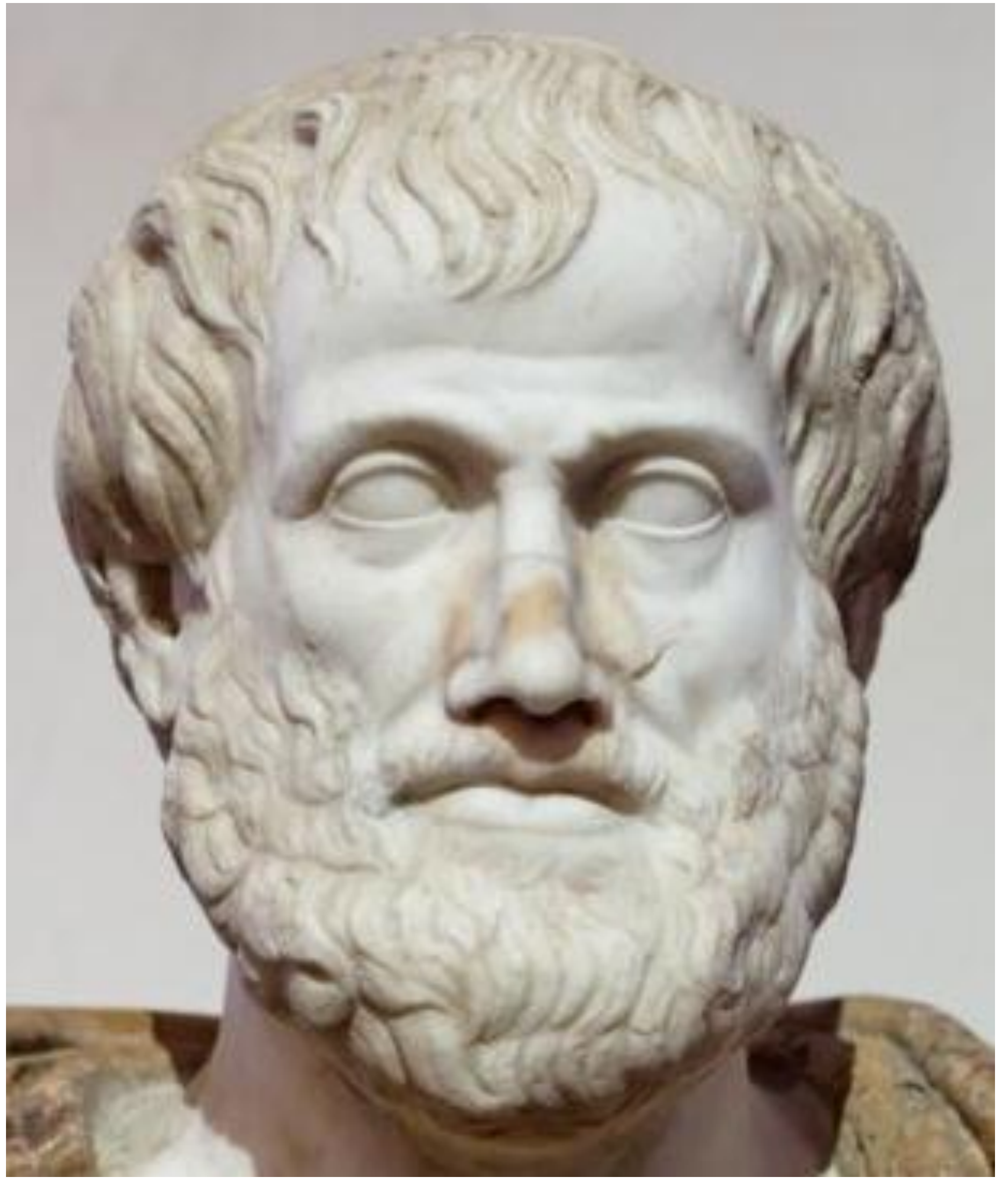
BBVA | RESEARCH

Digital
The Quintessence of Financial Inclusion?

David Tuesta

Latin American Congress on Financial Education and Inclusion
FELABAN-CLEF-CLIF-ASOBAN
Santa Cruz de la Sierra, 23 October 2015

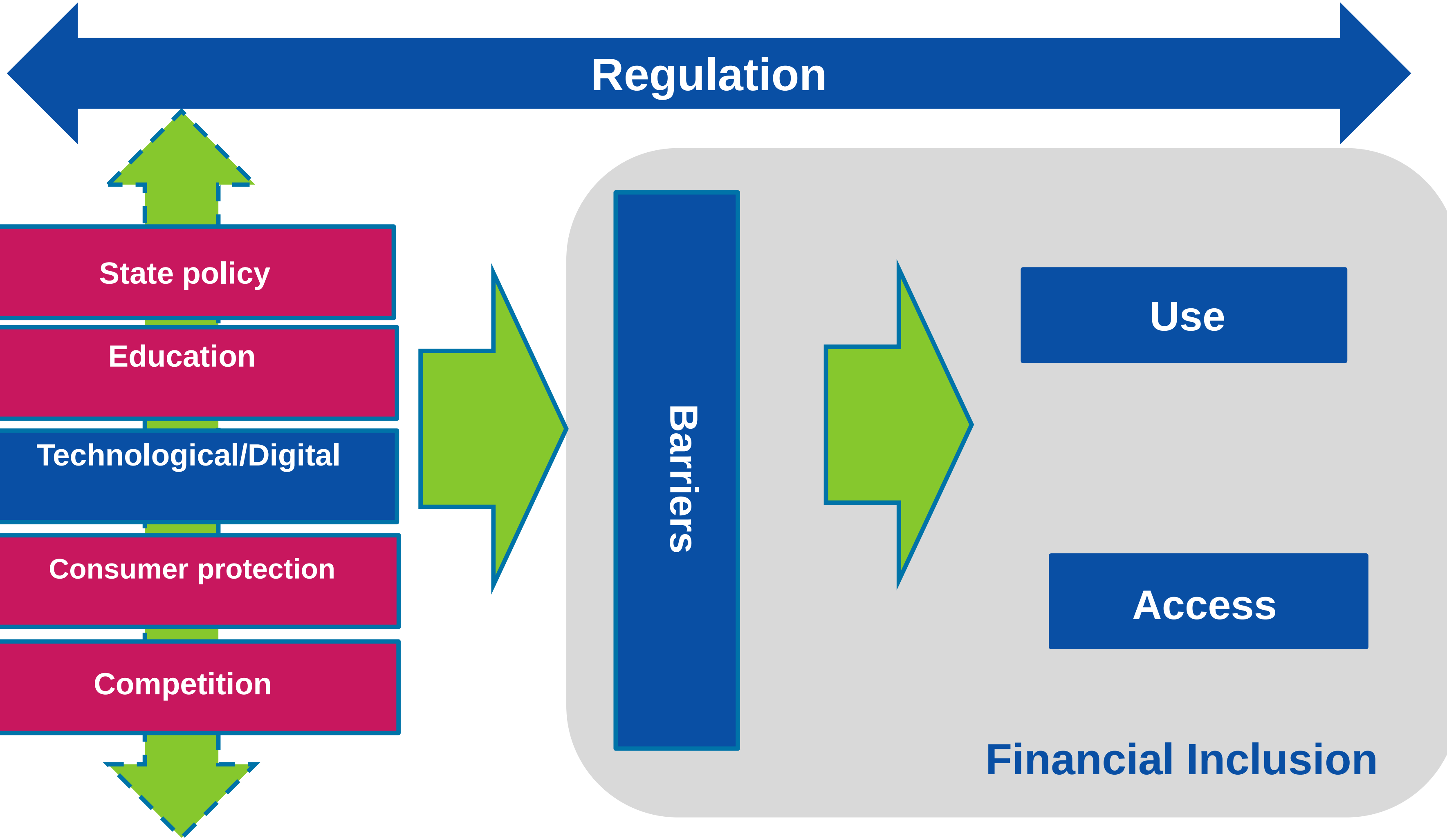


1 Financial inclusion

Financial inclusion index

- We define a **financially inclusive system as that which maximises use and access** while **minimising** involuntary **financial exclusion**
- Minimisation of perceived barriers is measured through **the obstacles facing individuals** who do not participate in the formal financial system
- The degree of financial inclusion is determined by three aspects: **Use, Access and Barriers**
- How does it work and what does financial inclusion depend on?

Financial Inclusion



Financial Inclusion = Use + Access - Barriers

The significance of financial inclusion. Compelling evidence

- Lack of access to financial services can lead to the **poverty trap and greater inequality** (Banerjee & Newman, 1993; Galor & Zeira, 1993; Aghion & Bolton, 1997; Beck, Demirgüç-Kunt & Levine, 2007)

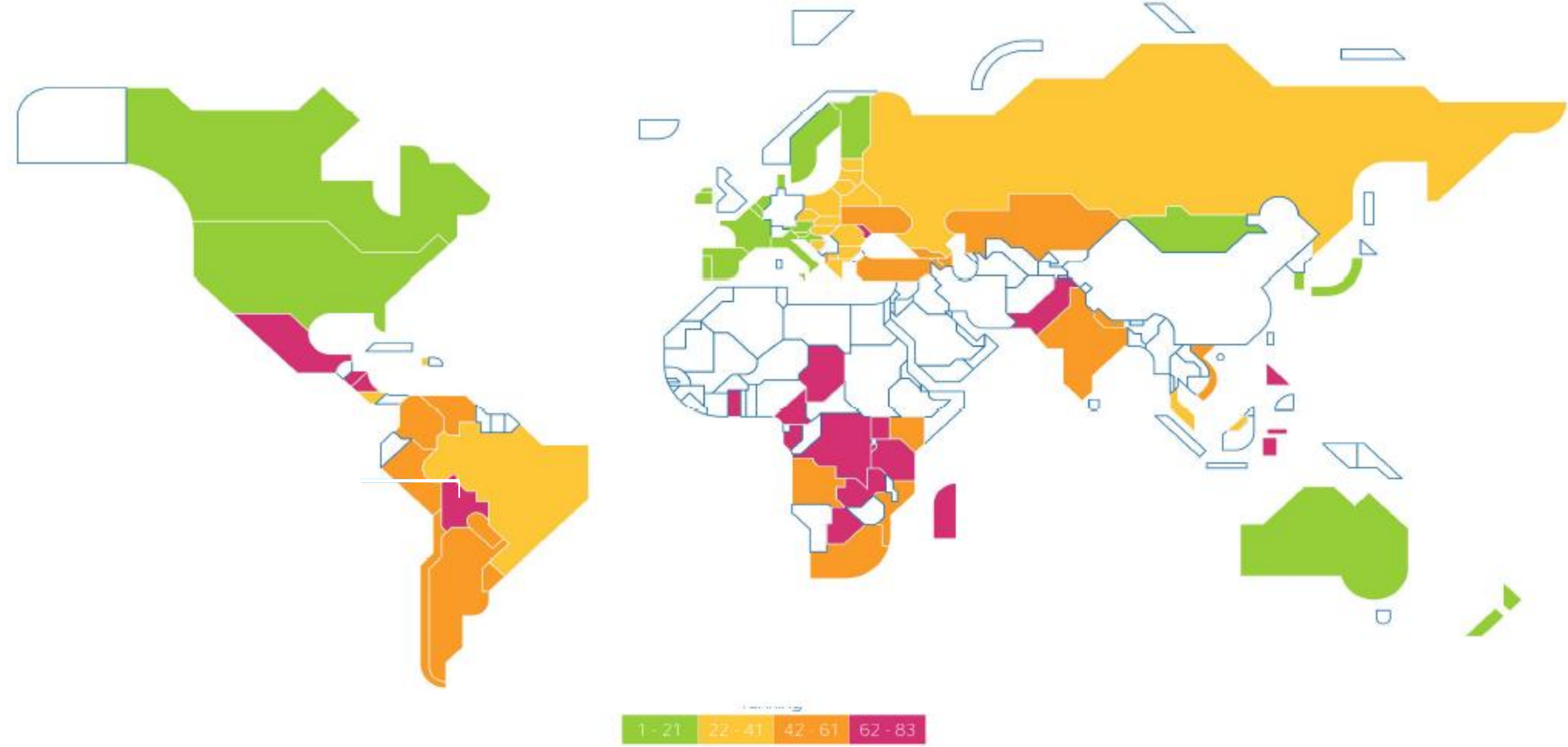
- Using financial services **boosts saving** (Aportela, 1999; Ashraf et al., 2010), **productive investment** (Dupas & Robinson, 2009), consumption (Dupas & Robinson, 2009; Ashraf et al., 2010b) and women's empowerment (Ashraf et al., 2010)

- Using credit and insurance has beneficial effects in terms of **well-being**, although the empirical evidence is less robust (Karlan & Morduch, 2010; Banerjee et al., 2010; Roodman, 2012) with respect to the saving channel for well-being.

