



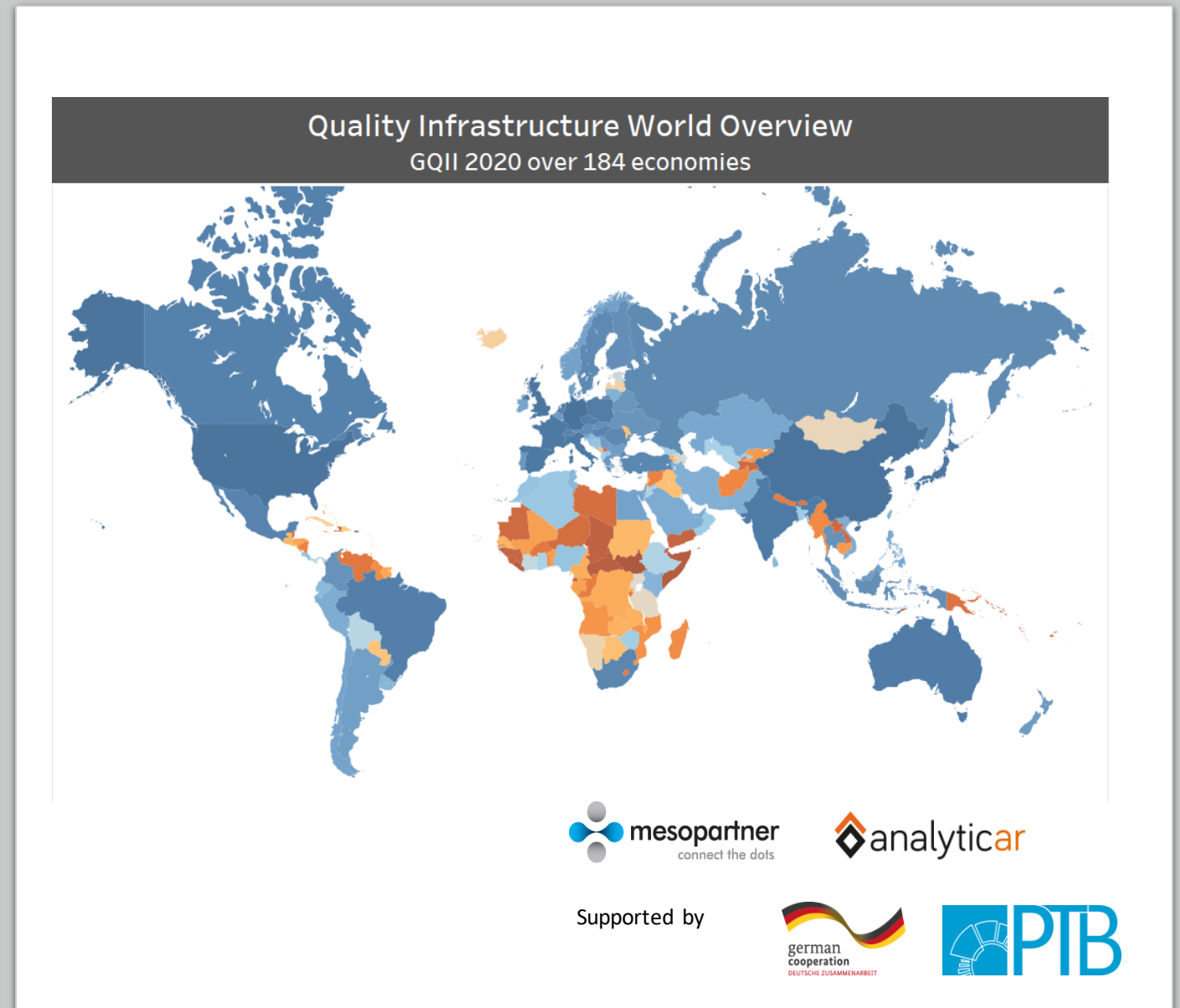
Cross frontier accreditation (CFA)

First data analysis for international trade of accreditation services

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Context: The GQII Program

- An initiative for open data and knowledge on metrology, standardisation, accreditation and related services
- Hosted by independent consulting firms [Mesopartner](#) and [Analyticar](#)
- Based on publicly available data of 184 economies worldwide



Definitions

Accreditation: Formal attestation or statement by an independent third party (the accreditation body, AB) that a conformity assessment body (CAB) or calibration laboratory (CL) is competent to carry out a specific conformity assessment or calibration service

Cross-frontier accreditation (CFA): accreditation body offers its services outside its home country or local economy.

