

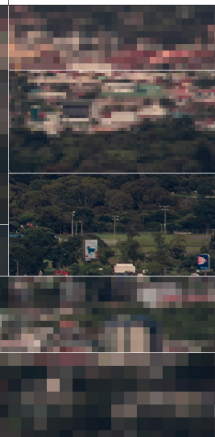
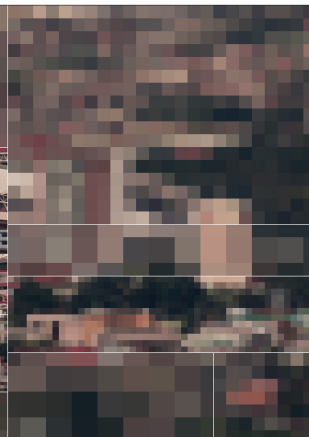
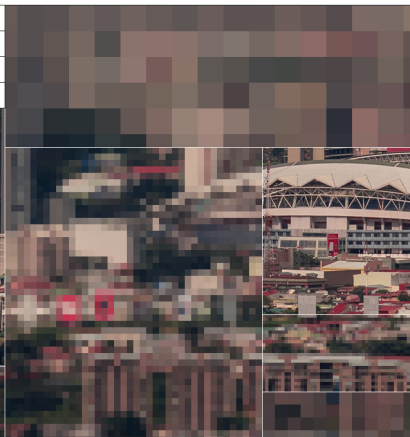


Costa Rica

Index Score **33,41**

Ranking **8**

5.180.829 / Population
 12.472,44 USD / GDP per capita
 0,37 / % allocated to R&D
 0,809 / Human Development Index (HDI)



Infraestructre Average	53,72	Data Availability Average	30,51	Talent Development Average	30,86
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Enabling Factors Average					38,37
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Research Average	53,98	Innovation and Development Average	14,35	Adoption Average	42,27
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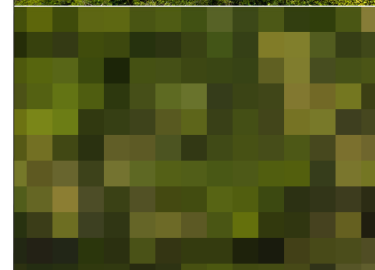
Research, Development and Adoption Average					36,87
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International Vinculation Average	75,00	Vision and Institutionalidad Average	0,00	Regulation Average	50,00
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Governance Average					41,67
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OVERALL SITUATION

Costa Rica has strengths in some enabling factors for AI ecosystems, such as devices and data centers. However, challenges and opportunities exist in advanced human capital formation, research, R&D and private sector adoption of AI. It is crucial that Costa Rica move towards the formulation of a national AI strategy and drive collaboration to fully harness its potential. The migration of talent is greater than in the rest of the region, and several Latin American countries and Spain stand out among the countries of collaboration and destination.

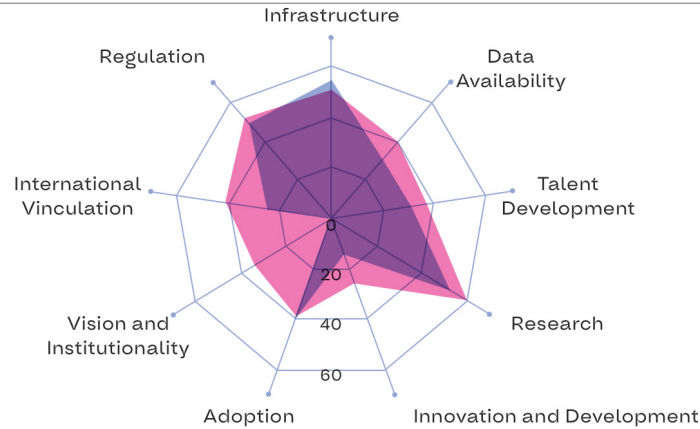


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Costa Rica
Latam



Graph CRI1

GENERAL FINDINGS

In terms of infrastructure, Costa Rica has a high proportion of the population with Internet access. However, it is below the regional average in terms of average download speed and has not yet implemented 5G technology. In the area of computing, it is below the Latin American average in the cloud sub-indicator, but has at least one supercomputer and has a number of data centers above the regional average. This implies the existence of opportunities to leverage infrastructure to boost the development of AI in the country. In terms of devices, Costa Rica has the highest normalized number of mobile device subscriptions. However, the percentage of households with computers is at the average for Latin America. In the data barometer, Costa Rica is below the Latin American average in all indicators, indicating that there is room for improvement in terms of availability, capabilities, governance, and use and impact of data to empower AI development.