The financial inclusion index

Financial Inclusion Index Country Ranking					
Country	rank	Country	rank	Country	rank
Korea, Rep.	1	Brazil	29	Colombia	57
Spain	2	Russian Federation	30	Mozambique	58
Portugal	3	Macedonia, FYR	31	Ukraine	59
Belgium	4	Lithuania	32	Angola	60
Japan	5	Bosnia and Herzegovina	33	El Salvador	61
Canada	6	Malaysia	34	Honduras	62
France	7	Hungary	35	Moldova	63
United States	8	Romania	36	Bolivia	64
Australia	9	Costa Rica	37	Swaziland	65
New Zealand	10	Dominican Republic	38	Mexico	66
Denmark	11	Belarus	39	Philippines	67
Italy	12	Albania	40	Ghana	68
Netherlands	13	Georgia	41	Indonesia	69
Mongolia	14	Turkey	42	Pakistan	70
Slovenia	15	Uruguay	43	Nicaragua	71
Sweden	16	Kazakhstan	44	Gabon	72
Ireland	17	South Africa	45	Botswana	73
Croatia	18	Armenia	46	Zambia	74
Finland	19	Vietnam	47	Burundi	75
Austria	20	Venezuela, RB	48	Cameroon	76
Thailand	21	Chile	49	Uganda	77
Greece	22	Peru	50	Tanzania	78
Estonia	23	India	51	Lesotho	79
Bulgaria	24	Paraguay	52	Madagascar	80
Slovak Republic	25	Azerbaijan	53	Chad	81
Latvia	26	Kenya	54	Congo, Dem. Rep.	82
Poland	27	Nepal	55		
Czech Republic	28	Argentina	56		

The financial inclusion index



Norte America
- 6 Canada
- 8 Estados Unidos

Europa
- 2 España
- 3 Portugal
- 4 Belgica
- 7 Francia
- 11 Dinamarca

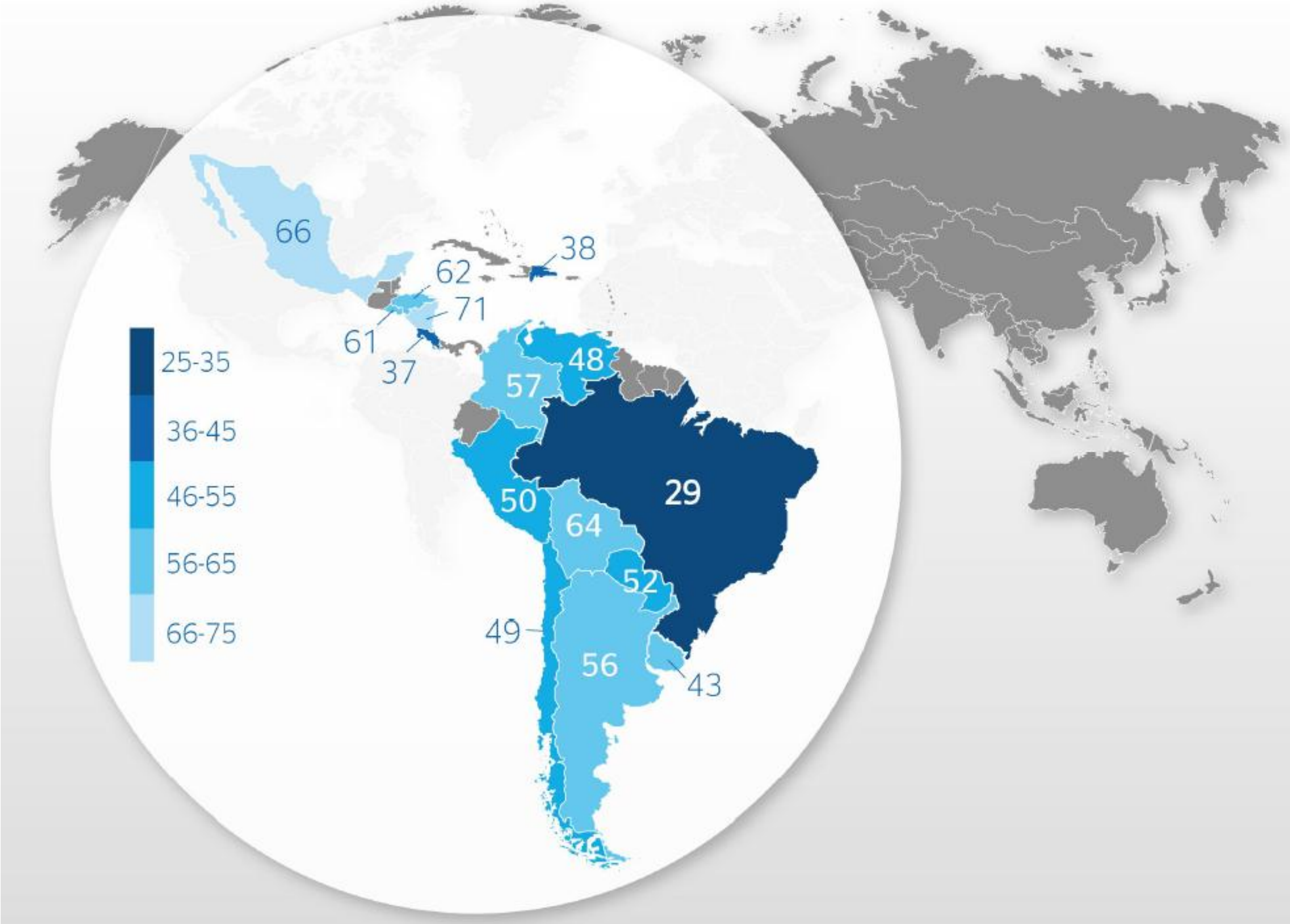
Europa del Este
- 15 Eslovenia
- 18 Croacia
- 23 Estonia
- 24 Bulgaria
- 25 Rep. Eslovaca

Sur America
- 29 Brasil
- 37 Costa Rica
- 38 Rep. Dominicana
- 43 Uruguay
- 48 Venezuela
- 64 Bolivia

Africa
- 45 Sur África
- 54 Kenia
- 55 Mozambique
- 60 Angola
- 65 Suazilandia

Asia
- 1 Rep. Corea
- 5 Japón
- 14 Mongolia
- 21 Tailandia
- 34 Malasia

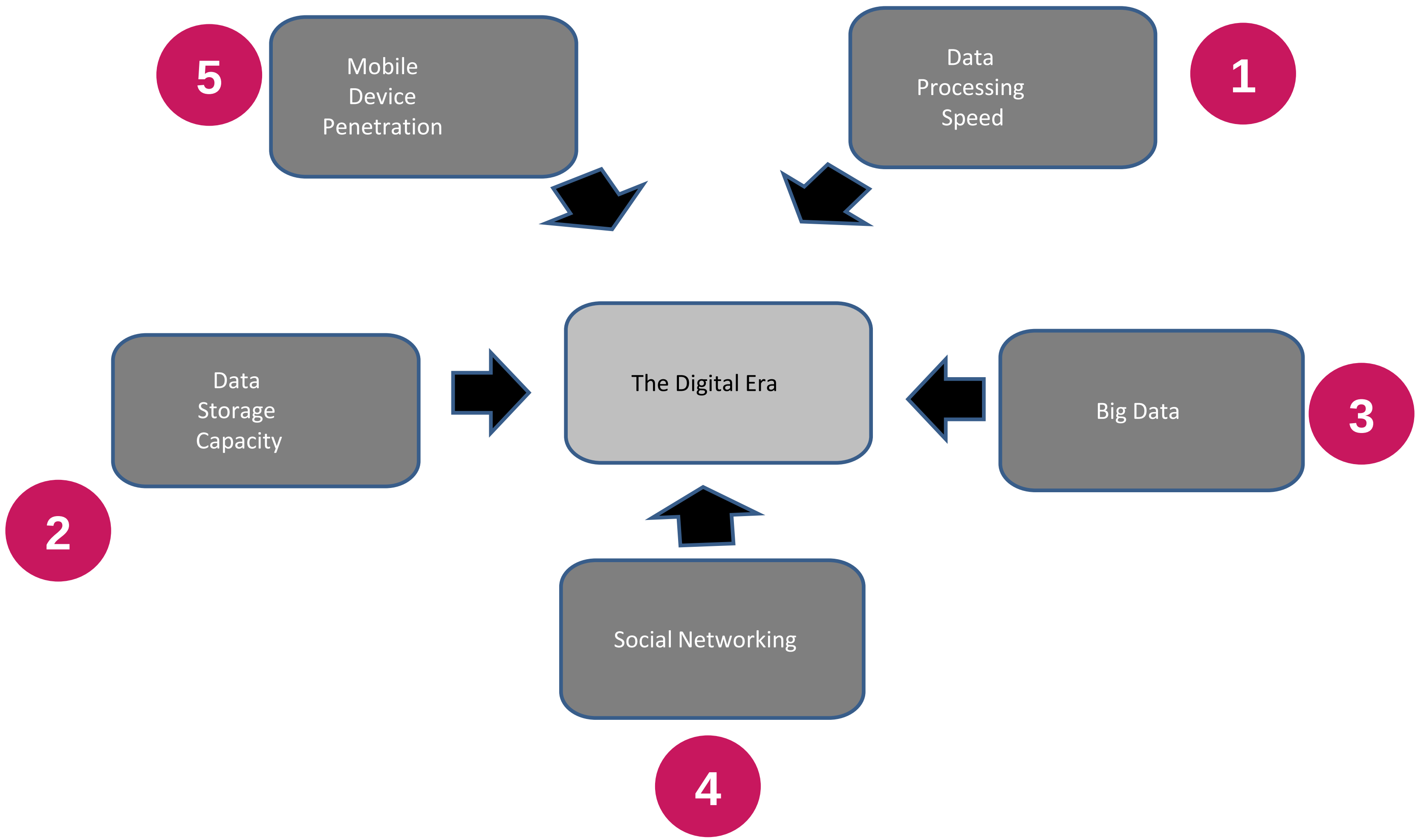
Oceania
- 9 Australia
- 10 Nueva Zelanda



25-35
36-45
46-55
56-65
66-75
66
38
62
71
61
37
48
57
29
50
64
52
49
56
43

2 Digital financial inclusion

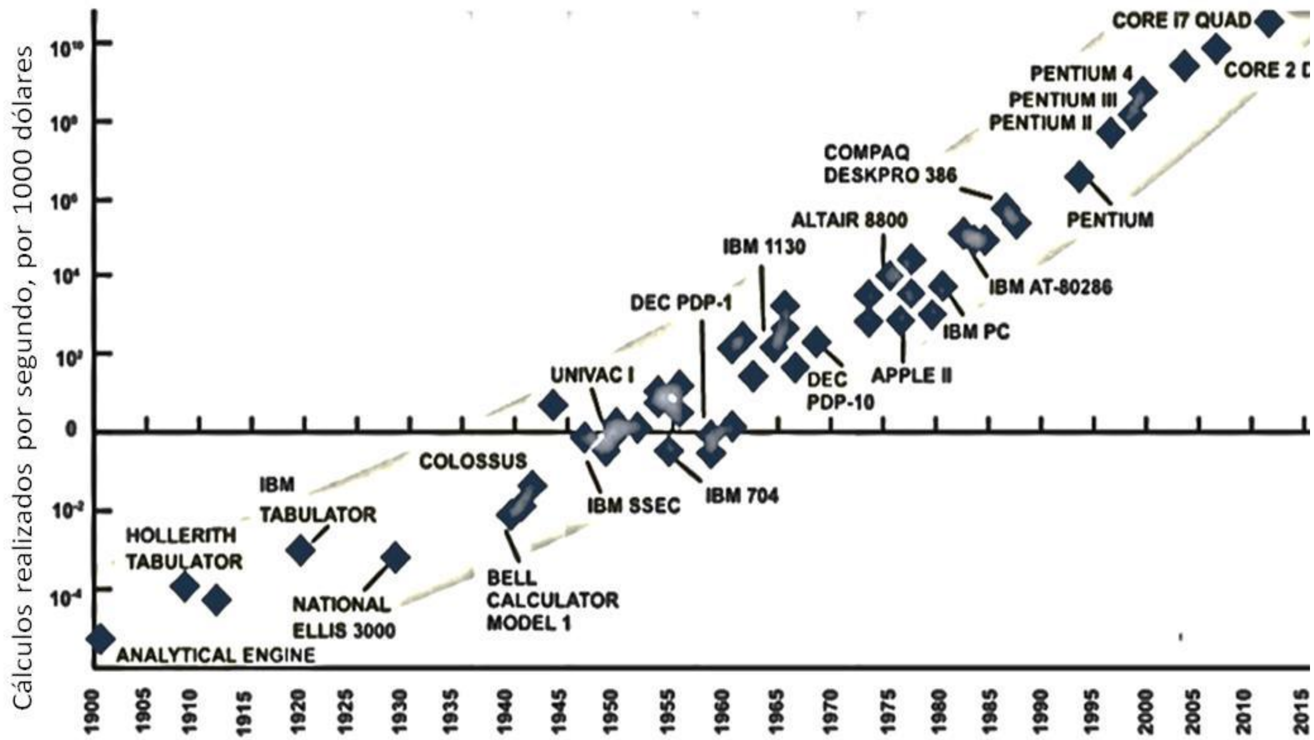
The digital transformation



The digital transformation

1

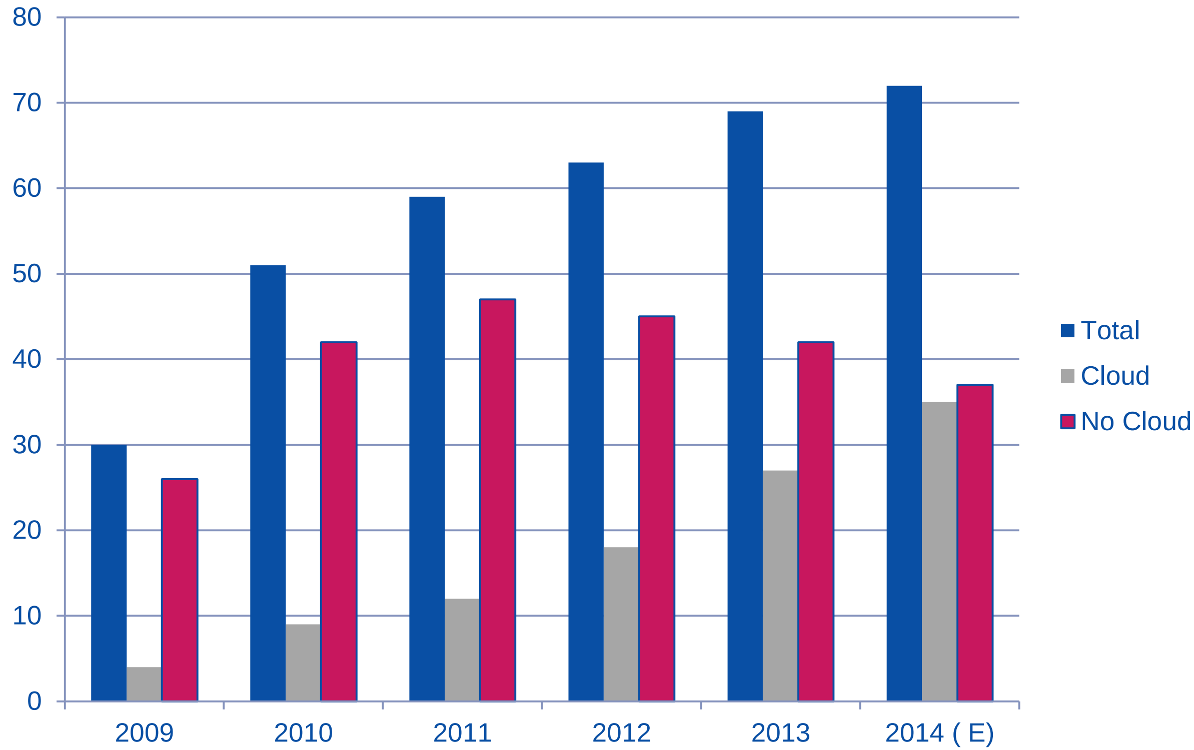
Processing speed or "Moore's Law" (Calculations per second per USD1,000)



Source: TMC (2015) and Tuesta (2015)

