognition or passport with host overlays; and 5, broad notification-based passport. The baseline converts the access score to friction:

HMAF(i to j,a) = 1 - AccessScore(i to j,a) / 5.

Local incorporation, duplicated capital, governance overlays, office requirements, processing time, and fees are retained as decompositions rather than automatically summed into the baseline, because the access ladder may already embody them. This avoids double counting. Where a common regional rule exists but territorial authorization effect is not established, intra-union HMAF is suppressed instead of inferred from the generic foreign-entry rule.

3.4.4 Infrastructure Interoperability

II asks whether a verified payment or settlement route relevant to the corridor and activity is available and on what participation model. It does not measure general payments maturity. The anchors are 0 for no verified relevant route; 0.33 for a route requiring correspondent or indirect participation with material limits; 0.67 for a verified regional or continental route with feasible indirect access; and 1 for verified direct or functionally equivalent access with compatible settlement and operating rules. Evidence records domestic IPS or RTGS status, regional or continental connection, direct or indirect access, participant eligibility, currency and settlement constraints, and operational availability. Membership in PAPSS, REPSS, or SADC-RTGS is not imputed from membership in a regional organization.

3.4.5 Activity risk and composite rule

Activity risk is not a negative country score. It raises the component floors that would be required for a corridor to be described as ready for a specified activity. Seven dimensions - custody/value at risk, credit, settlement and liquidity, operational and cyber, AML/CFT, consumer harm, and systemic importance - are coded on a 0-2 scale. Payment initiation and account information generally receive lower custody scores than e-money issuance, while switching can carry operational or systemic significance even without holding customer funds. These values are model priors for later expert validation, not immutable claims about every provider.

If, and only if, all four components are evidence-eligible, compatibility $C = 1$ - RCD, trust $T =$ STC, market openness $M = 1$ - HMAF, and infrastructure $I =$ II would enter an equal-weight geometric mean:

$$PRI(i \text{ to } j, a) = 100 \times (C \times T \times M \times I)^{(1/4)}.$$

The geometric mean encodes a weak-link theory: a mature rail cannot fully compensate for absent legal recognition, and regulatory similarity cannot compensate for absent continuing supervision. Missingness suppresses PRI. A genuine observed zero would be a value, but an unavailable component is never converted into zero to make the formula run.

3.5 Robustness and sensitivity plan

The pre-specified robustness plan requires RCD coverage thresholds of 30%, 40%, and 50%; P1-only and P1/O2/S3 evidence specifications; domain-balanced and variable-balanced distance; leave-one-domain-out tests; exclusions of UMOA, CEMAC, both monetary unions, and high-missingness jurisdictions; activity sensitivity; HMAF decomposition; current-law versus policy-scenario networks; and alternative PRI weights and component leave-one-out analyses where a composite exists. Tests that cannot be computed without violating the missingness rule are recorded as withheld rather than omitted. The 50% sensitivity requires a special interpretation. Because the operational bridge contains at most 20 of the 47 specified variables, no jurisdiction can reach 50% overall coverage. A zero-corridor result at that threshold is therefore a structural diagnostic, not evidence that corridors empirically fail after being observed. The P1-only run, by contrast, is a substantive evidence-quality sensitivity because it excludes O2 and mixed P1/O2 pairs.

Network analysis likewise uses multiple edge definitions. The strict current-law network includes only operative recognition with market-access effect. The common-supervisor network records current structural supervisory relationships without treating them as authorization. The broad formal-current network adds qualifying current cooperation records. A separate policy network adds proposed EAC and announced bilateral relationships. Betweenness centrality is a structural diagnostic under the specified edge set (Freeman 1977); it is not a measure of regulator quality.

3.6 Case selection and structured comparative mechanism analysis

Seven cases were selected to maximize variation in institutional form and to test specific anomalies: the EAC for proposed mutual recognition and cooperative oversight; UMOA for a common supervisor and rulebook without established PSP portability; CEMAC for common payment rules, common supervisory capacity, and a contrasting banking passport; SADC for deep infrastructure integration alongside national licensing; Ghana-Rwanda-Kenya for bilateral relationships and non-transitivity; Egypt for graduated reliance on foreign status with retained host authorization; and the European Union for a

mature functional passport comparator. The method is described as structured comparative mechanism analysis rather than process tracing because the evidence is predominantly documentary and does not reconstruct complete actor-level causal sequences.

Each case was tested against five questions: what is the present legal market-access effect; how are continuing supervisory functions allocated; what infrastructure access is actually available; is the arrangement operative, announced, or proposed; and which component prevents composite eligibility? Cases were not used to fill missing numerical cells. A contradiction between a case and a component definition would have required a documented amendment to the model. The reconciliation found no need to amend the component boundaries.

3.7 Reproducibility and inferential boundaries

The analysis was reproduced from version-controlled inputs using a scripted workflow that preserves source identifiers, input hashes, pair-level outputs, eligibility flags, robustness results, and anomaly records. All reported counts, tables, and figures were reconciled against the archived analytical outputs. Static pair-level inputs and explicit eligibility indicators were used to prevent missing observations from being interpreted as numerical zeros across spreadsheet environments.

The study distinguishes four levels of assertion. Findings report evidence-supported observations within the declared sample; interpretations propose mechanisms consistent with the quantitative and comparative evidence; design implications identify controls that a future passporting system should contain; and implementation claims would concern the effects of an adopted and operational system. Because no such system was implemented or evaluated, the paper makes no causal claims about the effects of the proposed RPP, RPS, or MRFA.

Table 4. Claim-critical legal and institutional sources and locators.

Retained proposition	Official source and locator	Treatment in this article
WTO recognition disciplines	GATS article VII(1)-(5)	Comparator boundary retained.
EU payment-services passport functions	Directive (EU) 2015/2366, articles 28-30	Notification, cooperation, and host powers retained; PSD3/PSR described as ongoing proposals.
EAC work remains proposed	EAC release, 24 August 2026	Mutual recognition and cooperative oversight remain separate workstreams; no operative right inferred.
UMOA common-supervisor functions	BCEAO Instruction 001-01-2024, arts. 17-21, 26, 28-29, 45-47, 84, 86-90	STC only; no PSP passport inferred.
CEMAC common-supervisor functions	Regulation 04/18, arts. 13-23, 67-73; especially art. 23	STC retained; national PSP authorization remains material.
Egyptian reliance pathway	CBE licensing rules, section Second on foreign payment institutions	Home status informs retained host authorization; no passport claim.
PAPSS network reach	PAPSS Network Coverage, June 2026, pp. 2-4	Infrastructure evidence only.
SADC-RTGS status	SADC release, 28 July 2026	Infrastructure evidence only; Kwanza/current participation status updated.

Source: Official-source currentness check completed 28 August 2026. Original-language official text controls unless an official translation is identified.

4. Results

4.1 Evidence-qualified sample and baseline compatibility

The 54-jurisdiction census produced a 48-jurisdiction Core sample under the formal 19-of-20 operational bridge rule. Eritrea had no retrievable operative payment-service instrument in the source search; Guinea, Libya, and Zimbabwe remained partially coded; Sudan required unresolved bilingual provision verification and currentness reconciliation; and South Africa's operative National Payment System Act did not supply the provider-level variables that appeared in a proposed authorization framework. These outcomes concern the available evidence at the freeze date, not the existence, quality, or intensity of regulation in those jurisdictions.

All 2,256 directional pairs formed by the 48 Core jurisdictions pass the baseline RCD evidence gate. This is 78.8% of the 2,862-pair full census universe. Because RCD is symmetric, the 2,256 corridor rows are two directional copies of 1,128 unique unordered comparisons. Directional duplication is necessary only when RCD is joined to STC, HMAF, and II; it is not treated as an independent sample. The result is best understood as evidence eligibility, not a substantive verdict of similarity. The operating bridge makes the same 19 or 20 variables available for nearly all Core jurisdictions and therefore clears the 40% threshold within the 47-variable specification. It does not supply the deeper capital, safeguarding, governance, data, resilience, and enforcement details originally contemplated by the full model.