National accreditation bodies and their variations

Slogan is “accredited once,
accepted everywhere”

MRA of ILAC and MLA of
IAF, the signatories
recognise the accreditations
and conformity assessment
results across frontiers

One speaks of “economies”
instead of “countries”.

In Europe, “one economy,
one accreditation body”,
but in other parts of the
world more than one AB in
a country.

Bi-lateral and regional
accreditation bodies

National Accreditation Focal
Point (NAFP) in countries
without their own AB

CFA principles and guidelines

Rule: accreditation services are provided in the same economy



Exceptions

An economy does not have its own accreditation body	Domestic accreditation body does not offer accreditation for the required scope	Economy's accreditation body has not received a positive result in a peer evaluation	CAB clients require accreditation by a specific accreditation body and will not be persuaded to accept the domestic equivalent	Request of CAB headquarters	Certification bodies operate internationally
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Data base

- GQII data of 201 accreditation bodies in 184 countries

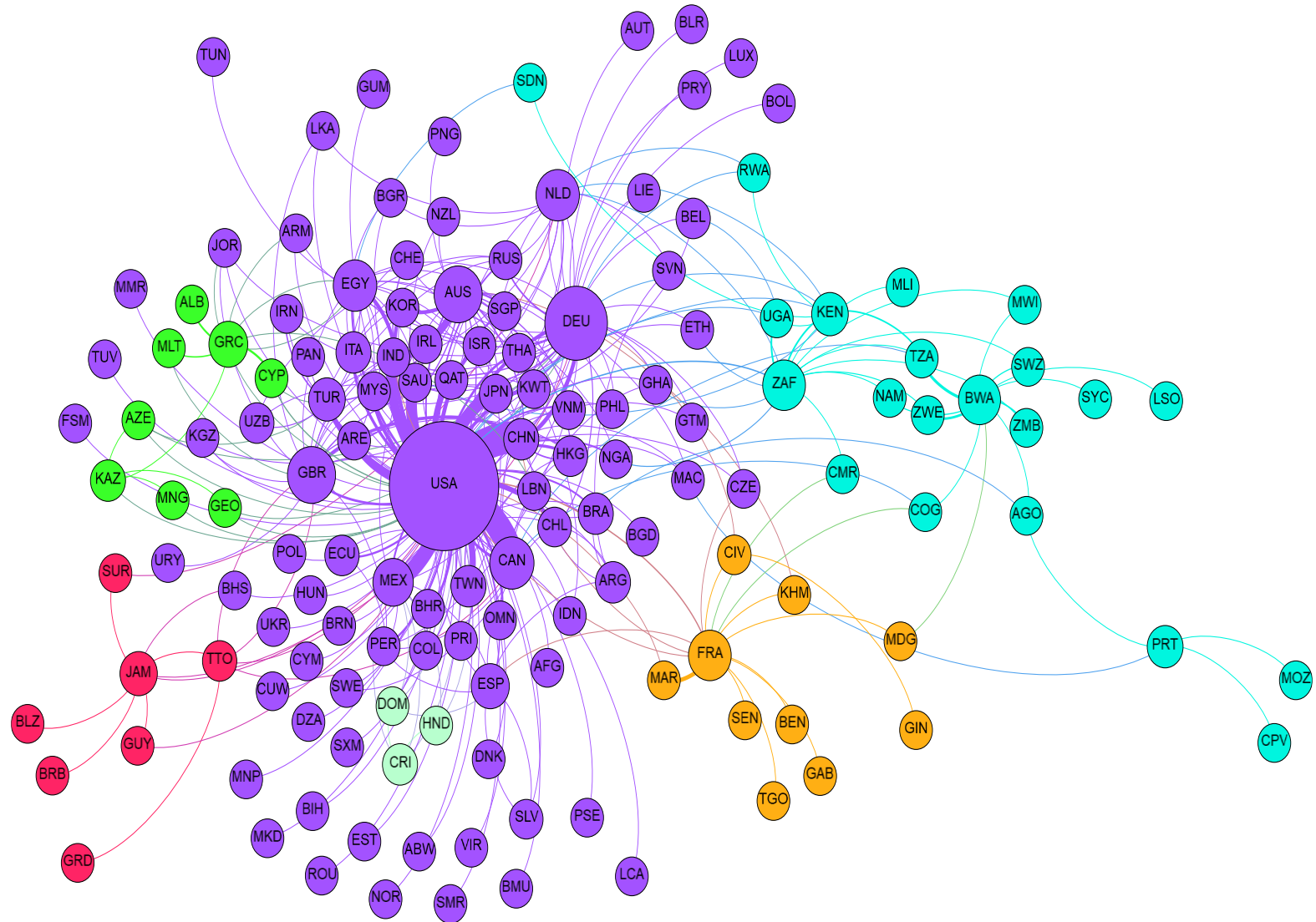
CFA data and analysis

Social network analysis

- Method of empirical social research for recording and analysing social relationships and social networks
- Unit of analysis: connections (accreditation service data) between accreditation bodies and conformity assessment bodies or economies
- Visualization and computations by Ucinet and Gephi

Centrality: Analysis of the global structure

- 146 economies with 2,878 accreditation services provided between them (only 32 economies export)
- Accreditations generated 339 international links, representing a density of 1.6% of all possible relationships
- High centralisation of exports of accreditation services (USA represents 64% of the accreditations and 29% of the links)
- Less centralization of imports (CHN represents 13% of the accreditations and 4% of the links)
- We have identified 6 blocks from the density of their relationships