The digital transformation

2 In Cloud and No Cloud mobile device storage capacity: 2009–14 (E) – (in exabytes)

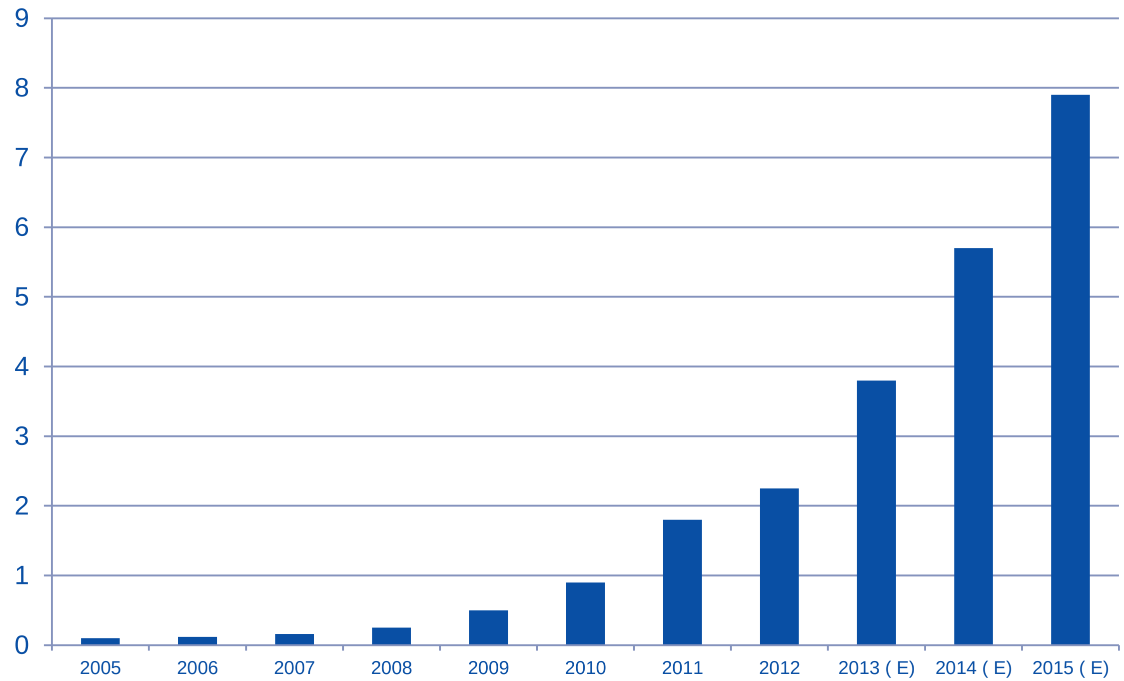


Source: Seagate, Tuesta (2015)

The digital transformation

3

Big Data: Global Digital Information Created and Shared: 2005-15 - (in zettabytes)

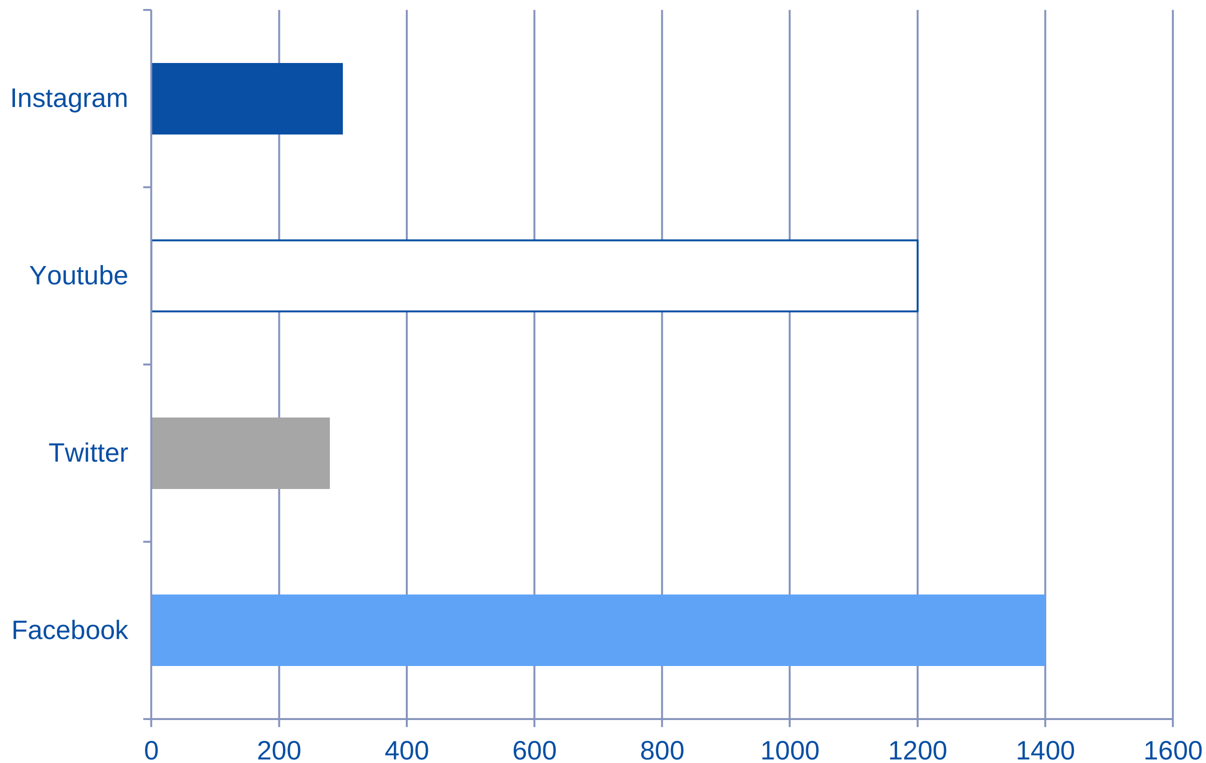


Source: Skinner (2014), Tuesta (2015)

The digital transformation

4

Estimated Users of the Top Four Social Networks - As of First Quarter 2015 (million)

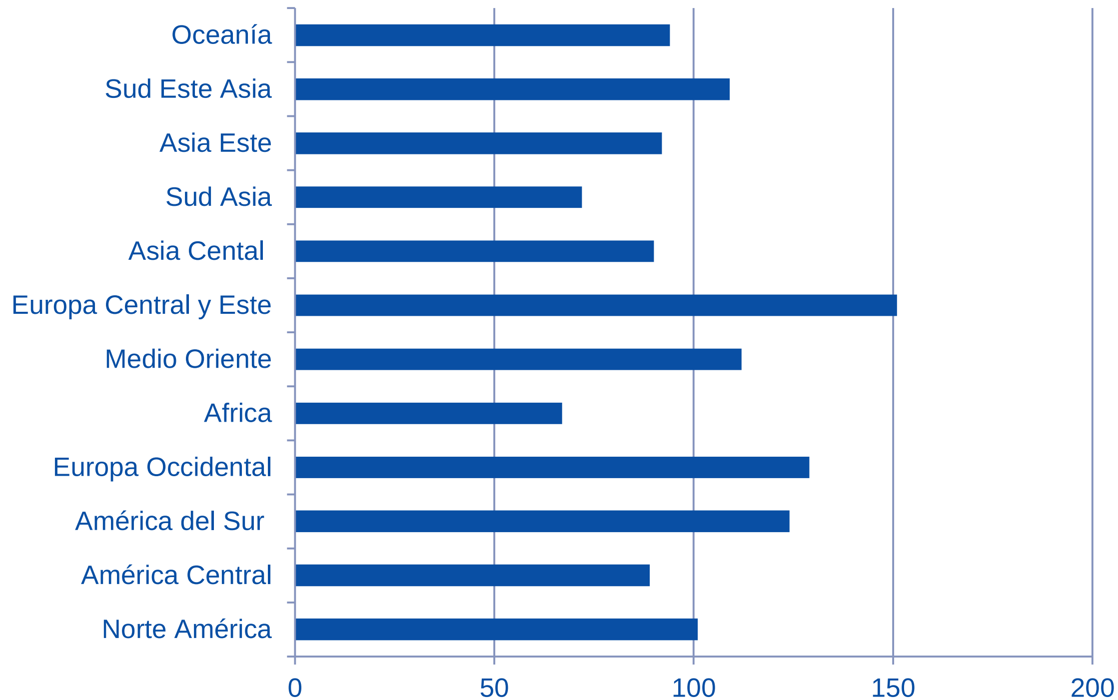


Source: Tuesta (2015)

The digital transformation

5

Mobile Penetration Worldwide - 2014 (% of adult population)



Source: Skinner (2014), Tuesta (2015)

Why the high hopes regarding digital for FI?

- For the first time, the new technologies make it easier for banks to manage to address the needs of low-income families efficiently:
  - Today's technology **allows scalability gains**.
  - Tremendous drop in processing, storage and operating costs in servicing previously less profitable customers (**Supply**)
  - Products can be generated that are tailored to the needs of the poorest segments, with more benefits and quality than in the past (**Demand**)

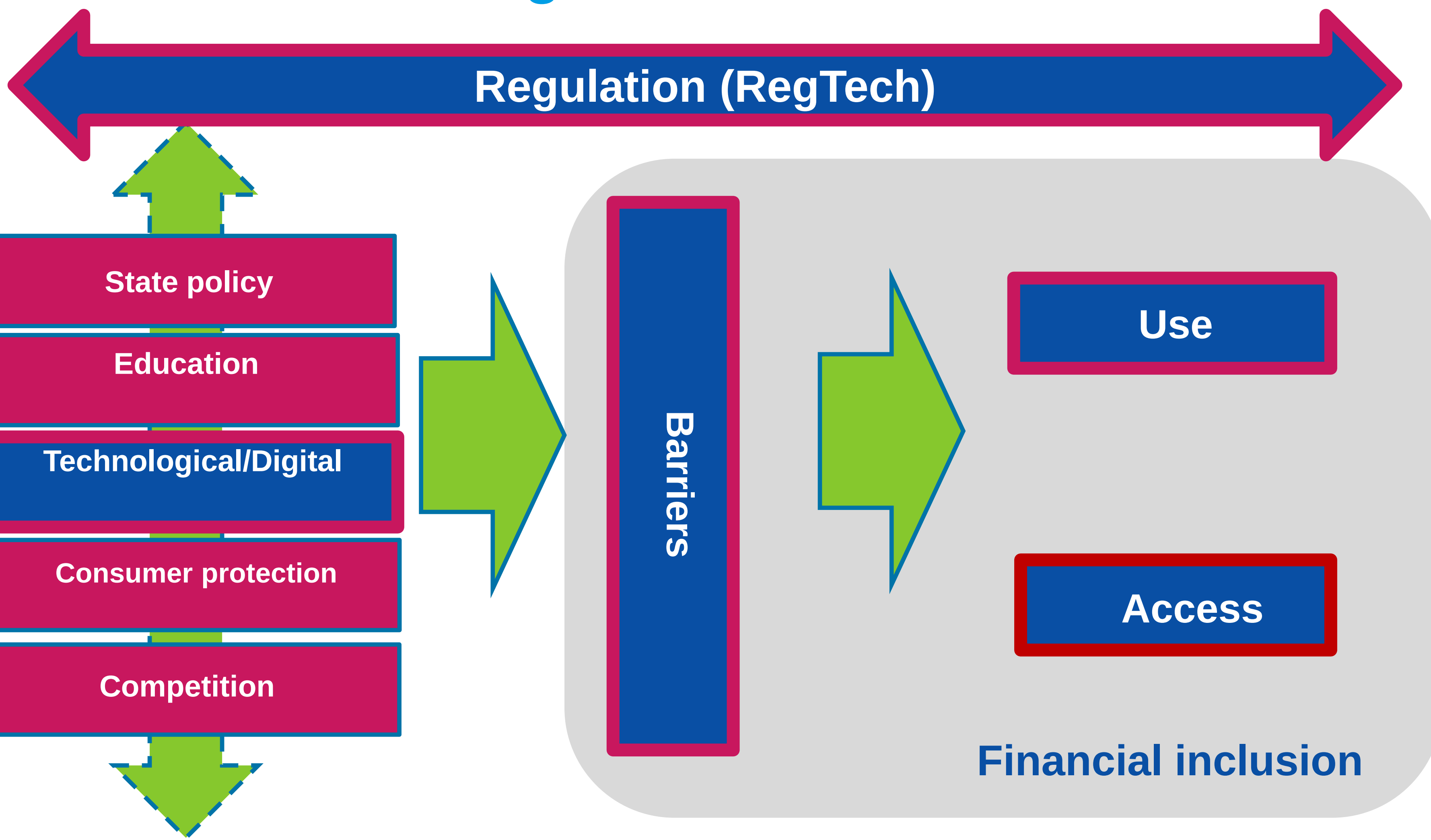
- Thanks to **Big Data,** it is possible to understand customers' needs better, isolate the real "risk" (where information tends to be sparse) more accurately and guarantee consumer protection.

- **Social networking**, the role of **mobile devices** and **geo-located data**, among other phenomena, can be used to determine mathematically the creditworthiness of customers, SMEs and micro-enterprises or to refine targeting in product marketing.