Within the eligible set, observed distance is exceptionally narrow. Mean RCD is 0.0148, the median is 0, and the maximum is 0.0667. Of the 2,256 corridors, 1,304 have zero observed distance; 904 have a positive distance below 0.05; and 48 are at or above 0.05. The differences are generated by only two coded variables: recognition of payment initiation services and a separate switching or processing licence. No observed governance, prudential, AML/CFT, consumer, data-resilience, or supervision variable differentiates the Core jurisdictions in the bridge.

This geometry requires restraint. It would be wrong to conclude that the Core countries have equivalent law. The appropriate statement is that the operational bridge detects little difference among jointly observed values. The zero median may reflect common legal structure, broad functional convergence, the inheritance of regional rulebooks, or insufficient variable depth. The present data cannot apportion those explanations. The result supports RCD as a coarse structural baseline and rejects its use as a deep-equivalence or ranking instrument.

Table 5. Headline quantitative results and publication controls.

Metric	Result	Interpretation
Directional universe	2,862	54 x 53 home-to-host corridors.
RCD eligible	2,256 (78.8%)	48-country Core bridge; no equivalence or ranking.
Unique RCD pairs	1,128	Each symmetric RCD pair appears twice directionally; inferential independence is not claimed.
P1-only RCD	1,482	Evidence-quality sensitivity.
RCD geometry	Mean 0.0148; median 0; max 0.0667	Narrow, tie-dominated, and concentrated in two licensing variables.
II eligible	498	Qualified routes; not direct PSP access or recognition.
STC eligible	86	UMOA/CEMAC common-supervisor functions only.

Metric	Result	Interpretation
HMAF eligible	1,534 / 30 hosts	Partial and activity-limited directional evidence.
All four / PRI	0 / withheld	No score, ranking, heatmap, or cluster output.

Source: Authors' corridor analysis, baseline distance and summary outputs.

4.2 Evidence and specification sensitivity

The P1-only sensitivity reduces RCD eligibility from 2,256 to 1,482 corridors, a decline of 34.3%. The reduction shows that official but non-primary O2 material materially expands the baseline. It does not invalidate the baseline because O2 was an authorized evidence class, but it makes evidence provenance a necessary part of every RCD statement.

The 30% and 40% coverage specifications both return 2,256 corridors. The 50% specification returns none. As explained in Section 3, the last result is mathematically implied by the 20/47 structure and cannot be presented as an empirical failure at a more demanding threshold. Excluding the six high-missingness jurisdictions does not change the baseline because they were already outside the Core RCD set.

Alternative aggregation changes the magnitude more than eligibility. Variable-balanced distance has the same 2,256 corridors and a mean of 0.0222, compared with 0.0148 under the domain-balanced baseline. The increase occurs because the two differentiating licensing variables receive more influence when each variable is weighted directly rather than averaged first within equal domains. The direction of the conclusion remains the same: observed distances are small and concentrated.

Leave-one-domain-out tests expose the bridge's dependence on its licensing content. Excluding Licensing and activity yields no eligible corridor because the pre-specified minimum-domain and coverage conditions can no longer be met. Excluding Governance and control, Prudential and safeguarding, or Consumer conduct leaves 2,070 corridors with a mean distance of approximately 0.0200. Excluding Supervision and enforcement leaves only 56 eligible corridors, all at zero observed distance. These are not rankings of domain importance. They show that a sparse bridge is sensitive to which populated domains maintain the evidence gate.

Regional exclusions do not reveal a hidden high-distance pattern. Excluding both UMOA and CEMAC leaves 1,122 baseline-eligible corridors with a mean RCD of 0.0105. Excluding UMOA alone leaves 1,560 corridors with a mean of 0.0091; excluding CEMAC alone leaves 1,722 with a mean of 0.0161. Common institutions therefore affect sample composition, but they do not solely explain the narrow distance range.

Table 6. Selected robustness and sensitivity results.

Test	Result	Interpretation
RCD coverage: 30%	2,256	Same eligible set as baseline.
RCD coverage: 40%	2,256; mean 0.0148	Pre-specified baseline.

Test	Result	Interpretation
RCD coverage: 50%	0	Structural 20/47 ceiling; not empirical collapse.
P1 only	1,482	O2 and mixed P1/O2 pairs excluded.
Variable-balanced	2,256; mean 0.0222	Two licensing differences receive greater influence.
Exclude licensing domain	0	Eligibility gate cannot be maintained.
Exclude UMOA + CEMAC	1,122; mean 0.0105	Narrow distance is not solely a monetary-union artifact.
Alternative PRI weights	Withheld	No four-component corridor exists.

Source: Authors' robustness and sensitivity analysis .

Because the baseline differentiation comes from only 47 observed binary cells across the PISP-recognition and switching/processing variables, an exhaustive perturbation analysis was added. Flipping any single observed cell across 94 scenarios leaves the median at zero and the mean between 0.0135 and 0.0163. Across all 4,371 two-cell flips, the median remains zero, the mean remains between 0.0121 and 0.0178, and no scenario supplies missing STC or HMAF evidence. The exercise is not an error-rate estimate; it is a bounded sensitivity showing that plausible isolated coding changes alter the exact RCD distribution but do not justify a composite or ranking.

Table 7. Exhaustive perturbation sensitivity for the two differentiating RCD variables.

Scenario	Scenarios	RCD range	Result
Baseline	1	Mean 0.0148; median 0; max 0.0667	Baseline corridor analysis.
Any one-cell flip	94	Mean 0.0135-0.0163; zero count 1,218-1,370	Median remains zero; no composite becomes eligible.
Any two-cell flips	4,371	Mean 0.0121-0.0178; zero count 1,136-1,440	Median remains zero; maximum is 0.0333 or 0.0667; no ranking is justified.

Source: Authors' perturbation analysis (Supplement S2). Each scenario flips observed binary cells only; missing evidence remains missing.

4.3 Infrastructure interoperability

Evidence-qualified II is available for 498 directional corridors. The coded routes include PAPSS, SADC-RTGS, REPSS, and relevant domestic or cross-border participation information where the source record supports the route.⁸⁹ The value records feasibility and participation mode; it does not assert that a non-bank provider can join directly or that the provider is authorized in either jurisdiction.

The strongest concentration appears in SADC, where 210 of 240 intra-regional directional corridors have numeric II evidence. This finding reflects the breadth of regional settlement connections and bank or central-bank participation, including indirect models. It does not imply a SADC payment-service-provider passport. Across the entire matrix, only 398 corridors combine an eligible RCD observation with II. Infrastructure thus extends beyond some other evidence layers and is also absent from many otherwise comparable pairs.

4.4 Supervisory trust capacity

Numeric STC is limited to 86 common-supervisor corridors. Fifty-six intra-UMOA directional corridors score 0.9286 and 30 intra-CEMAC corridors score 0.8571 under the seven-function map. The UMOA coding is provision-mapped to BCEAO Instruction No. 001-01-2024; CEMAC coding is provision-mapped to Regulation No. 04/18.¹⁰¹¹ The scores reflect continuing-supervision functions such as authority, roles, information, confidentiality, incident handling, and restriction pathways. They are not scores of market access.

The restriction is substantively important. Bilateral and EAC materials describe information sharing, mutual recognition, or future cooperative oversight, but the public evidence did not resolve at least four current functions at the required level for numeric coding. Those records remain in formal or policy networks instead of being assigned partial numeric values. Conversely, a common supervisor is not presumed to supply territorial authorization effect. The model therefore records strong STC in UMOA and CEMAC while suppressing HMAF for those same intra-union corridors until a PSP-specific portability rule is evidenced.

4.5 Host market-access friction

HMAF is eligible for 1,534 directional corridors across 30 host jurisdictions. This is the broadest directional component but remains incomplete by activity and territory. Seven host overlays include more specific activity or territorial-effect evidence; the rest rely on the coded foreign-market-access ladder. Egypt illustrates an intermediate value: foreign home authorization is relevant to entry, yet authorization from the Central Bank of Egypt remains the source of legal permission.¹² Other hosts require full local incorporation, a branch or subsidiary, or independent licensing.

