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EL AUGE DE INSTAGRAM, LA CAÍDA DE X Y EL RECHAZO A LA IA GEN

Un estudio sobre imágenes publicadas por universidades españolas

The rise of Instagram, the fall of X and the reject of AI Gen.
A study of images published by Spanish universities.

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PALABRAS CLAVE

X
Instagram
IA
Universidades
Comunicación corporativa
Branding
Comunicación Audiovisual

RESUMEN

Este estudio analiza las imágenes de las redes sociales de las principales universidades españolas. A partir de un análisis de contenido de sus cuentas de X e Instagram, se examina cuantitativamente el rendimiento de sus publicaciones con imágenes, la adopción de imágenes con Inteligencia Artificial Generativa (IA Gen) y su correlación con indicadores de engagement (likes, comentarios, compartidos y visualizaciones). Los resultados sugieren que las imágenes con elementos generados por IA son penalizadas por las audiencias y que existe una migración de X hacia Instagram.

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1. Introduction

On December 15, 2025, the University of Granada shared a Christmas video to wish everyone a Merry Christmas under the title *Because there are still many stories to tell* (UGRMedia, 2025). This video has 6,940 views and 85 *likes*. It narrated the visit of a grandmother and her grandson to the university library, where, as if by magic, the characters in the paintings and the objects in the exhibitions came to life. This video was the first institutional footage made by a Spanish public university that produced its special effects using Generative Artificial Intelligence (Gen AI).

The adoption of Gen AI in the communication images of Spanish universities touches the heart of the Open Science (OS) paradigm (De Giusti, 2022), which seeks to make scientific knowledge openly available, accessible, and reusable, and encourages institutions to change evaluation practices to include alternative metrics and adhere to CoARA. In this context, the use of Gen AI images by universities as public actors can have a dual effect. On the one hand, it can legitimize Gen AI as a narrative tool. By using its symbolic authority, the university validates the use of Gen AI, incorporating it into the Design and Application of Social Action phase proposed by Polcuch (2000) for the science communication process. On the other hand, it can pose a risk to authenticity and trust.

This tentative study takes this paradigm shift as a starting point for reflection on the images shared by universities on their social networks. It takes advantage of the milestone set by the University of Granada to quantify the use of Gen AI in still images from other Spanish universities—to see if their strategy is a precedent, a representative event, or an isolated act—and analyze their *engagement* indicators on social media platforms X and Instagram.

The objective of this research is to answer the research question: What is the state of institutional communication on social media at public and private universities in our country?

1.1. Justification

Institutional communication by Spanish companies and institutions is undergoing a period of strategic redefinition, marked by the transition from text-based platforms—blogs, Twitter, Facebook—to predominantly visual environments—Instagram, TikTok—in a historical context marked by the democratization of AI.

In this regard, it is necessary to establish clear metrics on performance and *engagement* in a saturated social media ecosystem (Losada Díaz, Rodríguez Fernández, and Paniagua Rojano, 2020). On the other hand, analyzing the use of Gen AI on X and Instagram platforms will advance our understanding of how the incorporation of knowledge—images generated by AI systems—is managed in the institutional communication process (Polcuch, 2000), providing quantitative data for a debate that has so far been purely conceptual.

Therefore, the relevance of this study is based on three main axes: the emergence of Instagram as a channel for institutional communication, the use of Gen AI in content production, and the lack of scientific literature on the application of both to the Spanish university environment.

1.2. The university as a key player in the communication and social impact of science

Analyzing the impact of science and technology (S&T) on society is a complex exercise that requires a multilevel (Albornoz, 2002) and systemic (Milanés Guisado et al., 2010) approach. The university, as the main generator of knowledge, is part of this system as a key player whose role is to produce and disseminate S&T knowledge (Albornoz, 2002).

However, effective social impact is associated with a lasting change or set of changes in society (Milanés Guisado et al., 2010), and only occurs if the knowledge is used by people (Polcuch, 2000). In the current context, social networks—in the case of this research, X and Instagram—are fundamental tools for communication and public understanding of science. Institutional communication by universities through these platforms seeks to stimulate demand

and the effective use of knowledge (Polcuch, 2000). The ultimate goal is for science—and higher education—to fulfill its social mission (Milanés Guisado et al., 2010) and contribute to the solution

of social problems. However, it should not be forgotten that beyond this function of disseminating knowledge and transparency, universities are still institutions—and businesses, in the case of private universities—that seek to attract students and talent, and as such, they use their social media channels to communicate their activities and services.