- **In a world in which information used to be hard to come by, we are witnessing a revolution underway.**

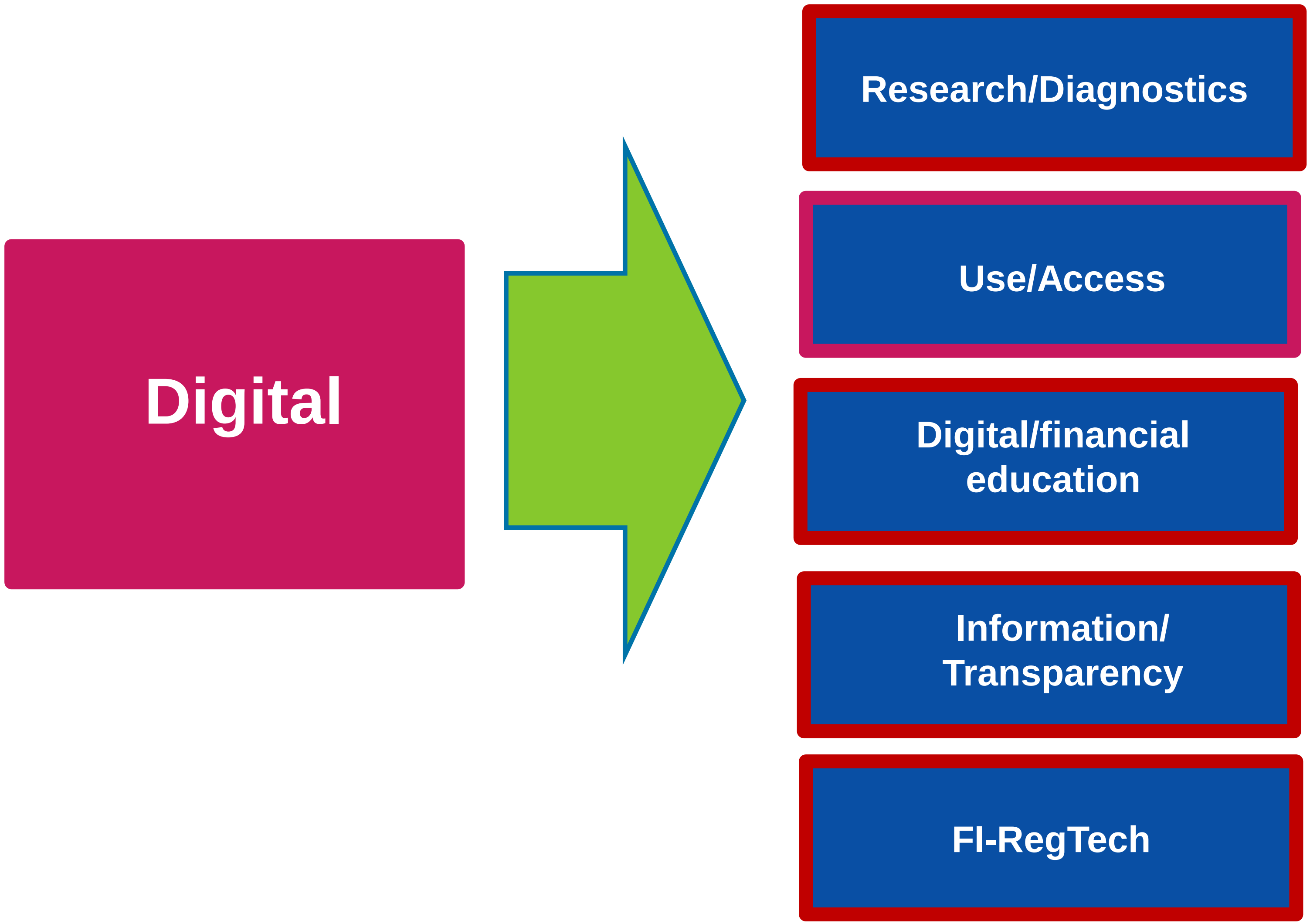
BBVA | RESEARCH

Towards digital financial inclusion



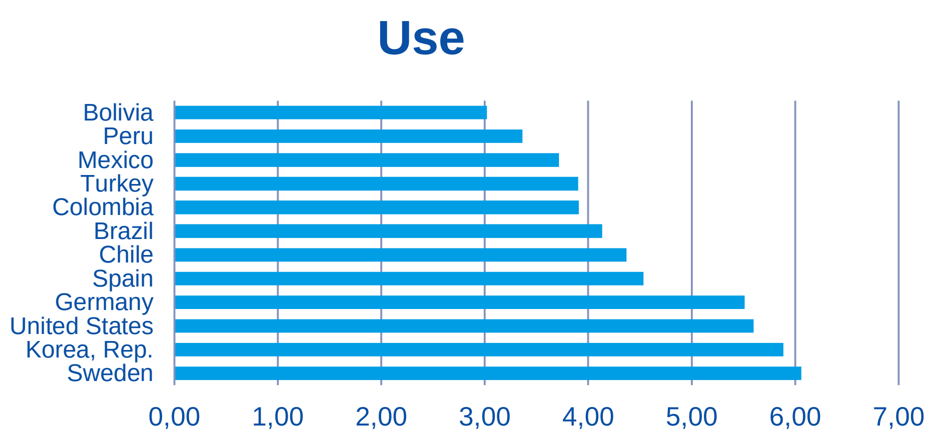
Digital Financial Inclusion = Use + Access – Barriers + Digital+ RegTech

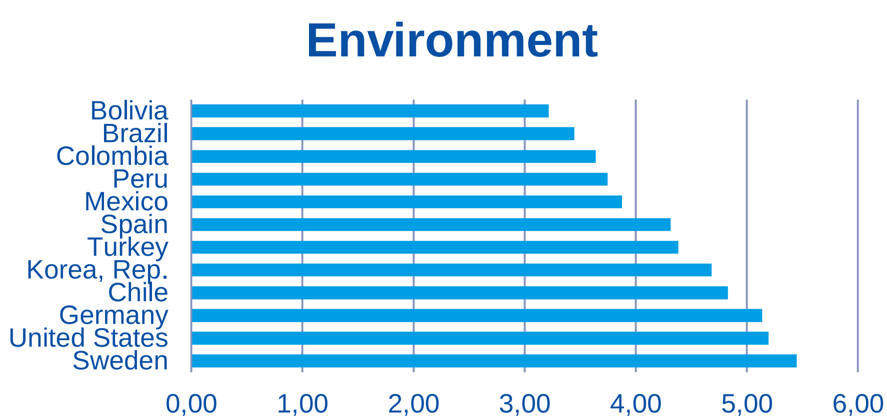
How does digital interact with financial inclusion?