In terms of talent development and AI literacy, Costa Rica has ICT courses in the school curriculum, but there are no open courses in Artificial Intelligence, which represents an opportunity to strengthen human capital formation in this area.

In the area of professional training in AI, the country has no undergraduate programs in the best universities in the region. In addition, indicators of technological skills in the workforce and disruptive technological skills are below the Latin American average.

In terms of advanced human capital, Costa Rica registers a Master's program in AI, but no PhD in Computer Science or AI, which is reflected in a low number of MSC and PhD graduates compared to the Latin American average. Promoting the creation of graduate programs associated with AI represents an opportunity to take advantage of the high number of graduates in computing and train advanced human capital in the field.

In the field of research, Costa Rica is at the average in terms of AI publications and active AI researchers. However, the impact of AI research is relatively low considering that it has only one AI research center. In terms of R&D and development, it shows a high performance in the open source productivity sub-indicator, exceeding the Latin American average, which contrasts with the fact that open source quality and the number of patents are below the regional average.

In the area of innovation, it stands out in government promotion of investment in emerging technologies, as it is above the regional average. For the rest of the indicators, there is no direct data available for the country.

In the area of governance, Costa Rica has opportunities to strengthen its vision and institutional framework for AI. Currently, the country does not have a strategy in place. However, in the international arena it stands out for its participation in international committees, as well as for its subscription to multilateral documents that propose regulatory frameworks for AI. All this can be used to strengthen and generate its own AI strategy. Costa Rica stands out for having specific regulations on cybersecurity, data protection, etc., in addition to the existence of regulatory experimentation initiatives, although it lacks specific AI regulations.

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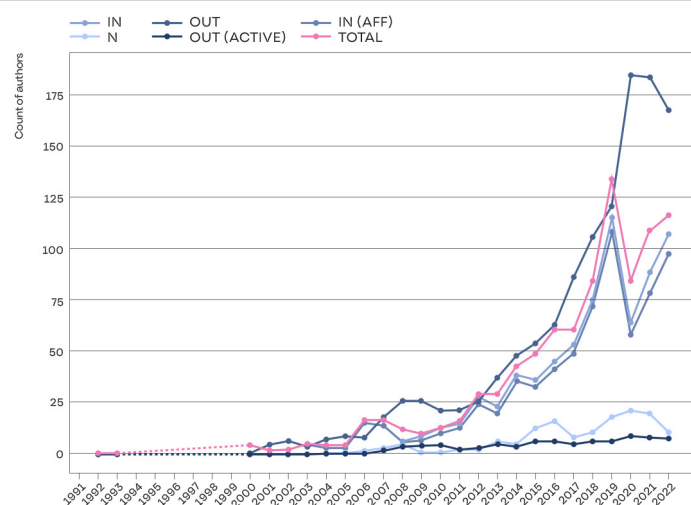
 Ranking **8**

TALENT DRAIN:

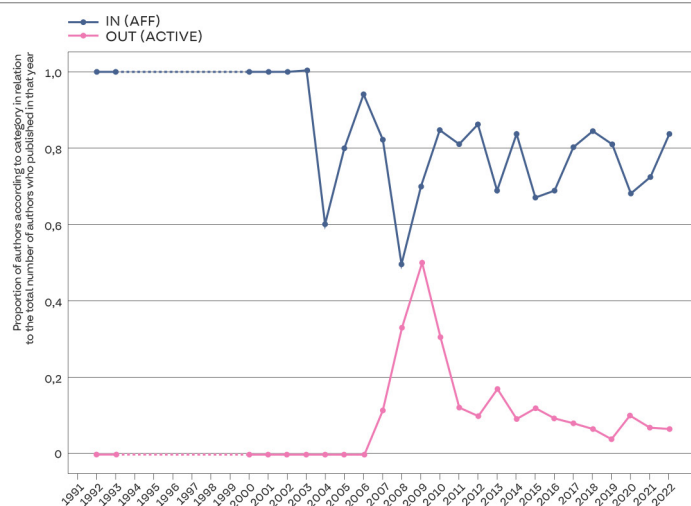
It is important to consider that the curves of the talent drain graphs for Costa Rica present a more irregular behavior than for other countries in the region, since the net values of male and female authors are low. In any case, it is clear from the CRI2 graph that the talent drain in IA is not noticeable, it is less than that of the rest of the elements of analysis (out-active). We note that the number of authors was almost nil until 2003, only exceeding 25 authors in 2012 and only 2 publications in the 1990s (total).