1.3. X and Instagram in university corporate communication: evaluation of communication performance using altmetrics

Twitter, now X, was for years the tool of choice for disseminating academic and management information due to its immediacy (Gómez Calderón and Paniagua Rojano, 2014). The recent rise of Instagram has transformed university communication into a visual and aspirational experience. Alcolea Parra *et al*. highlight that private universities, in their eagerness to attract students in a competitive environment, have led the adoption of Instagram, achieving a total presence and demonstrating that image is the main vehicle for connecting with younger audiences (Alcolea de Parra, Blanco, and Román Portas, 2020). However, this management often lacks specialized resources or robust strategic plans, which justifies the need to analyze whether the quality and type of image—including those from AI Gen—are responding to a planned strategy or a reactive response to the market.

The challenges of measuring the social impact of universities are complex and include the multidimensionality (Milanés Guisado et al., 2010) and multicausality (Milanés Guisado et al., 2010) of social change, which makes it difficult to isolate the specific effect, in this case, the impact of university dissemination in areas such as science and technology (Milanés Guisado et al., 2010). In response, international initiatives such as CoARA (*Coalition for Advancing Research Assessment*) have emerged—an update of the former San Francisco Declaration on Research Assessment (DORA). Since 2023, Spain has had a working group [a *National Chapter*] that brings together agencies, universities, and research centers to coordinate this transition— and the Leiden Manifesto, which recommend not only using citation-based metrics to assess the impact of science on society (Calò, 2022; De Giusti, 2022), but also expanding to other alternative metrics such as altmetrics in the digital communication environment.

Altmetrics focus on the attention and dissemination of scientific content outside traditional academic spheres, towards channels such as blogs and social networks, and are characterized by the speed with which they capture dissemination. Among these altmetrics, *engagement* indicators—*likes*, comments, shares, and views—stand out, whose objective is to evaluate the demand and reach of the content. For this reason, this research is based on altmetric quantification.

2. Design and method

This tentative and quantitative study is based on a descriptive-correlational design. It is descriptive because it aims to characterize the frequency, type, and aesthetics of the images shared by the institutions. It is correlational because it seeks to establish the relationship between a series of specific *engagement* indicators.

The study universe comprises the official accounts of Spanish universities active on the social networks X and Instagram. The sample is non-probabilistic for convenience and institutional diversity, with the aim of including a representation of public and private universities from various autonomous communities, thus ensuring the heterogeneity of communication approaches. The selected sample—chosen based on its positioning on each social network—is composed of 19 Spanish universities (10 public and 9 private), whose official profiles on X and Instagram are the subject of analysis.

Table 1. Sample of public universities and their X and Instagram accounts.

		XInstagram
Polytechnic University of Valencia (UPV)	@UPV	@upv
University of Alicante (UA)	@UA_University	@ua_university
University of Navarra	@unav	@universidaddenavarra
University of Salamanca (USAL)	@usal	@usal
Complutense University of Madrid (UCM)	@unicomplutense	@universidadcomplutense
Autonomous University of Barcelona (UAB)	@UABBarcelona	@uab_barcelona
Autonomous University of Madrid (UAM)	@UAM_Madrid	@uam_madrid
University of Valencia (UV)	@UV_EG	@uv_estudiants
Carlos III University of Madrid (UC3M)	@uc3m	@universidadcarlosiiidemadrid
University of Malaga (UMA)	@InfoUMA	@infouma

Source: own elaboration.

Table 2. Sample of private universities and their X and Instagram accounts.

	X	**Instagram**
IE University	@IEUniversity	@ieuniversity
University of Navarra	@unav	@universidaddenavarra
Comillas Pontifical University	@ComillasUni	@comillasuni
CEU San Pablo University	@CEUSanPablo	@ceusanpablo
Alfonso X el Sabio University (UAX)	@uaxuniversity	@uaxuniversidad
International University of La Rioja (UNIR)	@uniruniversity	@uniruniversity
CUNEF University	@CUNEFU	@cunefuniversity
European University of Madrid	@UEuropea	@ueuropea
U-TAD | University Center for Technology and Digital Art	@U_tad	@u_tad

Source: own elaboration.

The unit of analysis is the institutional publication (tweet and *post*) that includes fixed visual content: photography, illustration, infographics, or graphic design. A specific observation period of two months is established: from September 1 to October 31, 2025.

A specific coding table has been designed for the content analysis of the collected data (Appendix 1), which includes the following variables and categories:

1) Identification variables (platform, university, and date).
2) Aesthetic and origin variables (use or non-use of AI Gen).
3) Communicative performance variables were the *Key Performance Indicators* (KPI) of the altmetric analysis for each social network:
    a. On X: number of account followers, number of comments, number of *likes*, number of retweets, number of saves, and number of views.
    b. On Instagram: number of account followers, number of comments, and number of *likes*.