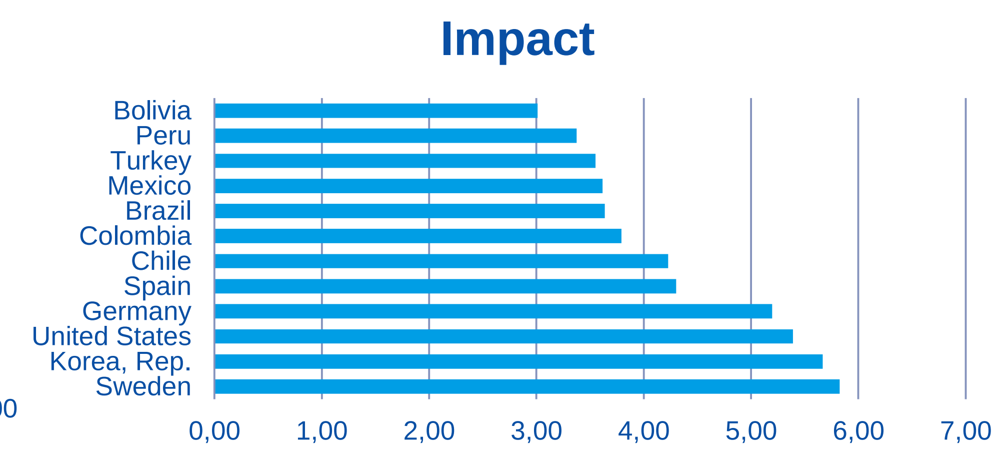


3 What progress is the digital transformation making in promoting financial inclusion?

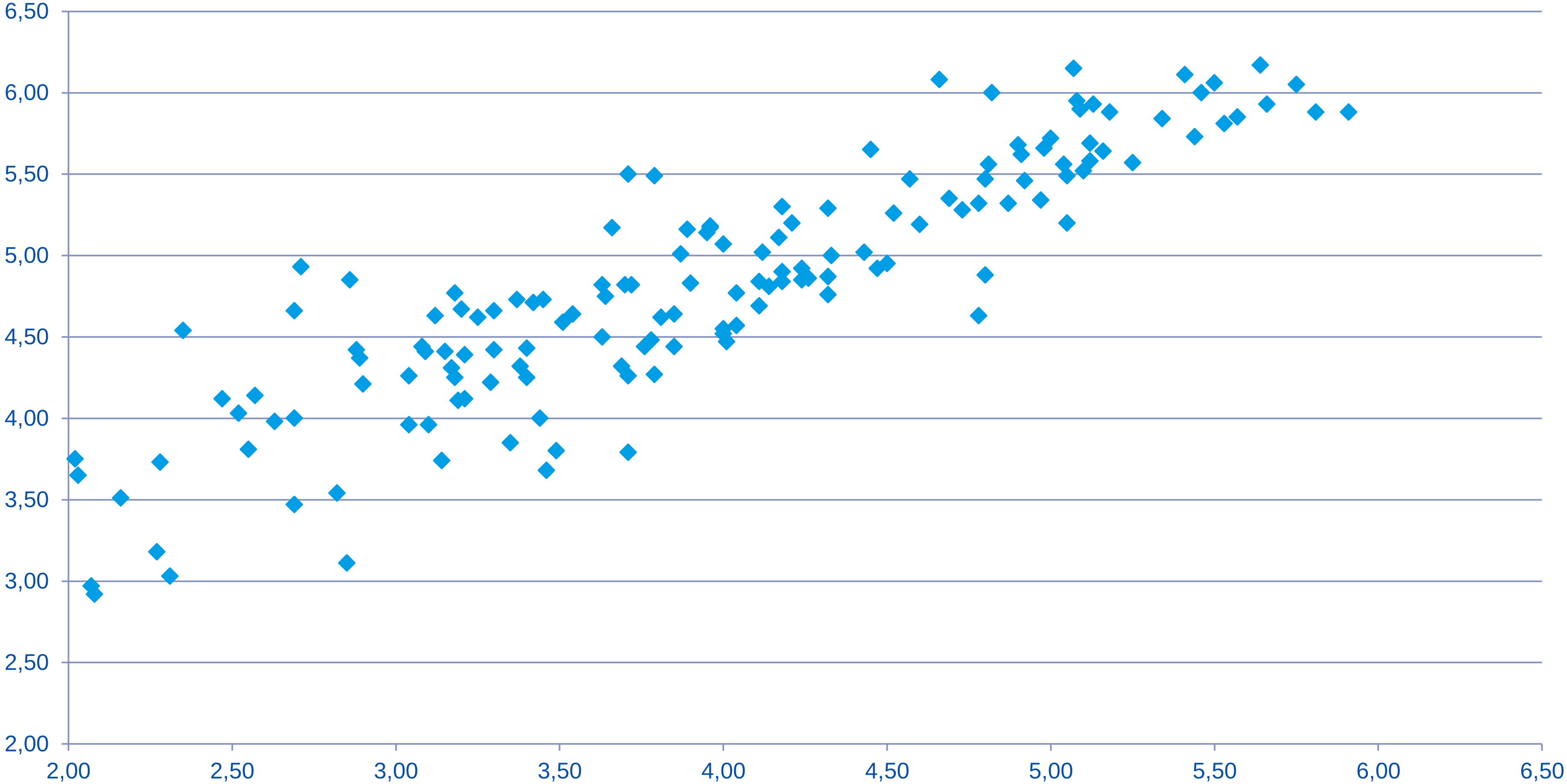
Adoption of technologies in LatAm





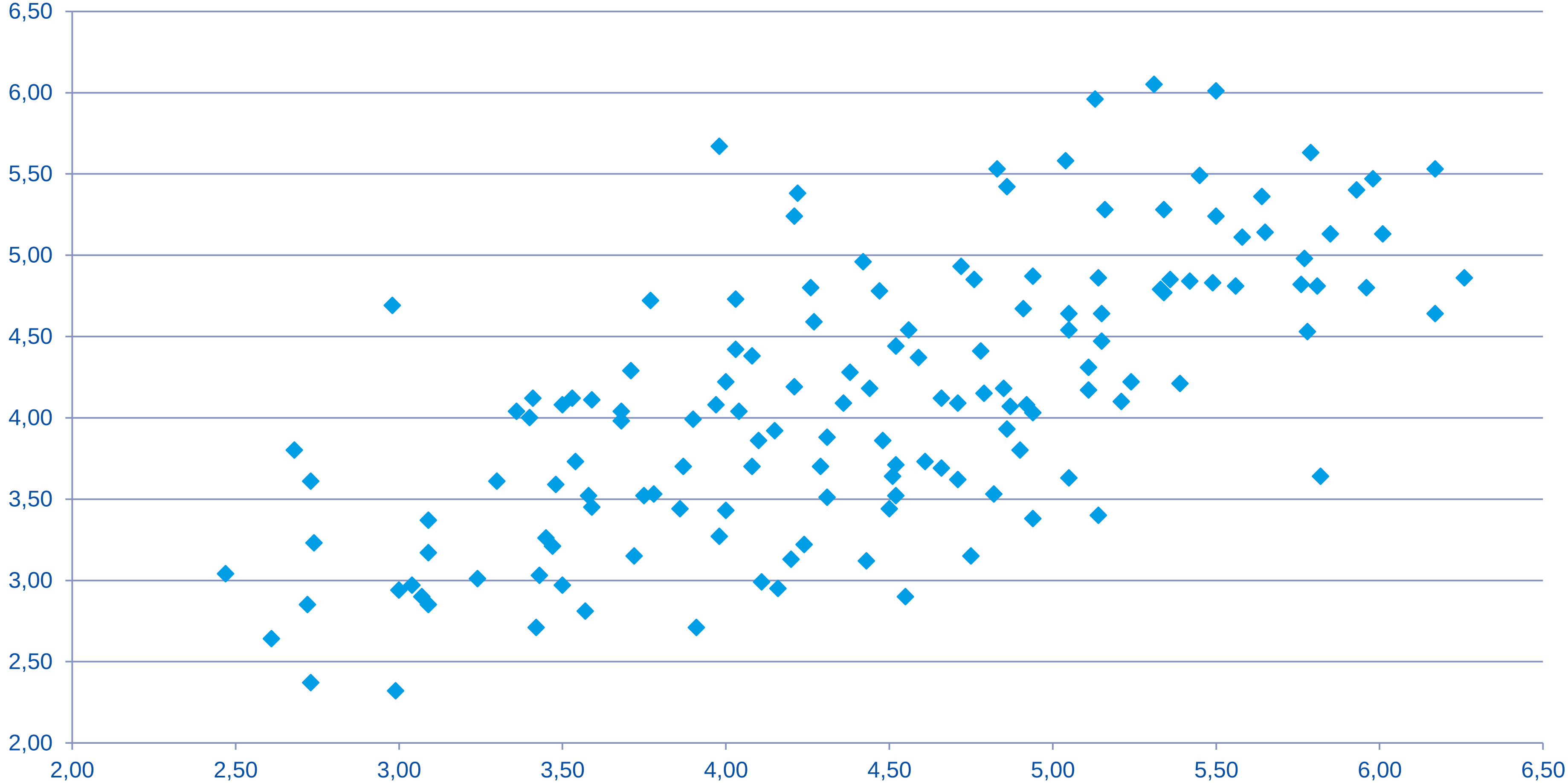


Technology legislation vs. internet use for B2B

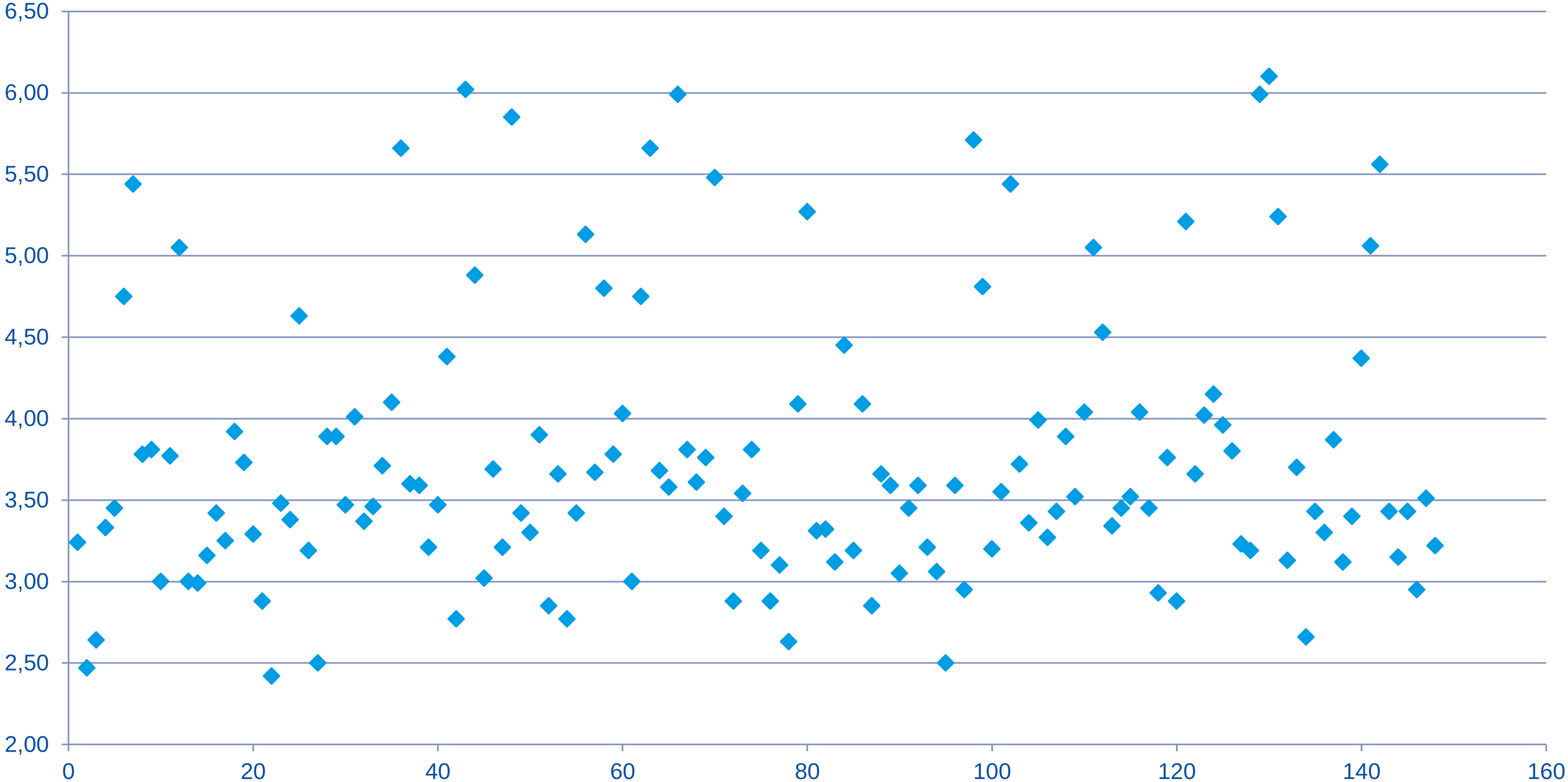


BBVA RESEARCH

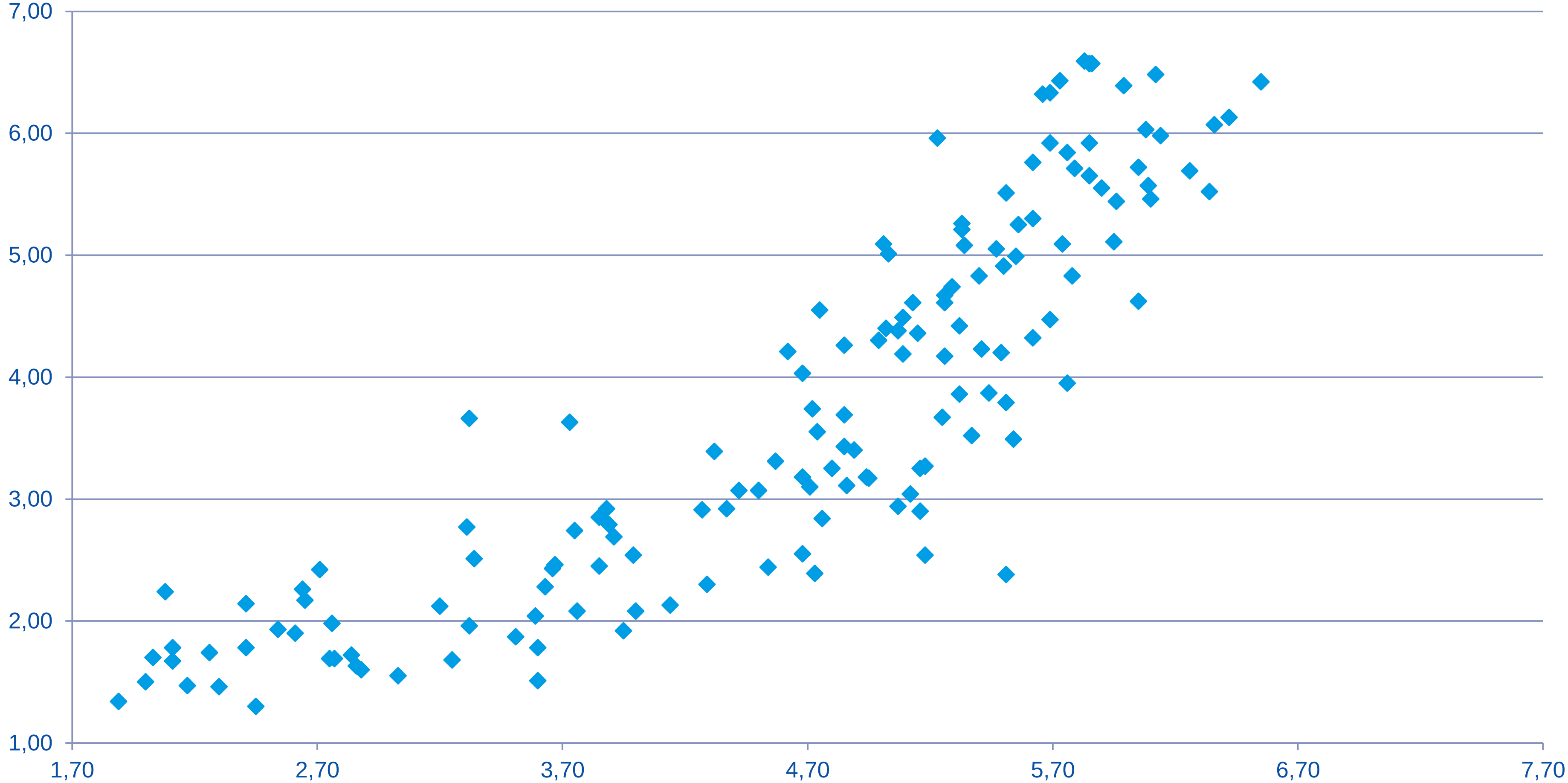
Government online services vs. internet use for B2C



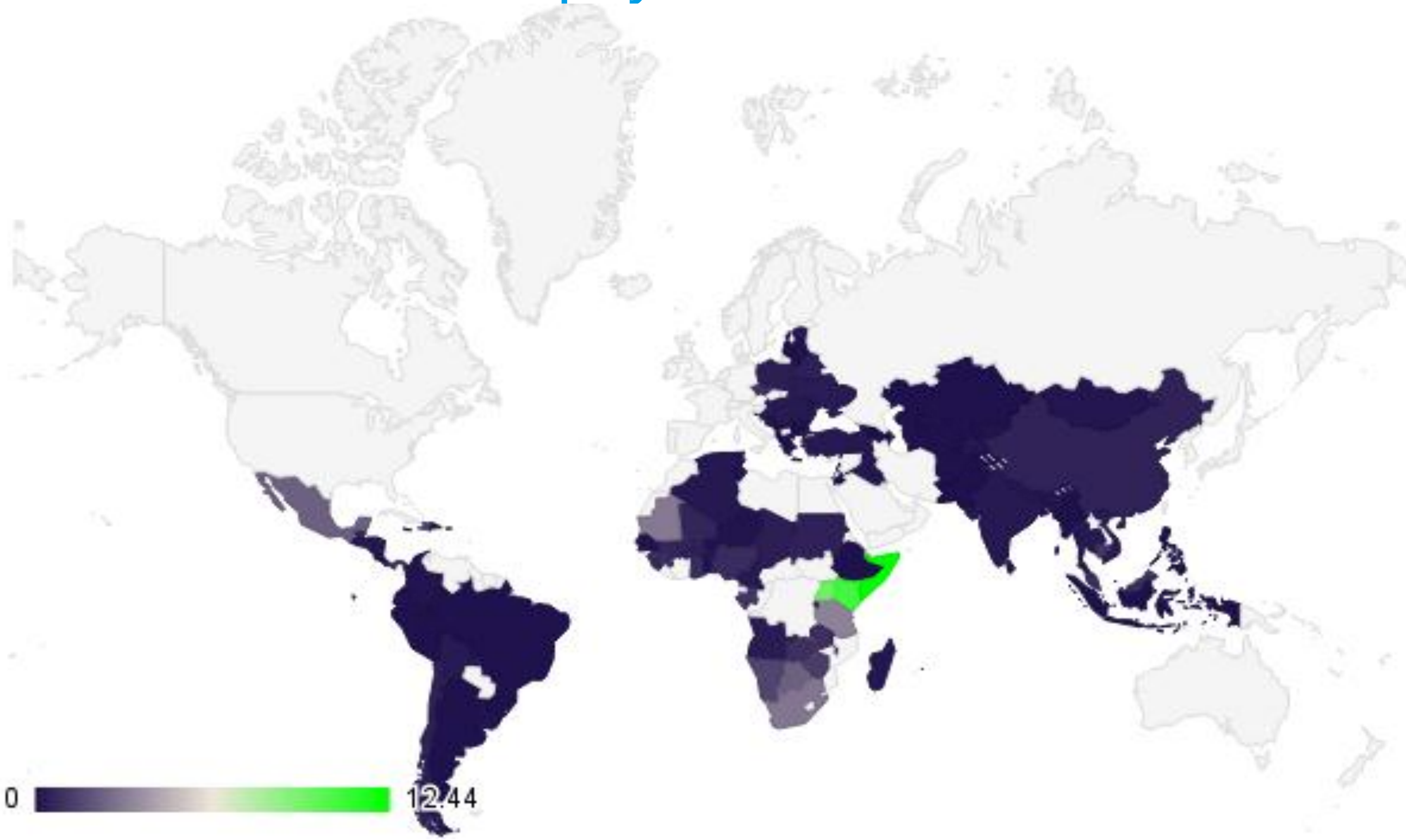
Technology use by firms vs. cost



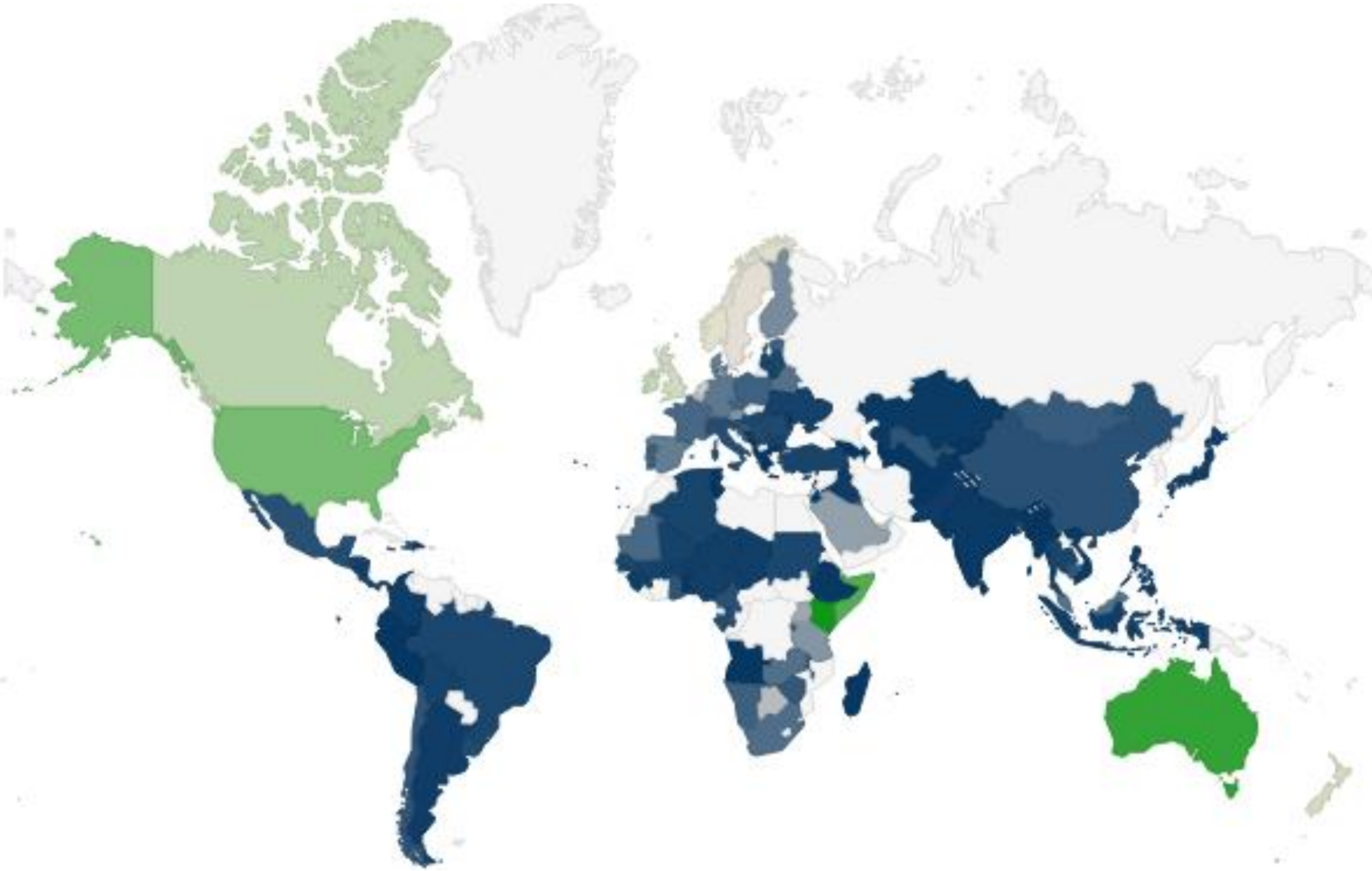
Capacities and individual use of technologies