HMAF is deliberately suppressed for all 86 common-supervisor corridors. In UMOA, the reviewed common payment-services instruction supports supervision and common requirements but does not establish an EU-style freedom to provide payment services throughout the Union on the basis of one home authorization. In CEMAC, Regulation No. 04/18 requires authorization by the competent national monetary authority for payment-service activity, while the separate 2024 unified authorization instrument applies to credit institutions. Filling HMAF from generic foreign-entry coding in those cases would obscure the very legal question the model is designed to test.

4.6 Component overlap and the withheld composite

The component intersections reveal the principal empirical finding. Among 2,256 RCD-eligible corridors, 398 also have II. Those 398 divide exhaustively into three non-overlapping branches: 158 have eligible HMAF but not STC; 86 have eligible STC but HMAF is deliberately suppressed because territorial effect is not established; and 154 have neither STC nor HMAF eligibility. No corridor has both. The zero all-four intersection therefore combines observed institutional non-overlap with conservative evidence suppression, and the manuscript reports both rather than collapsing either into a zero readiness value.

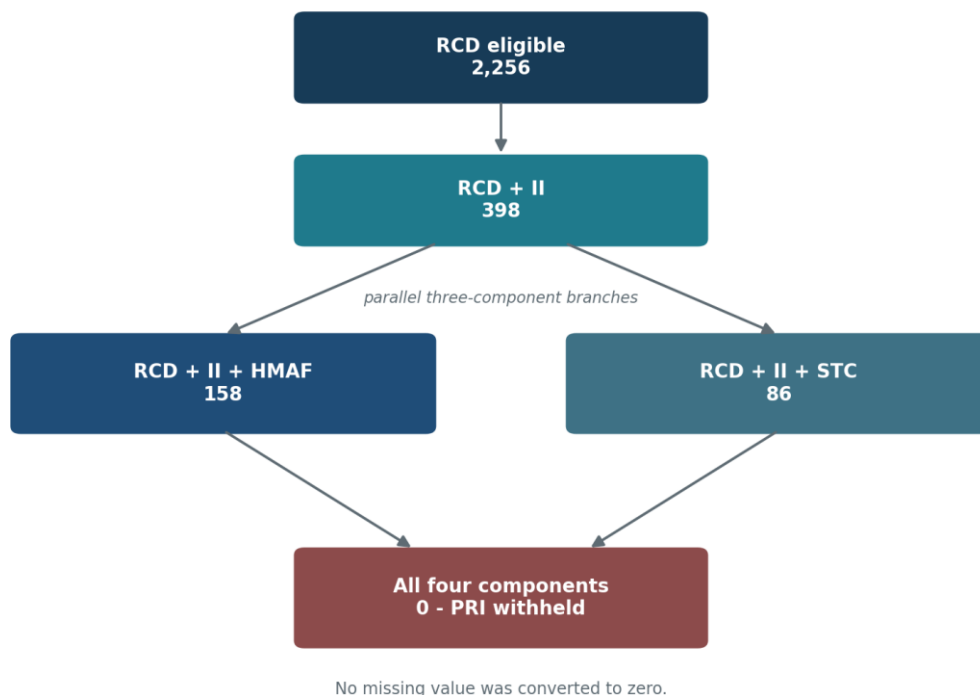


Figure 2. Evidence-qualified component overlap across 2,862 directional corridors.

Source: Authors' corridor analysis. The HMAF and STC three-component sets are parallel branches; their all-four intersections are zero.

The PRI is therefore not calculated. It is neither a missing table nor a score of zero. A zero score would imply that the four components were observed and at least one had a genuine value of zero. Here, no corridor has four eligible observations. Alternative weights cannot resolve an absent component, and leave-one-component-out analysis would no longer test the defined composite. Country rankings, heatmaps of PRI, cluster labels, and league tables are consequently withheld.

The empty intersection provides information about institutional sequencing. Some corridors have compatible coded rules and payment routes but no evidenced supervisory reliance. Others have common supervisory capacity and infrastructure but no established territorial market-access consequence for payment service providers. Still others have a host-entry pathway but no route or cooperation evidence. Passporting is therefore not one gradient of maturity; it is an alignment problem among mechanisms that can evolve separately.

Table 8. Component overlap and the evidence-gated composite.

Evidence-qualified set	Corridors	Interpretation
RCD	2,256	Compatibility baseline.
RCD + II	398	Adds verified route evidence.
RCD + II + HMAF	158	Adds host-entry evidence; STC unavailable.
RCD + II + STC	86	Adds common-supervisor trust; HMAF suppressed.
RCD + II + STC + HMAF	0	PRI is withheld, not scored zero.

Source: Authors' corridor analysis, component-overlap outputs.

Table 9. Where the 398 RCD-plus-infrastructure corridors stop before a composite.

Branch within RCD + II	Count	Evidence state	Interpretation
HMAF yes; STC unavailable	158	Three components eligible	Host-entry evidence exists, but the four-of-seven trust gate is not met.
STC yes; HMAF suppressed	86	Three components eligible	Common-supervisor functions are mapped; market-access effect is not established and is deliberately not inferred.
Neither STC nor HMAF eligible	154	Two components eligible	The corridor stops on both evidence gates.
Both STC and HMAF eligible	0	No four-component corridor	PRI remains withheld; zero is not assigned as a readiness score.

Source: Independent recomputation from the pair-level corridor outputs (Supplement S2). Branches are mutually exclusive and exhaustive.

4.7 Network-definition sensitivity and non-transitivity

The strict current legal-effect network contains no edge because the coded evidence did not establish an operative cross-border PSP authorization right in the 54-country matrix. The common-supervisor network contains 43 unique undirected relationships among 14 active nodes, divided between UMOA and CEMAC. It records supervisory structure, not market access. The broad formal-current network contains 45 unique edges and 17 active nodes; Rwanda becomes the highest-betweenness node, although the absolute value is very small. Adding EAC policy relationships expands the network to 72 unique edges and 23 active nodes, and Rwanda's betweenness increases.

These changes demonstrate that bridge status is definition-dependent. Rwanda is not a bridge in the strict current legal-effect network because that network has no edges. It is a bridge under formal and policy definitions because it participates in multiple announced or institutional relationships. This is a statement about topology, not regulatory quality or legal entitlement.

The same controls apply to transitivity. A Ghana-Rwanda record and a Kenya-Rwanda record do not create a Ghana-Kenya right. An EAC proposal does not automatically multilateralize a bilateral arrangement. A provider connected to PAPSS or SADC-RTGS does not acquire authorization through the network. Every market-access or supervisory-reliance claim requires a direct legal basis or an express multilateral rule covering the institution, activity, territory, and relying authority.

Table 10. Network-definition sensitivity.

Network definition	Edges	Nodes	Interpretation
Strict legal effect - current	0	0	No operative PSP passport edge evidenced.
Common supervisor - current	43	14	UMOA/CEMAC structure; not market access.
Broad formal - current	45	17	Rwanda becomes a small bridge under the broader edge rule.
Current + EAC policy	72	23	Scenario topology only; proposals remain non-operative.

Source: Authors' network analysis.

4.8 Hypothesis outcomes

H1, the harmonization hypothesis, receives partial support. Broad RCD eligibility and common rulebooks show a basis for comparison, but the bridge is too coarse to demonstrate deep equivalence or to explain host entry on its own. H2, supervisory trust, is supported as a mechanism: the 86 STC corridors demonstrate that continuing-supervision functions can be mapped separately, and their lack of HMAF confirms that trust capacity is not authorization portability. H3, the infrastructure fallacy, is supported: 498 II corridors and the SADC evidence coexist with no four-component corridor.

H4, risk proportionality, is only partially supported because the sector contrasts and activity-specific host overlays are informative but not continent-complete. H5, the role of regional institutions, receives qualified support: common authorities resolve supervisory functions, but operative power is activity- and instrument-specific. H6, bridge-state effects, is supported only in formal or policy scenarios; no current-law quality inference follows. H7, non-transitivity, is supported as a design constraint: neither bilateral chains, shared institutions, nor payment rails create indirect recognition without express legal effect.