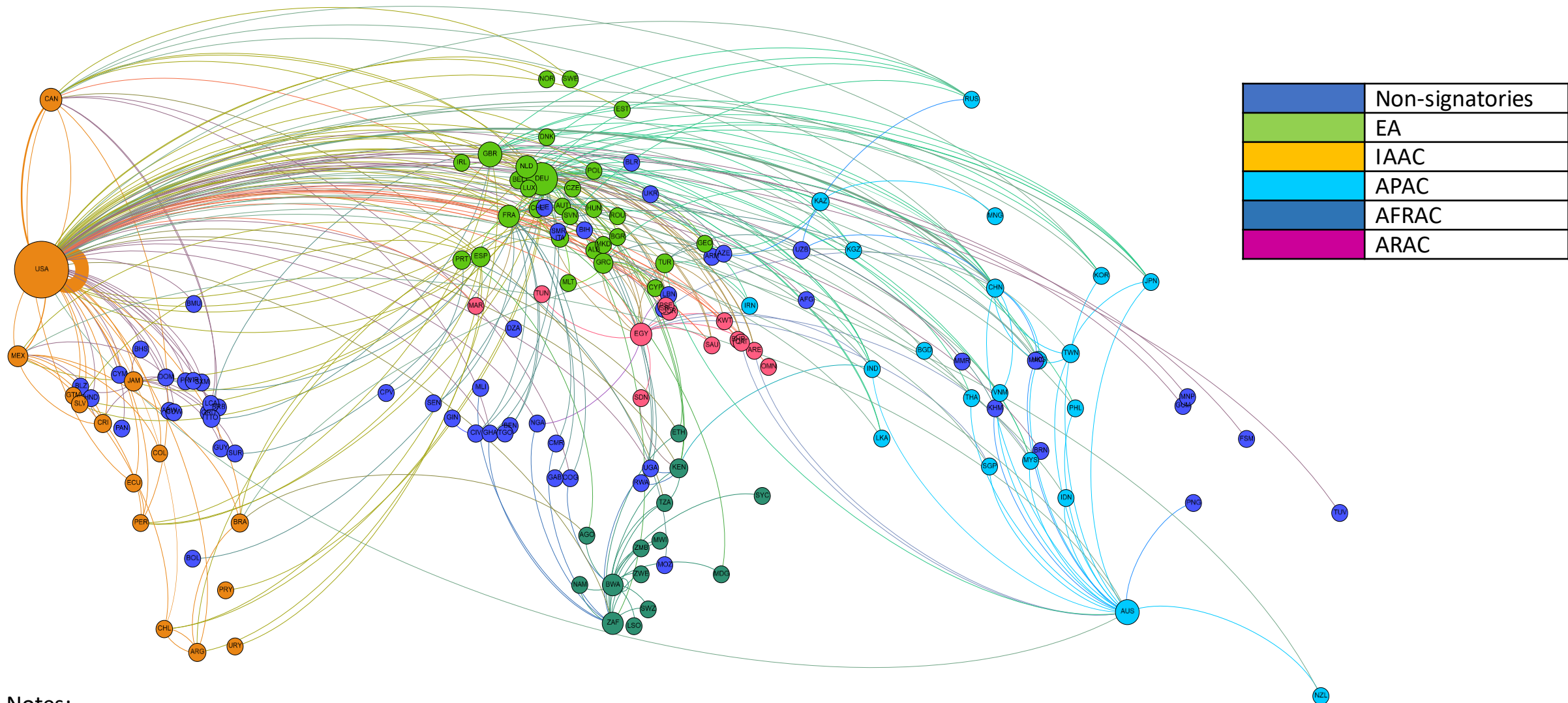
Accreditation export by economy

Economy	Number of relations (export)	% International relations (export)	Number of accreditations (export)	% Cross-frontier accreditations (export)
USA	99	29%	1848	64%
DEU	39	12%	143	5%
AUS	20	6%	207	7%
GBR	20	6%	73	3%
CAN	15	5%	36	1%
EGY	14	4%	57	2%
NLD	14	4%	27	1%
ZAF	13	4%	65	3%
FRA	13	4%	59	2%
BWA	11	3%	82	3%
Total	258	77%	2597	91%

Accreditation import by economy

Economy	Number of relations (import)	% International relations (import)	Number of accreditations (import)	% Overall accreditations (import)
CHN	12	4%	379	13%
IND	8	2%	207	7%
USA	7	2%	61	2%
JPN	7	2%	145	5%
PER	7	2%	27	1%
HKG	6	2%	47	2%
RUS	6	2%	33	1%
EGY	5	1%	21	1%
CHL	5	1%	61	2%
ARE	5	1%	72	3%
KOR	5	1%	76	3%
MYS	5	1%	40	1%
QAT	5	1%	62	2%
CAN	2	1%	235	1%
MEX	3	1%	142	1%
UAA	4	1%	118	1%
Total	92	25%	1726	46%

Grouping and linkages of cross-frontier accreditation



Notes:

- In case of double membership, the one that also has geographical proximity was privileged.
- For the same reason, SADCAS members are included in AFRAC

Densities of membership of the RAC in %

	s/A	EA	IAAC	APAC	AFRAC	ARAC
s/A	0,1%	0,1%	0.0%	0,2%	0,0%	0,0%
EA	1,8%	2,3%	3,7%	4,9%	1,5%	4,3%
IAAC	5,5%	6,9%	12,4%	8,3%	2,4%	6,1%
APAC	0,5%	0,3%	0,3%	4,8%	0,0%	0,8%
AFRAC	1,0%	0,0%	0,0%	0,3%	10,4%	0,6%
ARAC	0,3%	0,9%	0,0%	1,6%	0,0%	3,8%

Notes:

- RAC stands for Regional Accreditation Cooperation's.
- ANOVA analysis: r-square 0.038 (3,8% of variance) (sig 0.001)