Based on this data, the *Engagement Rate* (ER) per social network was calculated using the following formula:

$$ER = \frac{Interacciones\ (Likes + Comentarios + Compartidos)}{}$$

$$\frac{Seguidores}{} x100$$

The rigorous definition of the category "Use of AI Gen: Yes/No" ensures the reliability of the content analysis. This dichotomous variable will be classified as "Yes" if the image analyzed meets at least one of the criteria detailed in the definition of operations in Annex 2, which combines the detection of technical artifacts with the perception of semantic ambiguity proposed by Velásquez- Salamanca et al. (2025). This inter-rater coding process to ensure reliability in the identification of AI-generated images involves comparing the results of the analysis in Annex 2 with a search on Google Images and another using Undetectable AI software, which is capable of detecting images created using Midjourney, DALL-E, Google's NanoBanana, and other AI image generators. In this study, images with a reality percentile in this software greater than 95% are considered real.

This analysis was performed manually, analyzing each link one by one. Please note that the number of followers on X and Instagram is an average, as the network indicates the thousand using the letter K without a precise number. For example: 19,526 followers would be represented as 19.5K followers.

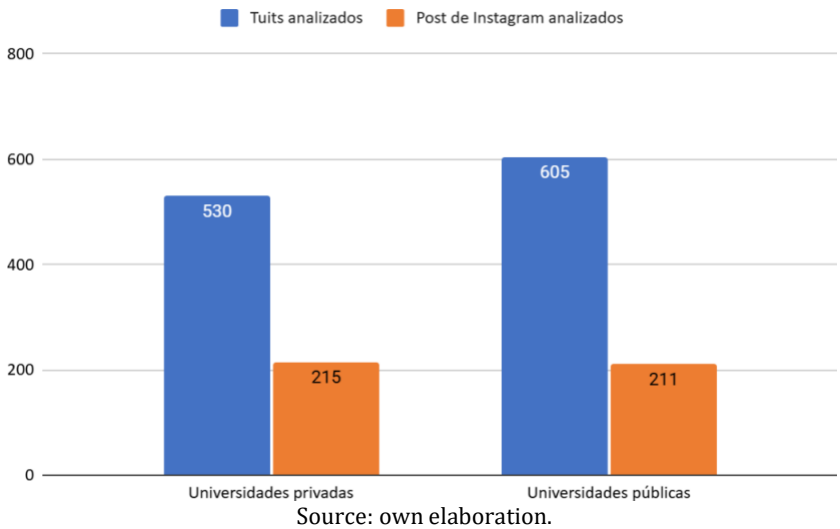
Decimals are truncated.

3. Fieldwork and data analysis

During the analysis, two public universities and one private university had to be excluded. The Autonomous University of Barcelona deactivated its X account in February 2025 (@UABBarcelona) and the University of Barcelona (@UniBarcelona) did so on November 20, 2024. Their profiles still have 59,500 and 77,700 followers, respectively, and retain the content published to date in the Catalan language. The private university UOC Universitat (@UOCuniversitat), whose posts are no longer public, still retains its 39,500 followers.

A total of 1,135 tweets from X and 426 Instagram posts from the accounts of other Spanish public and private universities were analyzed.

Figure 1. Comparison between the sample of tweets and posts analyzed on X and Instagram.



Source: own elaboration.

Table 3. Sample of public and private universities, tweets and posts analyzed, and average number of followers on X and Instagram.

University	RankTweets (X)	Posts (IG)	X followers	IG Followers
IE University (IE)	Private9	13	19,500	165,000

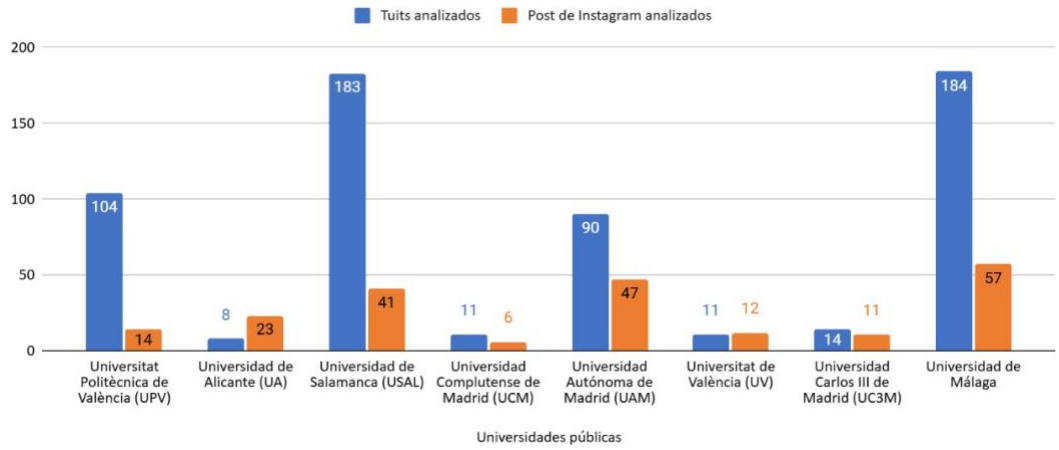
University of Navarra (UNAV)	Private65	23	52,600	82,300
Comillas Pontifical University (Comillas)	Private35	5	14,300	21,400
CEU San Pablo University (CEU)	Private5	8	15,100	39,300
Alfonso X el Sabio University (UAX)	Private62	10	11,000	46,000
International University of La Rioja (UNIR)	Private304	106	42,200	248,000
CUNEF University (CUNEF)	Private11	16	3,966	13,400
European University of Madrid (UEM)	Private28	17	44,400	86,800
University Center for Technology and Digital Art (U-TAD)	Private11	17	6,913	1,960
Polytechnic University of Valencia (UPV)	Public104	14	60,500	51,400
University of Alicante (UA)	Public8	23	100,600	51,700
University of Salamanca (USAL)	Public183	41	73,300	91,300
Complutense University of Madrid (UCM)	Public11	6	108,900	106,000
Autonomous University of Madrid (UAM)	Public90	47	65,900	53,700
University of Valencia (UV)	Public11	12	75,100	51,500
Carlos III University of Madrid (UC3M)	Public14	11	47,300	36,500
University of Malaga (UMA)	Public184	57	113,800	53,400