5. Comparative and Case Analysis

5.1 Why structured mechanism comparison matters when the composite is absent

A withheld composite could reflect data failure, a poorly specified model, or genuine institutional non-overlap. The case program distinguishes among those possibilities. Each case asks whether the quantitative component that is present corresponds to an observable mechanism and whether the missing component is substantively intelligible. The cases do not validate an absolute PRI level and do not supply unobserved numeric values. They test construct meaning.

Table 11. Cross-case mechanism reconciliation.

Case	Quantitative snapshot	Mechanism	Primary limitation
EAC	56 RCD; 20 II; 35 HMAF; 0 STC	Recognition and cooperative oversight are separate proposed frameworks.	No operative regional PSP pathway coded.
UMOA	56 RCD + II + STC; HMAF suppressed	Common supervisor resolves ongoing functions.	No established Union-wide PSP authorization effect.
CEMAC	30 RCD + II + STC; HMAF suppressed	Common PSP rules and supervisor; banking passport comparator.	National monetary-authority authorization remains material for PSPs.
SADC	182 RCD; 210 II; 90 HMAF; 0 STC	Settlement infrastructure outpaces regulatory recognition.	Direct non-bank and activity-specific access remain incomplete.
GHA-RWA-KEN	6 RCD + II + HMAF; 0 STC	Bilateral/formal relationships create scenario topology.	No transitive right or provision-complete STC.
Egypt host	47 inbound RCD; 53 HMAF	Home status informs a retained CBE authorization.	Reliance is not a passport.
EU	Functional comparator	Notification, supervision, host powers, and exit are legally connected.	Institutional conditions are not directly transferable.

Source: Authors' case-study reconciliation. Counts are directional and bounded to each African case; the EU is outside the matrix.

5.2 East African Community: recognition and oversight as separate projects

The EAC is the clearest live policy experiment because the official 24 August 2026 release describes both a proposed Mutual Recognition Framework for payment service providers and a proposed Regional

Cooperative Oversight Framework. The latter addresses continuing home-host functions, including responsibility allocation, information exchange, crisis management, and dispute resolution. The policy architecture therefore supports the study's separation of recognition and STC.

It does not support a current regional passport claim. Within the 56 intra-EAC directional corridors, all 56 have RCD evidence, 20 have II, 35 have HMAF, none has current provision-complete STC, and none has PRI eligibility. The regional and bilateral records remain policy or formal-cooperation edges pending operative texts, effective dates, eligibility criteria, notification procedures, host legal effect, and event or revocation rules. The case supports supervisory trust as a necessary design problem but not as a presently scored regional capacity.

5.3 UMOA: common supervision without established host entitlement

UMOA produces the strongest common-supervisor STC result. All 56 directional pairs among the eight states have RCD and II, and the provision map yields STC of 0.9286. BCEAO's common rulemaking and supervisory role resolves most of the continuing functions that would otherwise require bilateral arrangements.¹³

The same evidence does not establish that a payment-service-provider authorization issued for one member state's territorial market automatically supports services throughout the Union. The reviewed instruction creates common requirements and institutional authority, but the legal effect on cross-border establishment or services is not equivalent to a notification passport on the evidence coded. HMAF is therefore suppressed for all 56 pairs. UMOA shows that institutional trust can be comparatively mature while the market-access entitlement remains a separate question. The design implication is to issue distinct supervisory-reliance and host-entitlement claims.

5.4 CEMAC: sector-specific legal effect and anti-leakage

CEMAC reaches a similar component pattern by a different legal route. All 30 directional pairs among six members have RCD, II, and STC; the common-supervisor STC score is 0.8571. Regulation No. 04/18 provides a regional payment-services framework and maps continuing supervisory functions. Article 23, however, conditions payment-service activity on authorization by the competent national monetary authority. HMAF is accordingly suppressed.¹⁴

The contrast with CEMAC's 2024 unified authorization for credit institutions is instructive. That instrument gives eligible credit institutions a regionally defined ability to extend activity or establish a branch without repeating specified local licensing formalities. Its legal effect is evidence that a passport can exist within the regional institutional structure. Its sector scope is equally important: the banking right cannot be transferred to non-bank payment service providers by analogy. CEMAC supports risk and activity proportionality and requires an anti-leakage rule in any credential: rights must be bound to the exact authorization and activity.

5.5 SADC: infrastructure ahead of regulatory recognition

SADC is the strongest test of the infrastructure fallacy. Within 240 intra-SADC directional corridors, 210 have evidence-qualified II, 182 have RCD, 90 have HMAF, none has provision-complete STC, and none has all four components. SADC-RTGS supports regional settlement through defined participant

and currency arrangements, but provider authorization remains rooted in national law and may require a bank relationship, establishment, or host approval.¹⁵

The case shows why infrastructure should be a separate credential layer. A provider may be able to reach a settlement route only indirectly after securing a bank sponsor and host authorization. A route can also be operational for banks or central banks without being directly available to a non-bank payment service provider. Treating the route as market access would erase both the legal decision and the participation model. SADC thus strongly supports H3 while leaving direct non-bank access and activity-specific participation as open evidence.

5.6 Ghana-Rwanda-Kenya: the limits of bilateral chains

The Ghana-Rwanda and Kenya-Rwanda announcements make Rwanda a plausible hub in a future recognition network. Across the six directional pairs in the triad, RCD, II, and HMAF evidence is available, while numeric STC is absent. Public announcements do not disclose the complete legal gateways, confidentiality terms, inspection rights, event obligations, enforcement consequences, or provider pathway needed for current scoring.

The triad demonstrates non-transitivity. Even if Ghana recognizes a defined Rwandan authorization and Kenya separately recognizes another, no Ghana-Kenya route follows unless an instrument expressly creates it. The subject, activity, legal basis, conditions, and audience of each relationship remain direct. Rwanda's betweenness in the broader policy network is therefore a scenario property, not a source of derived rights. The case motivates both a legal non-transitivity clause and a technical validation rule that rejects any credential lacking a direct trust and recognition path.

5.7 Egypt: graduated reliance without a passport

Egypt supplies an intermediate HMAF case. For all 53 inbound country-to-Egypt corridors, an eligible host-entry observation is available; 47 also have RCD. The Central Bank of Egypt's licensing rules consider home authorization or good standing for foreign payment institutions, but the CBE remains the authority that grants Egyptian legal permission. Home status reduces the informational or assessment burden without displacing host authorization.¹⁶

This is regulatory reliance, not passporting. It shows why the HMAF ladder needs intermediate states between full de novo treatment and notification-based access. The legal design can credit home evidence, narrow duplicate testing, or accelerate review while preserving a host decision. The case also warns against treating every reliance pathway as mutual recognition.

5.8 European Union: a functional comparator, not a template score

The European Union is kept outside the 54-state matrix to avoid fabricating a comparator score from a differently constructed dataset. Its role is functional. PSD2 Articles 28-30 connect authorization scope, home notification, host information, ongoing supervision, and host precautionary action.¹⁷ This illustrates why harmonization alone is not the whole passport: even within a mature single-market framework, the legal process specifies who communicates, who supervises, what the host may do, and how cross-border activity is bounded.

The comparator also sets transferability limits. African arrangements vary in treaty competence, judicial enforcement, supervisory capacity, data-sharing law, language, and payment-system structure. A viable African framework need not reproduce EU institutions. It must, however, allocate the same kinds of legal and operational questions. The still-evolving PSD3/PSR package is treated as proposed or transitional according to its status at the 28 August 2026 freeze and would require rechecking if publication occurs materially later.

5.9 Cross-case synthesis

The cases converge on a simple proposition: compatibility, supervision, entry, and infrastructure are complements, not substitutes. EAC policy treats recognition and cooperative oversight separately. UMOA and CEMAC show that common supervisory capacity does not necessarily supply PSP host entitlement. SADC shows that rails can outpace regulatory recognition. Egypt shows that reliance can reduce friction without eliminating host authorization. Ghana-Rwanda-Kenya shows that formal relationships do not propagate through a network. The European Union shows that an operative passport requires lifecycle law, not merely similar rules.