Use of mobiles to pay for educational services



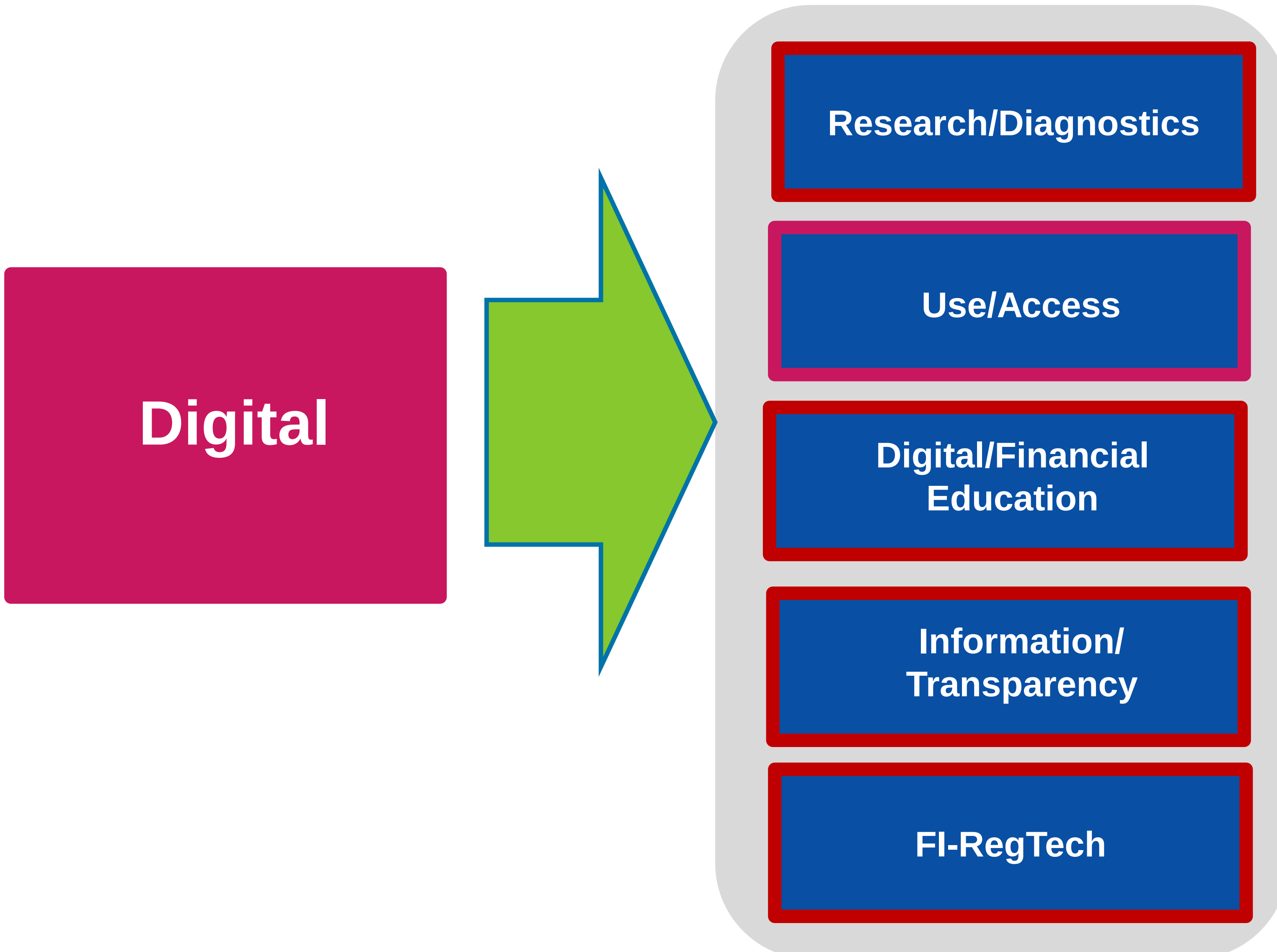
Use of mobiles to pay for bills/invoices



4

How can we measure the digital impact on FI?

Interaction between digital and financial inclusion



Digital technology and research/diasgnostics for FI

- The best example of a "miracle cure" is penicillin, even though this resulted from a lot of trial and error. **The period running from 1928 to 1945, when the benefits of this discovery began to be reaped, is the same time that we might have to wait with socio-economic policies.**
- All of these intervening years are crammed with **repetitions, attempts, failures** and disappointments, that are semi-successful, sometimes lucky … until **maturity is reached.**
- **Are technological innovations going down this road in promoting financial inclusion?**
- The practice of using methods drawn from medicine and applying them to the social sciences has brought about a revolution in economic development. **Randomised Controlled Trials (RCT)** provide policy-makers and service providers with better information in decision-making.
- To drive forward **innovation for financial inclusion** we should **include digital elements in** "trials" for research that helps us to pinpoint the "small changes" that emerge from the microdata.

The role of RCTs and their interaction with digital technology

- RCTs are considered to be the ideal framework for evaluating policy impacts, due to the methodological rigour involved.
- This methodology allows researchers to **separate out the effects** of a particular policy programme from other factors.
- As with other medical treatments, researchers randomly allocate participants to different study groups. One or more groups are subjected to the programme/intervention (**treatment group**), while another one serves for comparison (**control group**).
- Measuring the effect of the programmes and their policies (which are aimed at helping the poor via political inclusion) implies conducting rigorous evaluations of policy programmes being applied and new ideas.
- Similarly, replicating the trials in different settings is a vital step towards scaling the results.
- **RCTs to see how digital means help FI?**

Digital technology in an RCT for financial inclusion. Case study

Incentivising healthy financial habits among the poor: interaction using SMS messages via mobile between BBVA Bancomer and low-income customers (use of automated response SMS platform)

1. We evaluate the impact of such interaction on saving and microloans

2. SMS interaction between BBVA Bancomer and its customers provides financial education and advice. Most SMSs are auto-response.

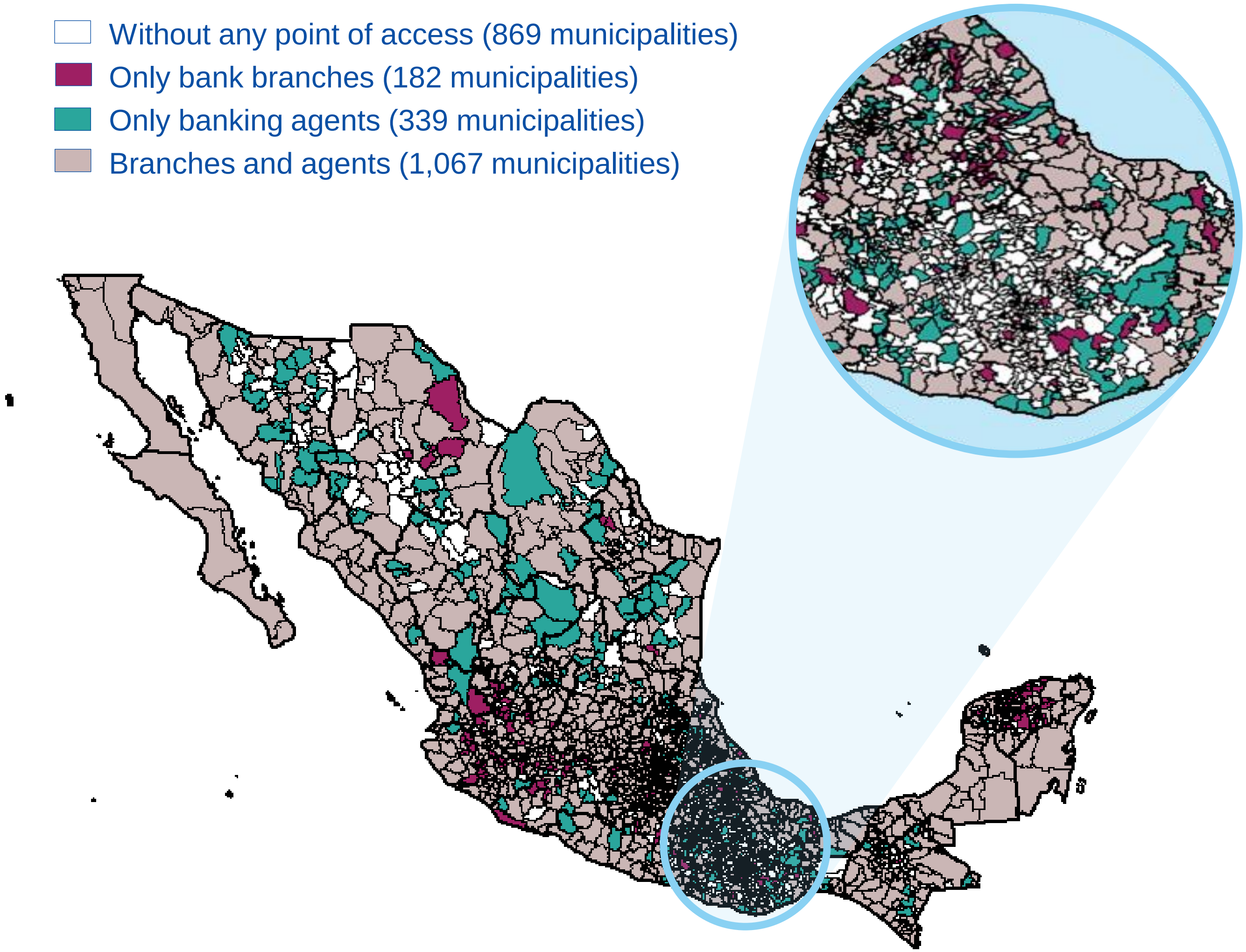
3. We evaluate the impact on saving and taking out microinsurance.

Designing the treatment

Timing	Message	Focus	Context	Message
Weekly, same time of same day	Regular saving is key to being able to meet future expenses or unexpected contingencies. We suggest making a payment into your account every week as a saving. A tip from Bancomer	**Saving**	**Gain**	If you make weekly deposits into your account, your life will be easier and you will avoid problems. A tip from Bancomer
			Neutral	Remember to make a weekly deposit into your current account. A tip from Bancomer
			Loss	If you do not make weekly deposits, you could run into problems in dealing with your expenses (or have to resort to borrowing at greater cost). A tip from Bancomer
Weekly, same time of same day	Visit your Oxxo supermarket or your petrol station to do your banking conveniently, without fuss and securely. A tip from Bancomer	**Channel**		

Diagnostic research. Using Big Data to chart financial inclusion in Mexico

- Without any point of access (869 municipalities)
- Only bank branches (182 municipalities)
- Only banking agents (339 municipalities)
- Branches and agents (1,067 municipalities)