The authors who constantly publish in AI are few, although they have increased throughout the series, in its highest year, 2020, only reaches 21 (N), which suggests the need for the country to strengthen its publications and generate AI research centers to increase its scientific community. The number of authors consistently publishing in AI has increased marginally since 2012, except for a couple of years when the number is maintained or declines (N). In addition, those who published in other nations and start publishing in Costa Rica (in-aff) increase notably until 2019, a similar trajectory that is reflected for those who publish for the first time in IA (In). On the other hand, since 2011 the number of authors who integrate AI concepts in their publications has been increasing (out), reaching 175, the highest number in the series, which indicates an upward direction of transdisciplinarity in AI (see Graph CRI2).

Talent migration: Costa Rica / Graph CRI2



Talent migration: Costa Rica / Graph CRI3



Bearing in mind that the mobility of few authors strongly impacts the proportion of the curves in Graph CRI3, we observe that the proportion of authors who had not published in the region and who do so in the year of analysis is high, reflecting the importance of foreign influence (in-aff). On the other hand, we see that the proportion of talent drain is marginally higher for Costa Rica than for the region's average, especially between 2007 and 2016, but decreases over the years (out-active), remaining relatively stable at around 10% between 2016 and 2022 (see Graph CRI3).

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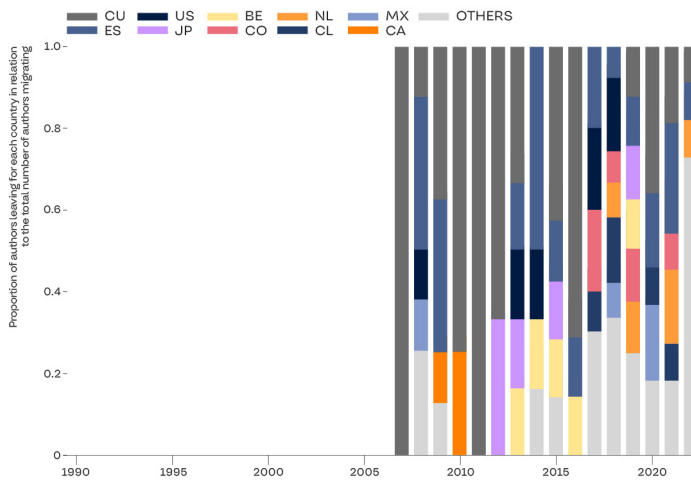
TALENT DRAIN:

Regarding the origin and destination of the authors, the importance of Spain and Cuba can be observed, both for those who arrive and those who leave, even above the importance of the USA. In this sense, collaboration and destinations within Latin America are relevant for Costa Rica, for those who arrive and those who leave; among these destinations, Cuba, Mexico, Chile and Colombia stand out.

It is important to note that the importance of countries such as Spain has not decreased as for the rest of the region, in fact, the countries that have decreased have been some of Latin America and Portugal. On the other hand, we see that the entry and exit of authors to and from China does not appear, as does another Asian country, Japan.

The migration patterns described for arrivals are similar to those for departures, i.e., as at the regional level, most of the incoming authors come from countries to which the authors had previously left, except that those arriving from Spain are many more than those migrating there. The phenomenon of destination diversification in Costa Rica is becoming much more important over time, especially for those who leave the country.