This convergence explains the zero all-four result without turning it into a continent-wide failure claim. The evidence is incomplete, but the missing overlaps correspond to recognizable institutional boundaries. No case required the model to collapse two components or to treat missingness as zero. The design challenge is therefore to connect the components through explicit law, continuing supervision, scoped information, and reversible status rather than to search for a single higher score.

6. From Evidence to Design: RPS, RPP, and MRFA

6.1 The boundary between findings and proposals

The empirical study does not show that a Regulatory Passport System already exists, that African authorities are legally required to adopt one, or that adoption will reduce cost, increase inclusion, or prevent arbitrage. It identifies recurrent institutional gaps and translates them into design requirements for later legal negotiation and pilot testing. The RPS, RPP, and MRFA are therefore normative proposals. Their validity depends on whether they preserve the evidence-bounded distinctions developed above.

The first design rule is that passporting should be a governed assurance and recognition system, not a badge or a score. The RPS is the layered set of regulatory claims and control services. The RPP is the lifecycle governing how those claims are issued, accepted, monitored, conditioned, suspended, revoked, and archived. The MRFA is the inter-authority legal instrument that supplies competence, recognition effect, responsibility allocation, information gateways, host safeguards, non-transitivity, dispute processes, and withdrawal rules. A digital credential can represent a decision; it cannot create the decision or expand the underlying legal authority.

Seven principles follow from the results. Sovereignty preservation requires the host's acceptance standard and emergency powers to remain legally defined. Proportionality requires activity and risk to determine the evidence and safeguards demanded. Minimum equivalence allows outcome-based comparison without requiring textual identity. Continuous trust makes recognition dependent on current

status and events rather than a one-time approval. Evidence boundedness prevents unknown, stale, or proposed facts from becoming entitlements. Non-transitivity prevents indirect recognition without express multilateral legal effect. Technology neutrality requires the legal functions to survive changes in technical implementation.

Table 12. Non-negotiable design principles derived from the evidence.

Principle	Operational control	Failure test
Sovereignty-preserving	Host acceptance, overlays, and emergency powers remain legally defined.	A credential overrides host law without an adopted instrument.
Proportionate	Evidence and safeguards track activity and risk.	Low-risk activity inherits unrelated maximum burdens.
Minimum equivalence	Defined outcomes may be accepted without textual identity.	A distance score is treated as legal equivalence.
Continuous trust	Status and material events can change recognition.	One-time approval survives material deterioration.
Evidence-bounded	Unknown, stale, and proposed states cannot support entitlement.	Missing evidence becomes an operative claim.
Non-transitive	Every corridor has direct or express multilateral legal effect.	A-to-B and B-to-C are used to infer A-to-C.
Technology-neutral	Legal functions survive implementation changes.	The agreement mandates one ledger, vendor, or stack.

Source: Authors' finding-to-control map.

The empirical record does not uniquely determine every proposed control. Separation of the four components, fail-closed evidence handling, and non-transitivity answer observed analytical failures directly. Host intervention and revocation are supported by the common-supervisor and EU comparator functions. Credential technology, governance, appeals, funding, and assurance are implementation judgments that still require consultation, jurisdiction-specific legal authority, and operational testing. Table 13 makes that provenance boundary explicit.

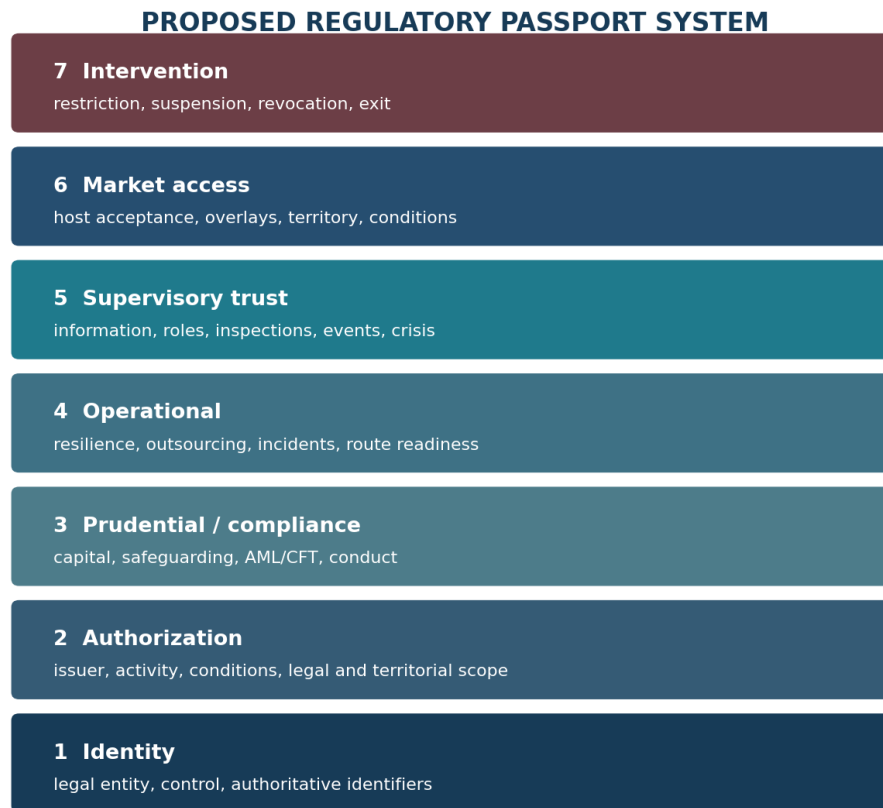
Table 13. Provenance boundary for the proposed design controls.

Control	Primary basis	Status of inference
Separate RCD, STC, HMAF, and II	Observed component non-overlap	Direct analytical design response.
Fail closed on missing evidence	Verified missingness and formula defects	Direct evidence-control response.
Explicit host intervention and revocation	UMOA/CEMAC function mapping plus EU comparator	Comparator-supported legal design inference.
Non-transitivity	Bilateral-chain and network sensitivity	Direct failure-mode response.
Machine-verifiable credentials	Need for scoped, current status; Project Mandala comparator	Technology-neutral implementation proposal, not an observed causal finding.
Pilot governance, appeal, funding, and assurance	Implementation risk and general public-governance requirements	Normative safeguards requiring stakeholder and legal validation.

Source: Authors' finding-to-control reconciliation. The table distinguishes empirical triggers from comparator or governance judgments.

6.2 A layered Regulatory Passport System

The empirical decomposition suggests seven RPS layers. Identity records the legal entity, controllers, authoritative identifiers, and relationship between parent and operating entity. Authorization records the issuing authority, licence, permitted activities, conditions, delivery modes, and territorial scope. Prudential and compliance status records the material safeguarding, capital, AML/CFT, conduct, and assurance claims relevant to the activity. Operational status records resilience, outsourcing, incident, and route readiness. Supervisory trust records the home-host functions supported by legal gateways and operating arrangements. Market access records the host's legal acceptance, conditions, and continuing overlays. Intervention records restrictions, suspension, revocation, emergency host action, exit, and closure.



Each layer has its own issuer, evidence, scope, status, and relying audience.

A mature layer cannot supply a missing claim in another layer.

Figure 3. Proposed seven-layer Regulatory Passport System.

Source: Authors' normative design. The layers are non-substitutable and do not describe current law. The layers are intentionally non-substitutable. A verified identity does not prove authorization. A home authorization does not prove host acceptance. An infrastructure route does not prove direct participant eligibility. A common supervisor does not prove territorial market-access effect. A market-access decision does not remain safe after a material home restriction unless status propagates. Each layer therefore has its own issuer, evidence, validity period, and relying audience.

The RPS should be inspectable from two perspectives. A provider view assembles all current claims relevant to the institution while preserving activity and host boundaries. A corridor decision view asks whether the exact home authorization and host pathway are supported for a specified activity, operating model, customer group, route, and date. The second view is controlling because passportability is not an institution-wide trait.