Administrative data

+

Financial inclusion surveys

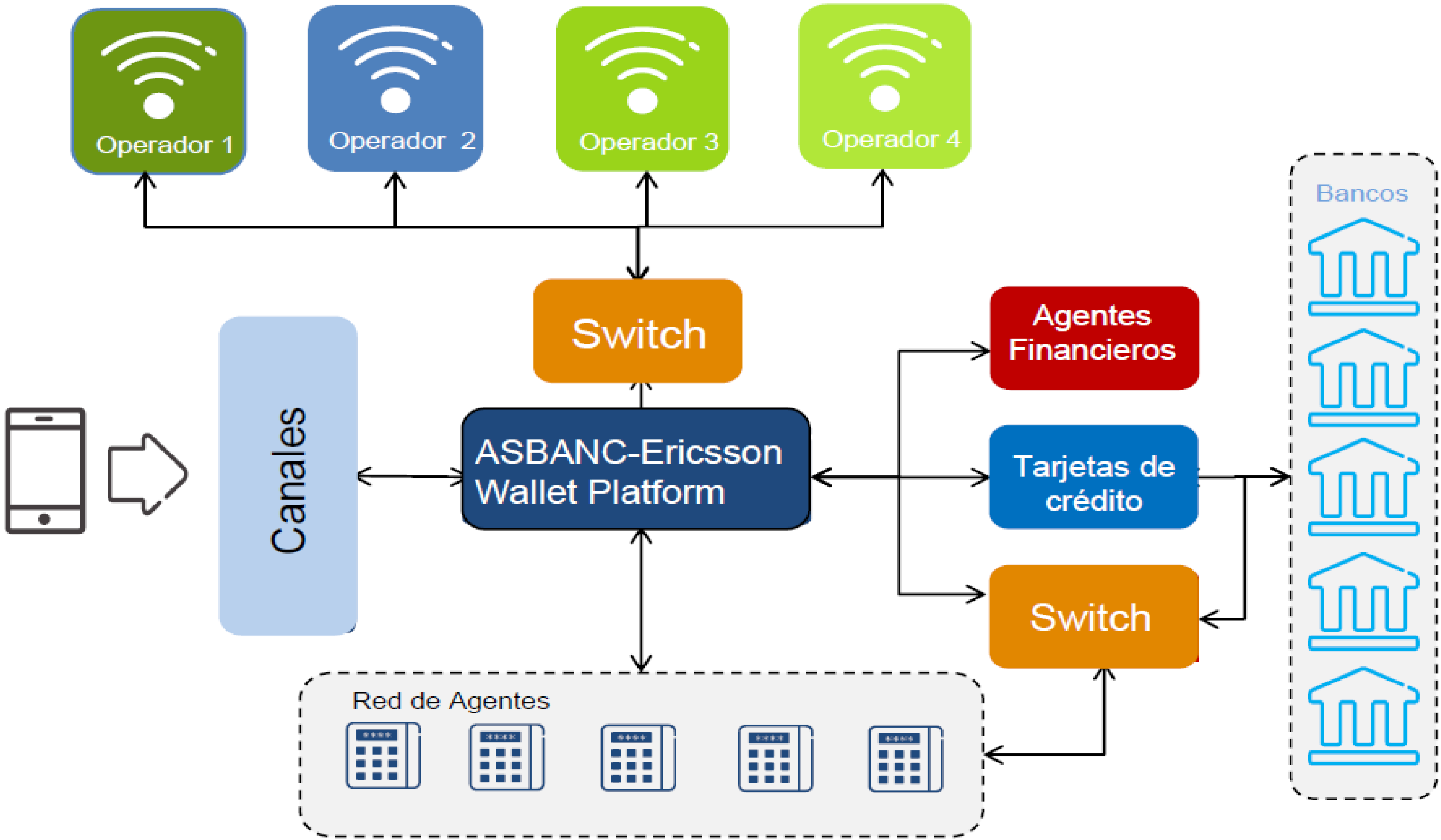
+

BBVA database

=

Assessment of FI on a micro-area level

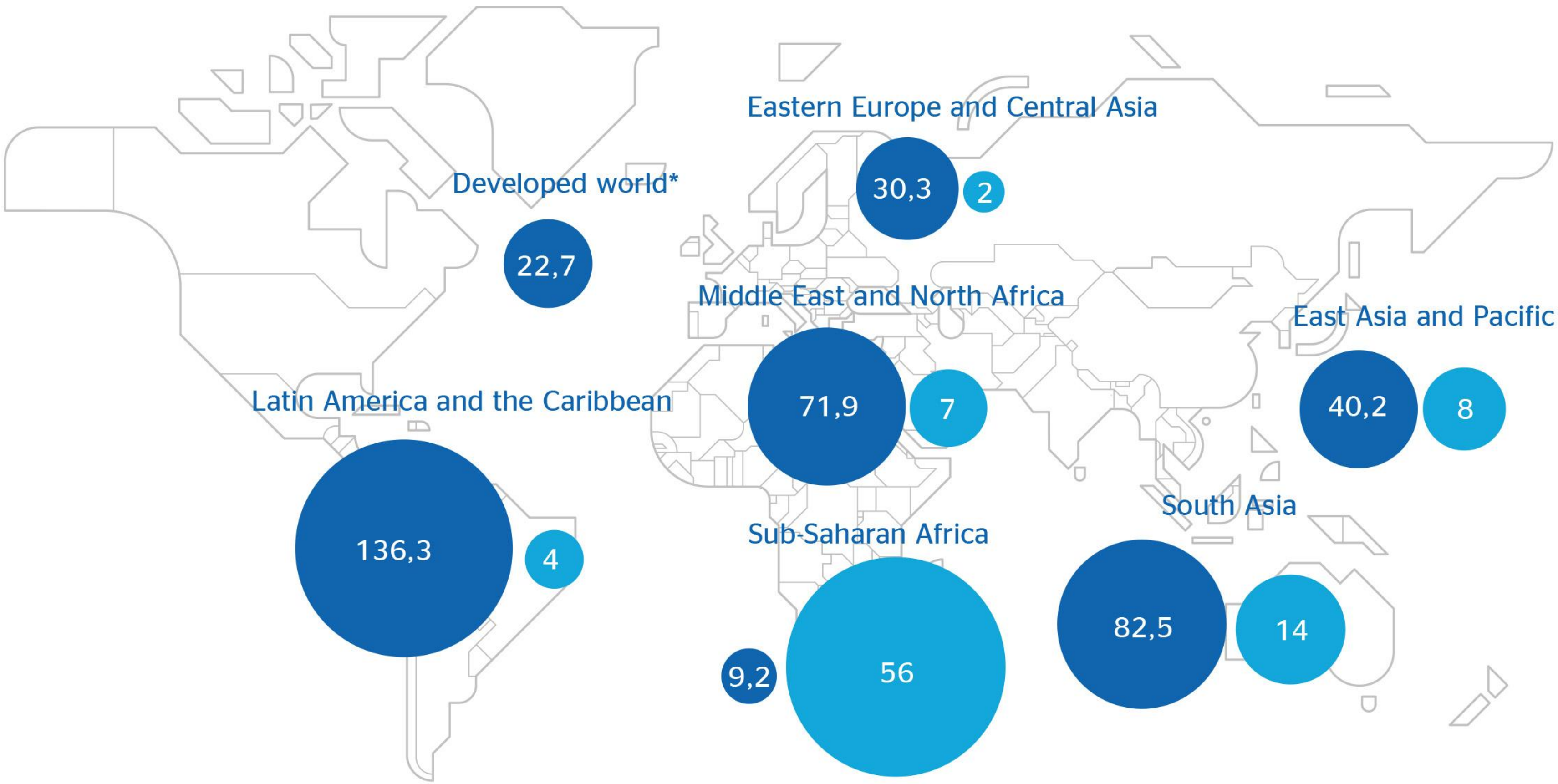
FI and financial intermediation tools: e-money



Apertura de cuenta de DE / Cash in / Cash out / Recargas de minutos

Source: Asbanc – Association of Banks of Peru – "The Peru Model for electronic money"

FI and financial intermediation tools: e-money, banking correspondents and FI

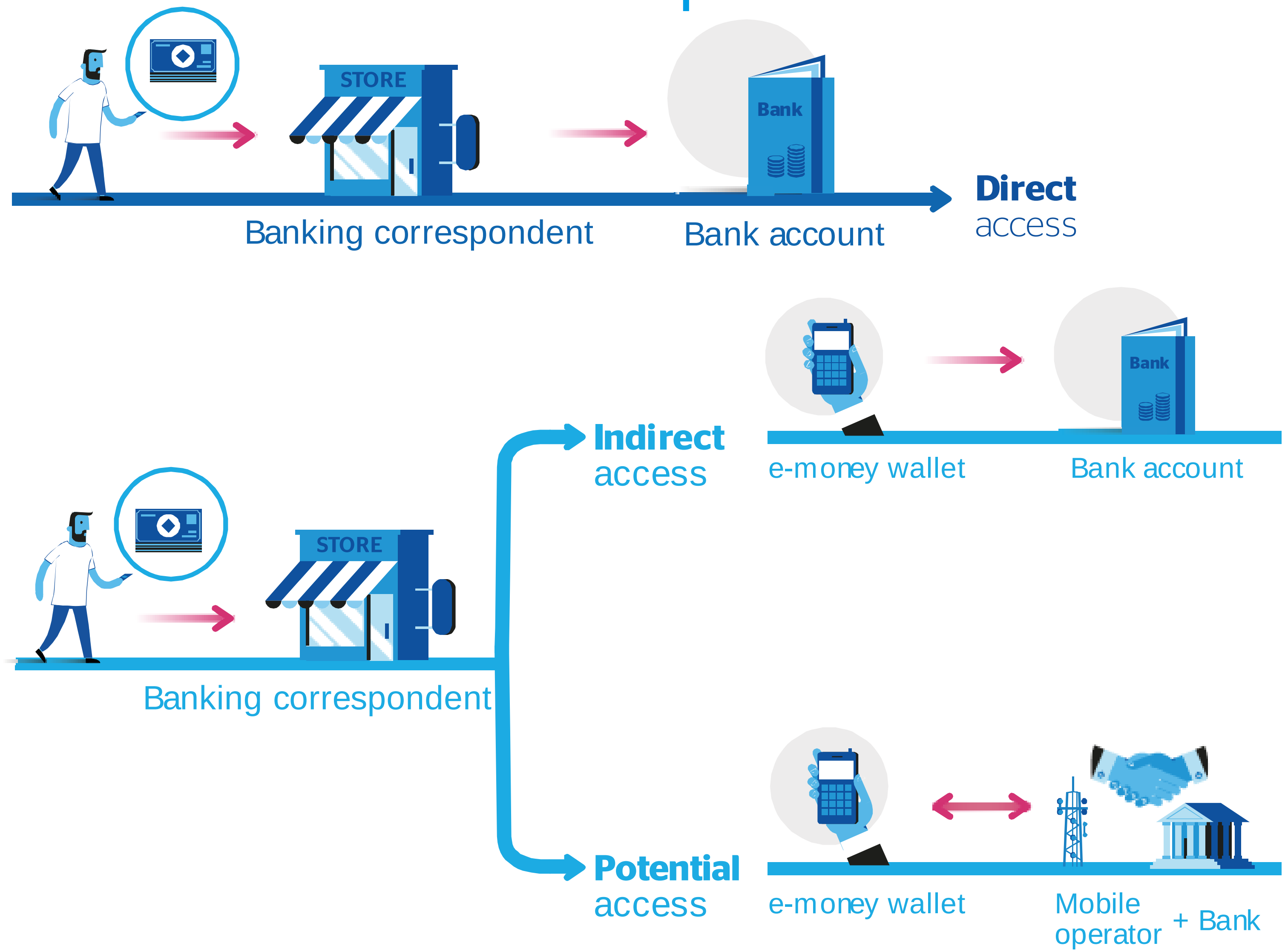


● Pure banking correspondents per 100,000 adults

● Number of e-money products that may be potentially distributed by hybrid banking correspondents

*Developed world comprises Australia, Canada, United States, New Zealand and Western European countries

FI and financial intermediation tools: e-money, banking correspondents and FI

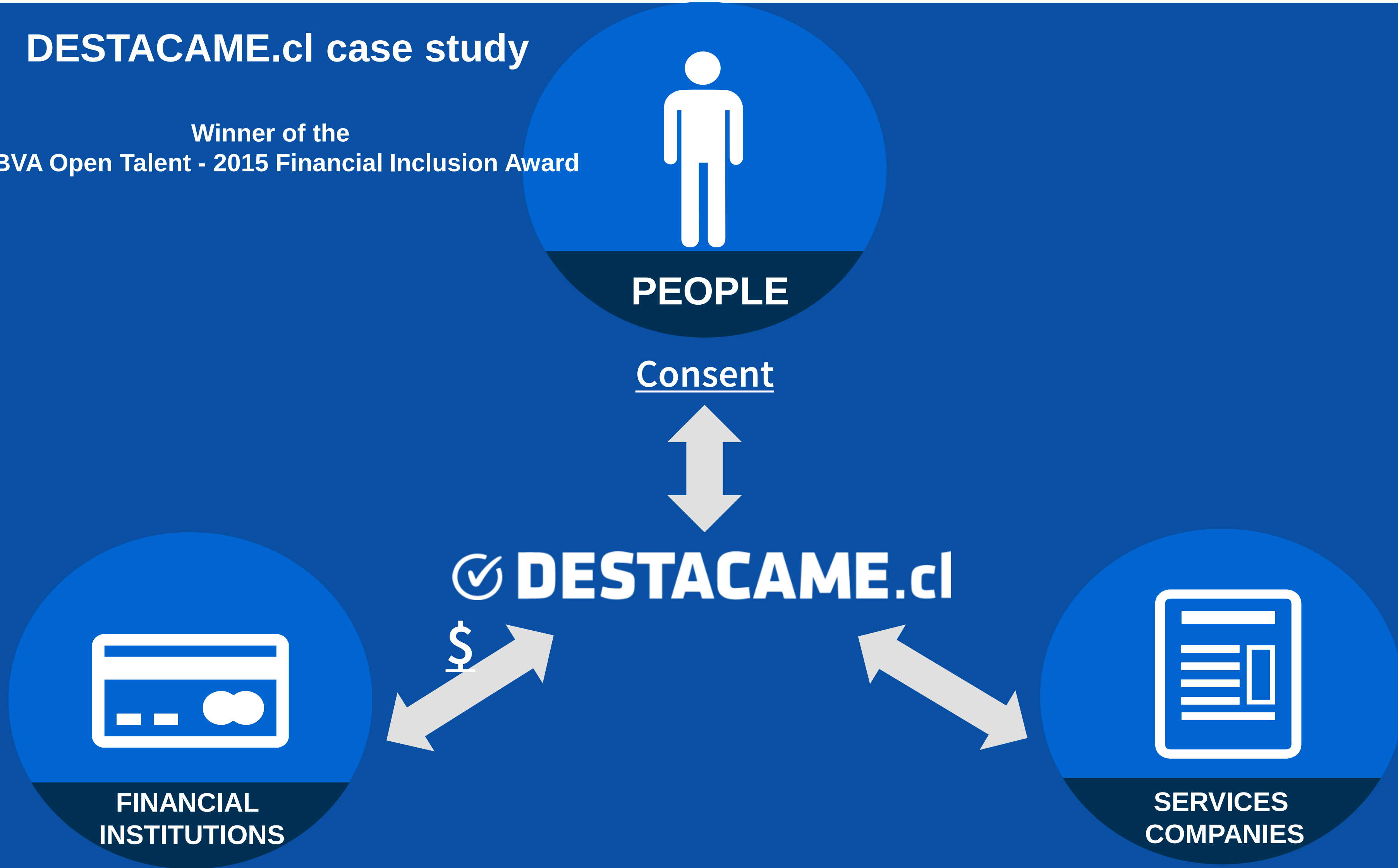


BBVA | RESEARCH

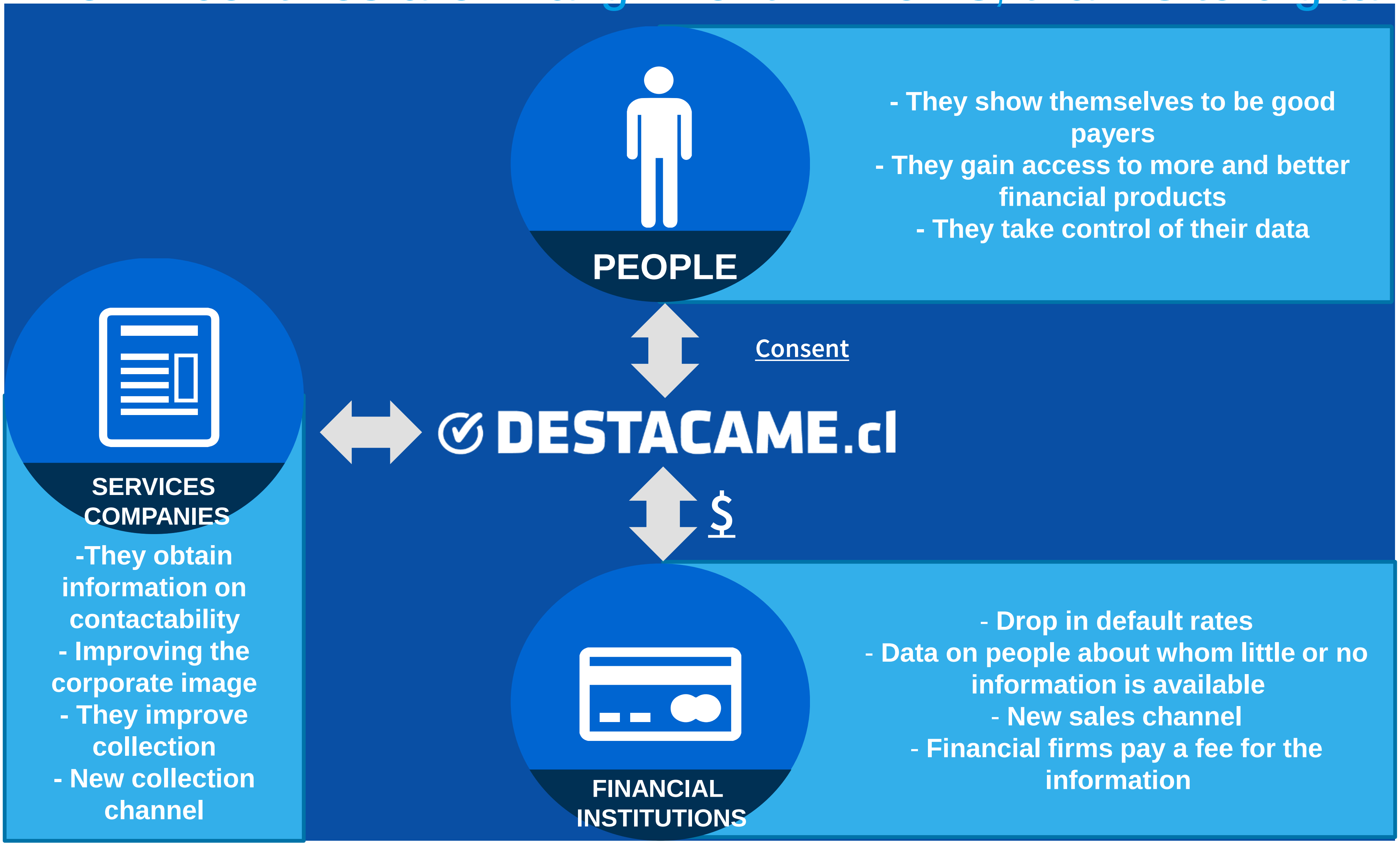
Improving access to credit using utility bills, thanks to digital technology