Typology of economies by cross-frontier accreditation patterns

Type	Number of economies	% with own AB	Members of RAC	Affiliation (majority)	Economies of this type (examples)
Only importers	34	3 %	0 %	IAAC, APAC, AFRAC	ABW, AFG, BHS, BLZ, BMU, BRB, BRN, CMR, COG, CPV, CUW, CYM, FSM, GAB, GHA, GRD, GUM, GUY, LBN, LCA, LIE, MAC, MMR, MNG, MNP, PNG, PRI, RWA, SMR, SUR, SXM, TUV, UGA, VIR
Importing providers	23	100 %	65 %	AFRAC, ARAC (less IAAC)	QAT, ARE, SAU, etc.
Exporting importers	72	100 %	80 %	EA, APAC, IAAC	TUR, CHL, MEX, CAN, CHN, IND, JPN, TWN, KOR, etc.
Importing exporters	15	100 %	100 %	EA, IAAC	NLD, BEL, GRC, DEU, GBR, FRA, USA, CRI, JAM, SLV, AUS, KAZ, KEN, ZAF, EGY
Only exporters	2	100 %	100 %	EA, AFRAC	PRT, BWA

Conclusions

Accreditation takes place predominantly within a national framework

Accreditation communities assume that competition between ABs would lead to inefficient duplication and negative effects on transparency in the global accreditation system

Cross-frontier accreditations accounts for 2.7% of all accreditations worldwide

Cross-frontier accreditation exports are predominantly within the same region

Dominant CFA role of ABs of the USA and other industrialized economies, and relevance of bi-national and regional accreditation services

Further information

- GQII, <https://gqii.org>
- GI4D, <https://qi4d.org>
- ReseachGate,
https://www.researchgate.net/publication/352642893_Cross-Frontier_Accreditation