6.3 Eligibility must be a scope vector

A passport credential should never be a single boolean. It should bind at least seven scope dimensions: the legal entity; the regulated activity; the delivery mode, such as branch, agent, establishment, or cross-border service; the customer and value profile; named host territory; relevant payment or settlement

route and participant mode; and the evidence and legal-status state. Where a national licence bundles several functions, the credential should disaggregate them if the risk and host legal treatment differ.

This rule prevents several forms of leakage. A parent authorization cannot automatically travel to a subsidiary. An e-money permission cannot imply account-information or acquiring rights. A CEMAC banking passport cannot be used as a payment-institution passport. Recognition for a low-risk information service cannot carry over to custody or value issuance. A credential issued to one host or class of relying authorities cannot be presented to another. Expansion requires a new legal decision or a clearly authorized amendment with a recorded effective date.

Eligibility should also distinguish current, proposed, stale, disputed, and withdrawn evidence. An announced EAC framework may support planning and a policy-scenario credential in a test environment, but not an active production entitlement. An O2 source may support a limited analytical statement, while the adopted MRFA may require P1 evidence for issuance. The system should fail closed for entitlement claims while preserving the reason for non-issuance as unknown, stale, proposed, or out of scope rather than inaccurately labelling the requirement absent.

6.4 The Regulatory Passport Protocol as a state machine

The RPP should govern recognition through explicit states. Draft contains the institution's application and consent. Home-validated confirms current authorization, good standing, and activity scope. Host-pending contains the legal basis, host overlays, evidence package, and review clock. Active records the signed recognition and acceptance decision. Conditioned narrows the scope or imposes remediation. Suspended interrupts legal effect for an identified activity or host. Revoked or expired terminates reliance and initiates exit and archival rules.

Table 14. Proposed RPP recognition lifecycle.

State	Entry evidence	Decision owner	Exit event
Draft	Application and consent	Institution	Submit or withdraw
Home-validated	Current authorization, good standing, activity	Home authority	Host submission or reversal
Host-pending	Legal basis, overlays, evidence package	Host authority	Accept, object, or request
Active	Signed decision and scoped credential	Home + host under MRFA	Expiry, event, or restriction
Conditioned	Written limits and remediation	Competent authority	Active or suspended
Suspended	Material risk or evidence failure	Home/host per authority	Reinstate, revoke, or exit
Revoked / expired	Final decision or time limit	Competent authority	Archive and transition

Source: Authors' normative design. This is normative design, not current law.

The credential is issued after the competent legal decision; it is not the decision itself. Automatic host acceptance is permissible only where an adopted instrument creates that effect and defines the applicable conditions, objections, and emergency powers. Silence should have legal effect only if the MRFA expressly says so. The protocol must record which authority moved the state, the legal basis, reasons, affected activities and hosts, effective time, review route, and downstream notifications.

Renewal should be risk- and event-sensitive. A low-risk activity with stable evidence may use a longer review period, while material governance, safeguarding, operational, or enforcement events can trigger immediate reassessment. Expiry must be machine-enforceable so a relying party cannot treat a stale credential as active. The system should retain a tamper-evident history without exposing confidential supervisory details to the public.

6.5 Continuous supervisory trust as an operating obligation

The seven STC functions should become explicit obligations rather than remain an analytical score. Information sharing requires a lawful gateway, defined information classes, authenticated request and response, and an audit trail. Role allocation requires a responsibility matrix for routine supervision, material events, and enforcement. Inspection cooperation requires a legal basis for on-site, delegated, or joint work and a path for findings. Material-event notification requires triggers, severity, deadlines, acknowledgment, and closure. Crisis coordination requires decision rights and a host emergency channel. Confidentiality requires purpose limitation, access controls, retention, and onward-disclosure rules. Restriction and revocation require a signed status change and defined host consequences.

Common supervisors may satisfy several functions through institutional authority, but the operational record should still state which functions are covered and for which entities and activities. Bilateral arrangements should not receive a generic trust flag. Each function should carry its source, legal status, effective date, responsible authorities, scope, and test result. A corridor that lacks a lawful confidentiality gateway should not be made to appear operational through technical encryption alone.

Supervisory trust is continuous because the relevance of the home decision changes with the institution. A provider that was eligible at entry may later breach safeguarding, change control, outsource a critical system, suffer a cyber incident, or face a restriction. The host's capacity to rely on the home authority depends on timely, actionable information and on a known intervention route. This is the sense in which a supervisory passport goes beyond licence portability.

6.6 Machine-verifiable regulatory credentials

The credential should be a signed, narrowly scoped claim set with a trusted issuer, subject identifier, schema version, effective and expiry times, audience, legal basis, status service, conditions, and immutable audit identifiers. It should disclose only what the host or other authorized relying party needs. Protected evidence should generally be referenced through controlled identifiers or secure retrieval rather than embedded in a widely transferable object.

Technology neutrality is essential. Interoperable digital signatures, issuer authentication, schema versioning, online status checks, and where justified offline proofs are functional requirements. Distributed ledger technology is not. A conventional signed registry, federated public-key infrastructure,

or another architecture may satisfy the same integrity, availability, confidentiality, and governance outcomes. The legal agreement should specify outcomes and accountability, while technical schedules specify interfaces and conformance tests.

Three information zones should remain separate. A public trust registry can identify authorized issuers, schema versions, keys, and status endpoints. A provider-facing status view can show the activities and hosts for which the institution is active, conditioned, or suspended. Confidential supervisory evidence should remain in protected channels subject to legal gateways and purpose limitations. Collapsing those zones would either expose sensitive information or make public status unverifiable.

6.7 Material events, enforcement, and host intervention

The RPP needs a common event taxonomy covering authorization changes, ownership and governance, prudential or safeguarding breaches, operational incidents, conduct and consumer harm, AML/CFT or sanctions events, and enforcement. Each event should have a severity, source authority, affected scope, notification clock, acknowledgment, provisional decision, remediation state, and closure receipt. Machine routing can accelerate delivery, but every state change must remain attributable to a competent human or institutional authority.

Host intervention is not a design failure; it is part of a credible passport. The MRFA should define graduated powers. T0 observation may require information or enhanced reporting. T1 conditioning may limit customers, volume, route, or activity. T2 restriction may stop new business or a particular function. T3 suspension may temporarily end passport effect in the host. T4 revocation of host effect may terminate recognition after persistent failure or final action. Each power should have a trigger, proportional scope, reasons, notice to the home authority, review or appeal where law provides, and customer-transition safeguards.

The host overlay should be enumerated. A passport that silently reproduces the complete initial licensing process is passporting in name only. At the same time, limiting duplication cannot mean stripping the host of conduct, consumer, financial-crime, data, operational-resilience, or emergency tools. The design task is to state what the host accepts from home, what it retains, and what evidence justifies each retained overlay.

6.8 Enforceable non-transitivity

Non-transitivity should exist at three levels. Legally, the MRFA should state that recognition creates no third-jurisdiction right unless an identified multilateral provision expressly applies. Semantically, the credential must name the territory, audience, activity, issuer, and legal basis. Technically, validation must reject a claim when the relying authority lacks a direct authorized relationship with the issuer or governing regime. Governance must require a new legal and assurance onboarding decision for every additional corridor or express multilateral expansion.

This design does not prohibit regional passporting. It requires multilateral effect to be created deliberately. Under an adopted regional instrument, one credential may name all qualifying hosts because the instrument itself establishes the rights and duties among them. What is prohibited is

constructing that effect from a chain of unrelated bilateral records, overlapping regional memberships, a shared central bank, or a network route.

Non-transitivity also applies to revocation and data. An intermediate authority should not re-share confidential information or extend recognition beyond the permitted audience. A revocation must reach every direct relying host identified by the credential, but it does not automatically create powers in a jurisdiction that was never a party to the relationship. These constraints reduce recognition laundering and make the scope auditable.