DESTACAME.cl case study

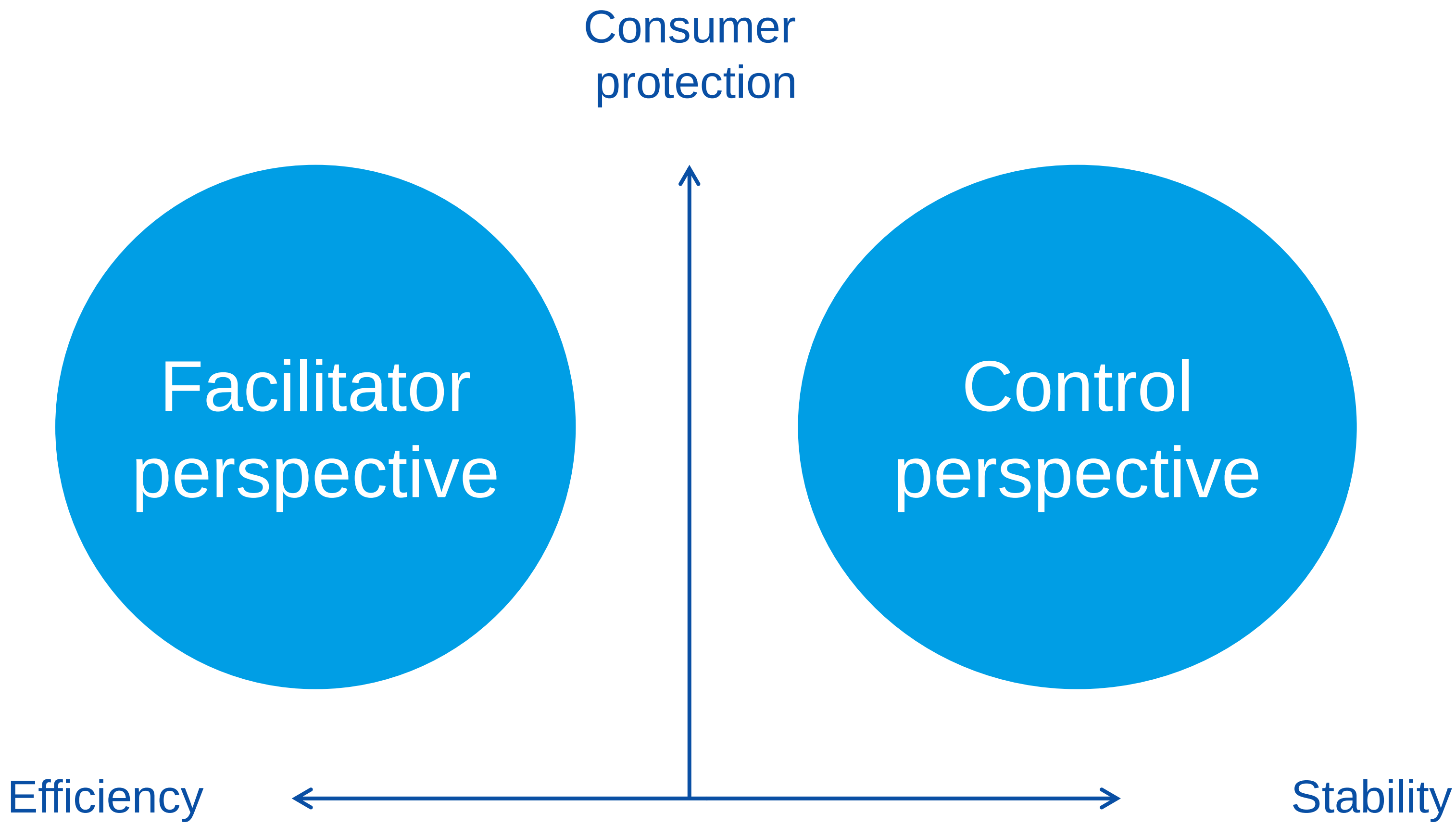
Winner of the
BBVA Open Talent - 2015 Financial Inclusion Award



When incentives are in alignment FI works, thanks to digital

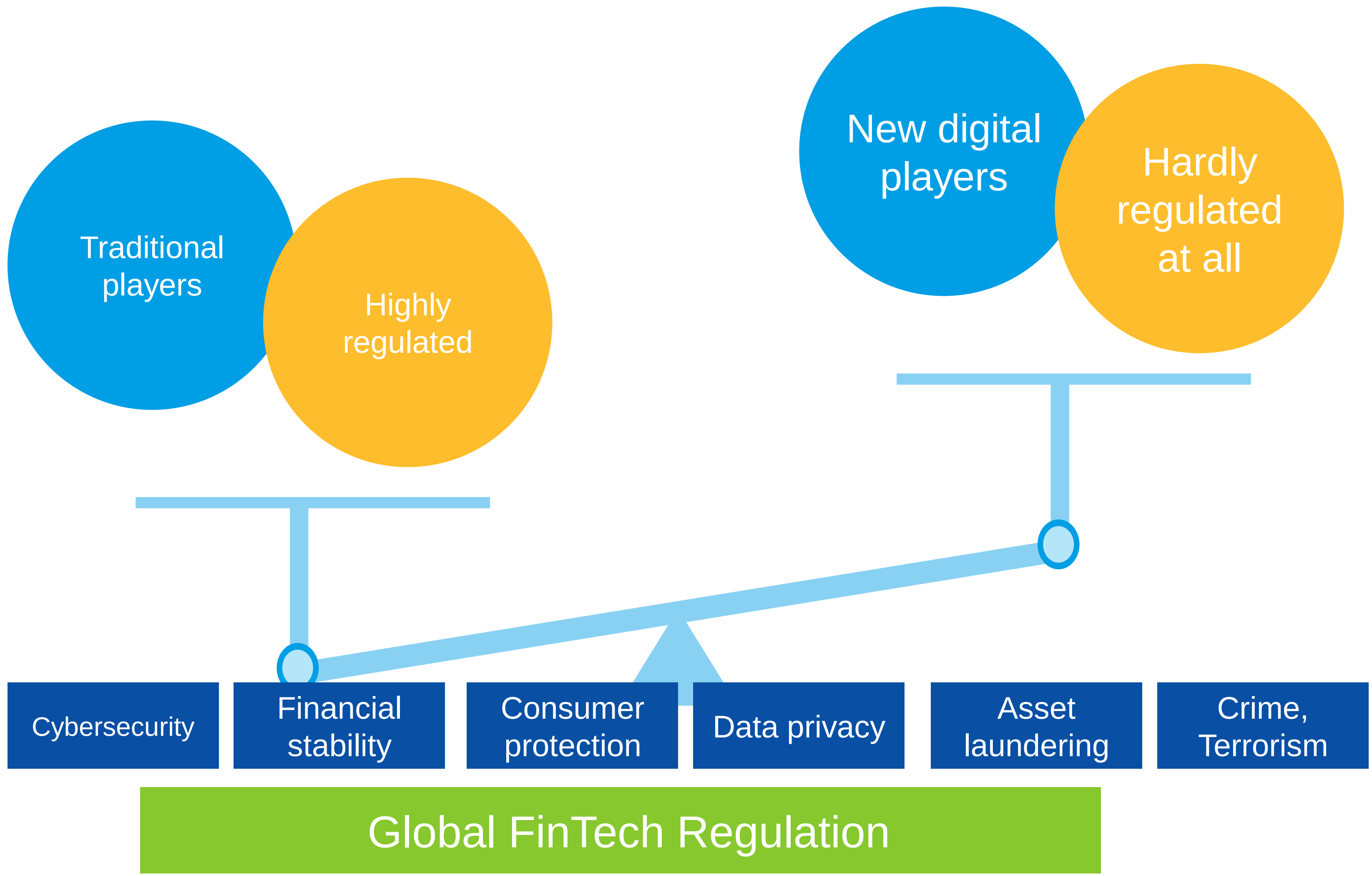


Financial Inclusion and RegTech



A very delicate balance

Financial Inclusion and RegTech

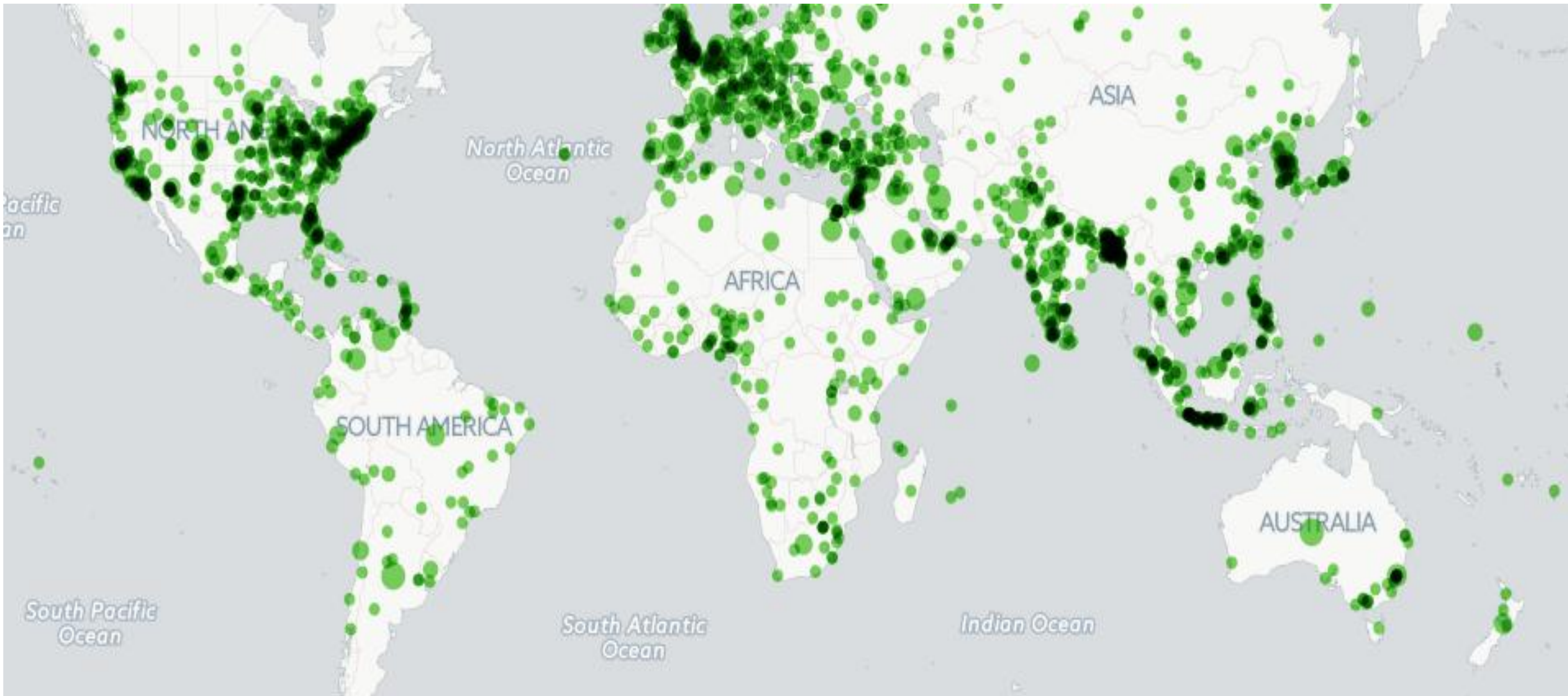


BBVA

Financial Inclusion laws – e-money
Regulatory comparative analysis for LatAm

	Colombia (2015)	Paraguay (2014)	Peru (2013)	Uruguay (2014)
Prudential capital requirement for issuers (% over e-money balances)	2%	No	2%	No
Amount limits to balances and transactions	Only for simplified accounts	Yes	Yes (standard accounts: only limit to transactions)	Not specified
Interest payable on deposits	Allowed	Not allowed	Not allowed	Not allowed
Funds are directly covered by the Deposit Guarantee Scheme	Yes	No	No	No
Type of assets in which issuers must hold the raised funds	Bank deposits	Bank deposits	Bank deposits, government securities (up to 30%) or other authorised liquid assets	Bank deposits, government securities or other authorised liquid assets

Cybersecurity is crucial!



Source: BBVA Research

5 Closing comments

Closing comments

- Digital is key within the financial inclusion eco-system
- Digital FI influences the financial inclusion process cross-sectionally. Its ripple effect will increase
- Digital allows scalability and draws in a wide variety of players, both financial and non-financial
- There are already interesting products with the potential to revolutionise services
- Regulation has become a key issue in the progress of FI, in terms of both quantity and quality

RESEARCH

Thank you

david.tuesta@bbva.com