Talent migration: Where are the authors that published in Costa Rica going? / Graph CR4



Talent migration: Where are the authors that published in Costa Rica going? / Graph CR5

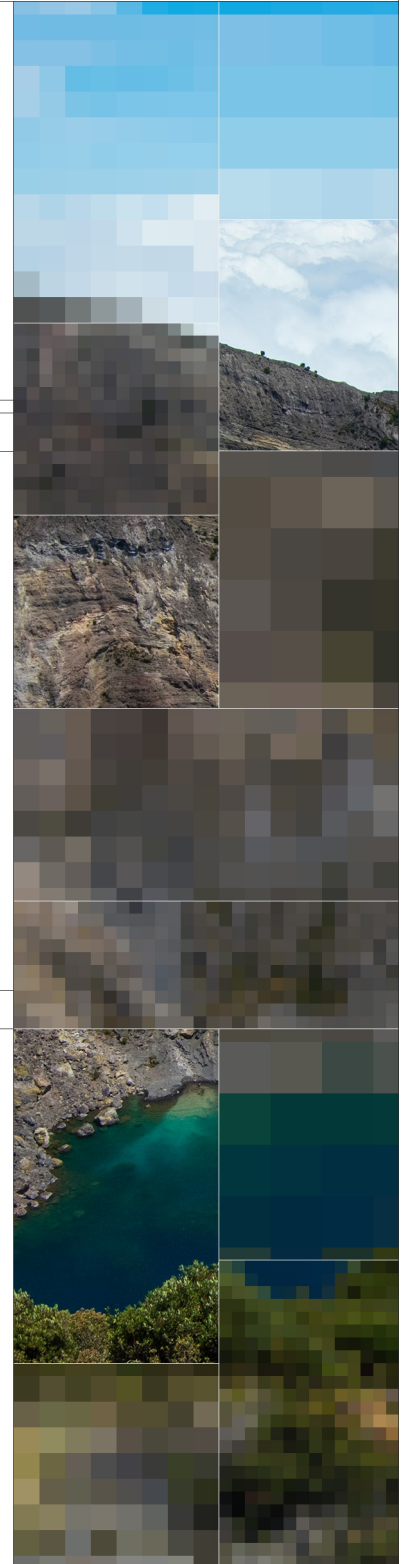
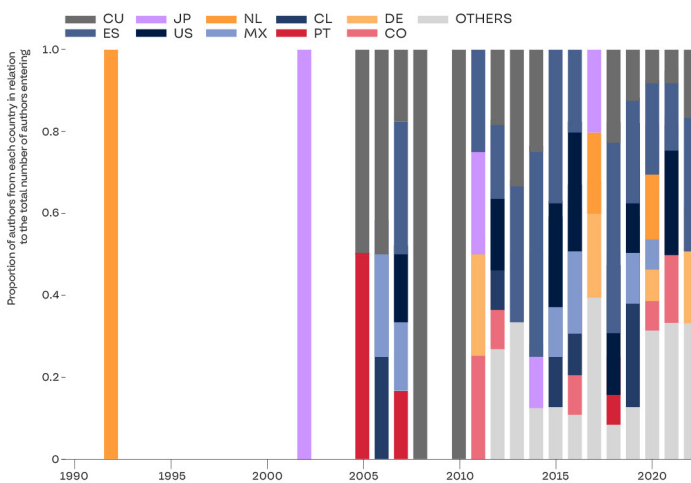


TABLE CRI 1 Summary of scores and ranking in each sumdimension and indicators for Costa Rica

Dimension	Subdimension	Indicators	Costa Rica	LAC Average	Ranking
Enabling factors	Infrastructure	Conectivity	36,021	56,320	9
		Computing	49,659	33,725	2
		Devices	75,500	63,597	3
	Infrastructure average		53,727	51,214	6
	Data	Data barometer	30,518	39,800	11
	Data availability average		30,518	39,800	11
	Talent development	AI literacy	37,500	48,958	4
		AI professional formation	32,080	33,888	6
		Advanced human capital	23,018	28,053	5
	Talent development average		30,866	36,966	8
Enabling factors average		38,370	42,660	8	
Research, development and adoption	Research	Research	53,989	58,471	8
	Research average		53,989	58,471	8
	Innovation and development	Development	24,584	24,768	6
		Innovation	4,128	24,684	10
	Innovation and development average		14,356	24,726	8
	Adoption	Use of AI in companies	13,960	25,798	5
		Public promotion of AI	70,599	50,734	4
Adoption average		42,279	38,266	5	
Research, development and adoption average		36,875	40,488	6	
Governance	Vision and institutionality	AI Strategy	0,000	35,417	8
		Social involvement	0,000	21,875	5
		Institutionality	0,000	43,750	2
	Vision and institutio-nality average		0,000	33,681	8
	International vinculation average		75,000	45,833	2
	Regulation average		50,000	54,167	3
Governance average		41,670	44,560	7	
AI Index		38,970	42,615	8	