6.9 Model Regulatory Framework Agreement

The MRFA is the legal hinge of the architecture. Without it, the credential is at most a verified information object. The agreement should address twenty subjects grouped into five clusters. The first cluster establishes purpose, definitions, scope, exclusions, competent authorities, and delegation limits. The second establishes eligibility, assessment, recognition, host notice or objection, and the legal effect of the credential. The third allocates ongoing supervision, information and confidentiality, inspection, material events, host intervention, restriction, and revocation. The fourth addresses technology, data protection, operational resilience, disputes, crisis, provider rights, and interim measures. The fifth establishes governance, amendment, assurance, withdrawal, transition, and schedules for activity taxonomies, minimum controls, schemas, evidence, and incident codes.

Table 15. Model Regulatory Framework Agreement requirement clusters.

Cluster	Subjects	Core legal purpose
I	Purpose, definitions, scope, authorities	Establish competence, boundaries, and delegation limits.
II	Eligibility, assessment, recognition, host notice, credential effect	Create the bounded market-access decision and its conditions.
III	Supervision, information, inspection, events, intervention, revocation	Make continuing reliance actionable and reversible.
IV	Data, technology, resilience, disputes, crisis, provider process	Protect information, operations, authority, and contestability.
V	Governance, change, assurance, withdrawal, schedules	Keep law, schemas, evidence, and operations aligned over time.

Source: Authors' candidate twenty-article map.

Responsibility should remain visible. The institution supplies accurate disclosures and complies with conditions. The home authority attests authorization and continuing status. The host decides acceptance or objection and applies retained overlays and emergency powers. A regional or RPS coordinator can operate schemas, trust registries, routing, and audit receipts, but should not become a licensing authority unless the adopted law expressly gives it that role. Infrastructure operators report technical access and

incidents but do not confer regulatory recognition. An assurance body tests controls without substituting for competent-authority judgment.

Home-host disagreement needs a defined sequence. The authorities should first record the disputed fact, activity, territory, and legal basis and preserve the host's power to impose a temporary proportionate measure. A time-bounded bilateral technical review should follow, then escalation to a joint supervisory committee. If the disagreement concerns interpretation of the MRFA, a designated legal dispute process should apply; if it concerns a local-law power reserved to the host, the host decision controls within its territory subject to review under applicable law. No coordinator, provider, or technical validator should resolve a competence dispute by changing credential status without an attributable authority decision.

Every later model clause should trace to a verified finding, comparator lesson, failure mode, or identified legal necessity. Unmapped policy preferences require separate authority and consultation. The agreement should also provide a contestable process: institutions need notice and a record of adverse decisions; authorities need escalation and dispute channels; emergency measures need expedited review; and exit rules must protect customer funds, records, agents, and outstanding transactions.

Implementation incentives and distributional effects also require explicit governance. Host and home regulators may otherwise absorb new duties without resources; larger providers may capture a process designed around their systems; smaller firms or low-volume corridors may be excluded; and users may misunderstand which authority protects them. A pilot steering body should therefore publish its mandate, budget, conflict rules, decision rights, provider-selection method, consumer representation, and removal process for the coordinator. Funding must cover supervisory work, independent assurance, consumer redress, translation, and exit—not only the shared technology.

Table 16. Actor incentives, decision rights, and distributional safeguards in a pilot.

Actor	Rational concern	Decision right / safeguard	Cost and accountability
Host regulator	Loss of intervention capacity or local visibility	Accept, condition, suspend, revoke host effect; obtain timely evidence	Pilot budget must fund host supervision and escalation, not only shared technology.
Home regulator	Unfunded cross-border workload and liability	Define attestations, refuse unsafe reliance, coordinate enforcement	Workload and service levels costed before admission.
Provider	Duplicative process, delay, inconsistent conditions	Notice, reasons, review route, predictable evidence requests	User fees transparent and proportionate; no entitlement beyond scope.
Consumers / merchants	Harm, confusion, weak redress, exclusion	Clear responsible entity, complaints, safeguarding, continuity and exit	Consumer outcomes and incidents are stop metrics.

Actor	Rational concern	Decision right / safeguard	Cost and accountability
RPS coordinator	Mandate drift and operational concentration	Operate schemas and routing only unless law grants more	Audited service levels, ring-fenced budget, conflict rules, removable operator.
Assurance body	Capture or box-ticking	Independent testing with published scope and escalation	Rotation, conflict disclosure, and regulator-owned final judgment.

Source: Normative implementation analysis informed by the case and design analyses; proposed controls require local legal and stakeholder validation.

6.10 Maturity and pilot roadmap

Maturity should be assessed by the lowest material capability, consistent with the weak-link theory. Level 0 is fragmented national licensing with no recognition claim. Level 1 adds a common activity and requirement vocabulary. Level 2 adds tested evidence exchange, confidentiality, event, and cooperation pathways. Level 3 establishes a bounded operative bilateral recognition route with host powers and non-transitivity. Level 4 supports multiple direct legal paths through a common credential and assurance system. Level 5 is a governed multistate assurance network with continuous status, resilient operations, versioned change, and orderly withdrawal.

A common rulebook, common supervisor, or shared infrastructure can satisfy part of a level but cannot by itself move a system to Level 3. That level requires an operative, bounded market-access pathway. Maturity is a system-capability description, not a ranking of jurisdictions or regulators.

Piloting should also follow evidence gates. Phase 0 selects one bounded activity and confirms a P1 legal basis, at least four of seven STC functions, a host pathway, and a case-based stress test. Phase 1 runs a shadow credential with no market-access effect to test issuance, status, events, privacy, and audit. Common-supervisor settings may be particularly useful at this phase because functions can be mapped without pretending that host entitlement exists. Phase 2 tests a narrow legal pilot with named institutions, hosts, caps, and customer safeguards. Phase 3 adds direct corridors while testing non-transitivity and governance. Phase 4 scales only after independent assurance, resilient status, change management, and withdrawal are proven.

Stop conditions should be explicit: a material false-positive entitlement, stale status, confidentiality failure, unresolved authority conflict, inadequate host intervention, consumer harm, implied transitive reliance, governance deadlock, or evidence decay should suspend or reverse the pilot. Success should be measured not merely by faster authorization but by zero scope leakage, timely event propagation, functioning host intervention, reduced duplicate requests without lower evidence quality, and a completed suspension and exit simulation.

The pilot must establish pre-entry baselines, reporting cadence, advance conditions, and a named accountable owner for each metric. Any numerical tolerance beyond zero false entitlement should be

adopted by the competent authorities after risk and stakeholder review; the candidate decision rules below are governance specifications, not estimated causal effects.

Table 17. Minimum decision metrics for a bounded pilot.

Domain	Baseline	Cadence	Advance / pause / terminate rule	Accountable owner
Scope integrity	0 false entitlements	Continuous; monthly report	Any material false entitlement pauses issuance; unresolved recurrence terminates pilot	Host authority + coordinator
Status freshness	Defined event clocks	Continuous; quarterly test	Advance only if critical events meet the adopted service level	Home authority
Host intervention	No proven workflow	Quarterly simulation	Advance only after a timed suspension/revocation exercise passes	Host authority
Consumer harm	Pre-pilot incident/redress rate	Monthly	Material unexplained deterioration triggers condition or pause	Provider + host conduct lead
Duplication	Existing evidence requests and elapsed time	Per application; quarterly	Advance only if duplication falls without evidence-quality decline	Joint steering body
Resilience and privacy	Agreed availability and breach baseline	Continuous; semiannual exercise	Critical confidentiality or availability failure triggers pause and remediation	Coordinator + data authorities
Distribution	Provider size, corridor, and user-group mix	Quarterly	Concentration or exclusion beyond agreed tolerance requires redesign	Steering body + consumer panel

Source: Authors' proposed implementation specification. Thresholds are candidate governance controls, not measured impacts.

7. Limitations and Submission Controls

7.1 Evidence availability and sample scope

The quantitative findings do not cover all 54 states equally. Eritrea, Guinea, Libya, Sudan, South Africa, and Zimbabwe remain below the Core completeness threshold and are excluded from Core quantitative inference. They remain part of the census and qualitative limitations. Public availability varies by language, institution, regulator publication practice, and legal transition. Missing evidence may therefore reflect accessibility rather than substantive absence. The AU's 55-member institutional universe is not a 55-observation empirical panel, and no continent-wide completeness claim is warranted.

The Core itself is thin. The operational bridge contains 20 variables against a 47-variable model specification. This makes the 50% sensitivity structurally unattainable and concentrates RCD differentiation in two licensing variables. The low distance range cannot support deep legal-equivalence claims, and the absence of differences in governance, prudential, consumer, data, or enforcement domains should not be read as proof of harmonization. Future work should populate provision-level capital, safeguarding, governance, AML/identity, data, resilience, reporting, and enforcement variables before interpreting fine-grained compatibility.

7.2 Provenance and recoding

The evidence chain contains 1,080 bridge provenance rows but only 113 exact provision-level locators. An official source and a claim-appropriate locator were verified for each legal or institutional proposition retained in the article; a full cell-level locator check of the supplemental evidence remains incomplete. The 72-cell recoding exercise was a second analytical pass conducted in the same research environment. It is not independent human inter-coder validation, and the 97.22% raw agreement statistic is not represented as such. The exhaustive one- and two-cell perturbation analysis bounds sensitivity to the two differentiating variables but is not a substitute for blinded recoding.

The structured review conducted before completion used simulated reviewer personas for issue spotting; it was not external human peer review. No multilingual panel of African regulatory counsel, supervisors, providers, or consumer representatives has validated the legal mappings or implementation design. That limitation is disclosed here, and external review is left to journal peer review and to jurisdiction-specific due diligence before any pilot. This article does not claim that such review has occurred.

7.3 Measurement and composite limits

RCD is limited to jointly observed coded requirements and is not an equivalence decision. Its 2,256 directional rows contain 1,128 unique unordered pairs, so no independence-based inference follows from the duplicated corridor representation. STC is numerically available only for provision-mapped common-supervisor functions in UMOA and CEMAC. HMAF covers 30 hosts but is not activity-complete. It records route evidence and does not establish direct non-bank participation. Because no corridor has all four eligible components, PRI, alternative weights, activity-specific PRI, rankings, and clusters are withheld. The zero intersection is an evidence-gated non-overlap partly produced by deliberate HMAF suppression in the 86 STC corridors, not a zero score.

Network results depend on edge definitions. Rwanda's bridge position appears only in broader formal and policy networks; it says nothing about regulatory quality. The strict current legal-effect network has no edge under the coding rule, but that result is bounded by the publicly available instruments and the narrow PSP passport definition.

7.4 Legal status, implementation, and causal inference

The evidence freeze and source-currentness date is 28 August 2026. Official-source checks confirmed that the EAC mutual-recognition and cooperative-oversight initiatives remained proposed; PSD3 and the proposed EU Payment Services Regulation remained in legislative procedure; and the UMOA, CEMAC, Egyptian, PAPSS, and SADC propositions retained in the article were supported by the cited instruments or official releases. These states can change rapidly and must be rechecked if publication occurs materially later.

The structured comparative mechanism cases establish mechanism plausibility and explain anomalies. They do not identify population-level causal effects. Most evidence concerns law and official policy, not continent-complete supervisory practice, provider experience, enforcement outcomes, processing time, cost, or user welfare. The study cannot show that a future passport will reduce price, increase inclusion, accelerate remittances, improve competition, or prevent arbitrage. Those are pilot hypotheses requiring baseline measures, counterfactuals, and implementation data. Nor do the payment and e-money findings automatically transfer to banking, insurance, securities, or crypto-assets.

7.5 Verification and research integrity

The reported analysis was subjected to a documented verification pass before completion. Official-source currentness was rechecked; each retained claim was traced to a stated analytical or normative source; claim-critical legal propositions were checked for an appropriate provision-level locator; all numerical results and figures were reproduced from the version-controlled inputs; and the text was reviewed against a standing list of claims the evidence does not support, including composite scores, country rankings, and causal effects. An independently written script reconciled the headline distance distribution, the unique-pair count, the component-overlap branches, and the perturbation results. Every table and figure in the article traces to a stated analytical or normative source.

That verification concerns internal consistency, reproducibility, and source fidelity only. It is not a claim of regulatory approval, external legal validation, or peer review. Any substantive change to a coded value, eligibility rule, quantitative claim, or legal status arising from later review would require the corresponding recomputation and a renewed currentness check.

8. Conclusion

Regulatory passporting in African payment services cannot be reduced to a licence, a common rulebook, a shared supervisor, or a payment rail. The 54-state research census and 48-state Core analysis show why. The 2,256 directional RCD rows represent 1,128 symmetric unordered pairs measured through a coarse and tie-dominated bridge. Infrastructure reaches 498 corridors. Provision-mapped common-supervisor trust reaches 86. Host-entry evidence reaches 1,534 corridors across 30 hosts. Yet no corridor contains all four evidence-qualified mechanisms.

The responsible response is not to force a readiness score. It is to treat the missing alignment as the object of institutional design. UMOA and CEMAC show that continuing supervisory capacity can exist without an established PSP market-access entitlement. SADC shows that infrastructure can integrate ahead of licensing. Egypt shows that home-status reliance can reduce friction without becoming a passport. EAC and the bilateral cases show why recognition, oversight, and non-transitivity must be explicit. The European comparator shows that mature passporting is a lifecycle of legal effect, information, supervision, host intervention, and exit.

Regulatory Passporting 2.0 therefore proposes a bounded architecture: an RPS that keeps claims in separate layers; an RPP that makes eligibility and status continuous, scoped, and reversible; and an MRFA that supplies the legal authority, safeguards, and direct relationships on which a credential depends. The proposal is best tested through shadow and limited pilots with strict stop conditions. Its success should be judged by lawful reduction of duplication while preserving evidence quality, host power, customer protection, and contestability - not by the production of a higher composite score.

Declarations and Research Transparency

Author and affiliation: Yogo Dubois, Independent Researcher. Correspondence details are supplied separately.

Data and materials: The supplement accompanying this article contains the codebook, evidence bridge, static corridor outputs, source and locator maps, robustness and anomaly registers, input hashes, environment specification, and executable recomputation materials. It also includes the numerical reproduction and source-currentness records.

Ethics and human participants: Not applicable. The study uses public legal, regulatory, institutional, and policy materials and contains no human-participant or confidential provider data.

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Competing interests: The author developed the proposed Regulatory Passporting 2.0 architecture and therefore has an intellectual interest in it. That interest is disclosed here. No other competing interests are declared.

Author contributions: Yogo Dubois: conceptualization, methodology, investigation, data curation, formal analysis, validation oversight, visualization, writing, and project administration.

AI-assisted methods disclosure: AI-assisted tools supported document extraction, computation checks, drafting, formatting, and simulated reviewer issue spotting under the author's direction. No AI output was treated as legal authority. Retained factual and legal claims were checked against the evidence record and official sources, and the author remains responsible for the manuscript.

Legal notice: The analysis and proposed design do not establish provider rights and do not replace jurisdiction-specific legal advice.

Claim-Critical Source Notes

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2. General Agreement on Trade in Services, article VII(1)-(5).
3. Directive (EU) 2015/2366, articles 28-30. The official EUR-Lex procedure files for the proposed PSD3 and Payment Services Regulation remained ongoing at the 28 August 2026 currentness check.
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10. BCEAO Instruction No. 001-01-2024, especially articles 17-21, 26, 28-29, 45-47, 84 and 86-90. These provisions support the coded supervisory functions; they are not cited as creating a Union-wide payment-service-provider passport.
11. CEMAC Regulation No. 04/18/CEMAC/UMAC/COBAC, especially articles 13-23 and 67-73. Article 23 preserves a material national-authority authorization role for payment institutions.
12. Central Bank of Egypt, Rules for Licensing Payment System Operators and Payment Service Providers, section headed Second: Rules for licensing payment institutions from outside the Arab Republic of Egypt for residents therein.
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