Source: own elaboration.

3.1. Public universities

Except for the UV and the UA, all public universities have a larger corpus of posts on X than on Instagram.

Figure 2. Tweets and posts analyzed on X and Instagram by public universities.



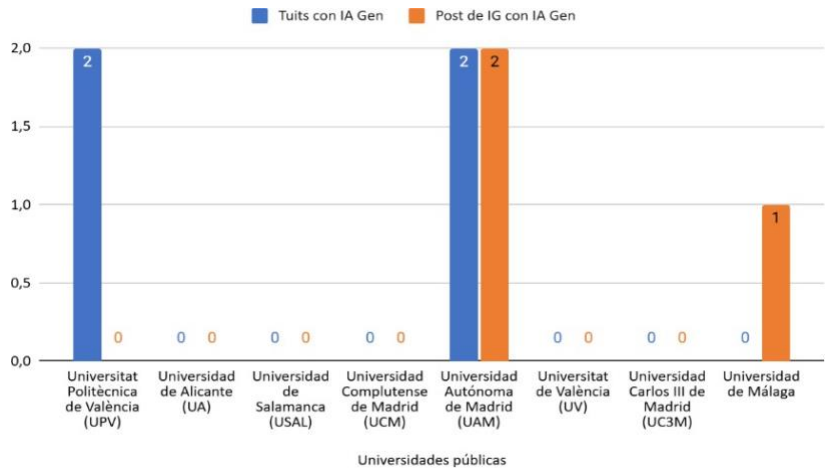
Source: own elaboration.

These universities use simple montages, presumably created with template software such as Canva or Genially, which stand out for their lack of consistency with the rest of the publications. These photomontages usually accompany activities with specific deadlines: enrollment openings

for courses, bachelor's degrees, master's degrees, or doctorates; blood donation campaigns; scholarship application deadlines, etc. Posters for conferences, concerts, and other events are also shared as photomontages.

Science news is often accompanied by stock images or images of researchers in medium and wide shots.

Figure 3. Presence of AI Gen in public universities.



Source: own elaboration.

Most public universities do not use AI Gen in their images, and those that do use it only do so residually.

POLYTECHNIC UNIVERSITY OF VALENCIA (UPV).

In the case of this university, the nature of the social network determines the purpose of consumption. X, with 104 tweets in the sample, is positioned as a tool for disseminating information and rapid consumption, where reach (views) prevails over interaction. In contrast, Instagram, with 14 posts, has established itself as the core of the institution's visual identity and sense of community. On X, all posts are in Valencian, while on Instagram there is a mix of posts in Valencian, Spanish, and bilingual.

Although the social network X has a larger follower base (60,500) than Instagram (51,400), the latter proves to be more effective in generating direct interactions. The average *Engagement Rate* (ER), calculated on the basis of the total number of followers, is 0.86% on Instagram, compared to a marginal 0.02% on X. This indicates that Instagram is approximately 43 times more efficient in activating its community. In terms of social validation, Instagram registers an average of 432.92 *likes* per post, surpassing the average for X (6.4 *likes1*). However, qualitative interaction is low, with the number of comments rarely exceeding 10 per post. This phenomenon suggests that the message is received in an ephemeral manner, possibly linked to the lack of explicit calls *to action* (CTA) in the posts analyzed.

Table 4. Altmetrics of X at the UPV.

	Comments	**Retweets**	**Likes**	**Saved**	**Views**
Average	0.275	5.423	10.24*	0.461	1,736
Total	27	564	1,065	48	180,551

Source: own elaboration.

Table 5. Instagram altmetrics at the UPV.

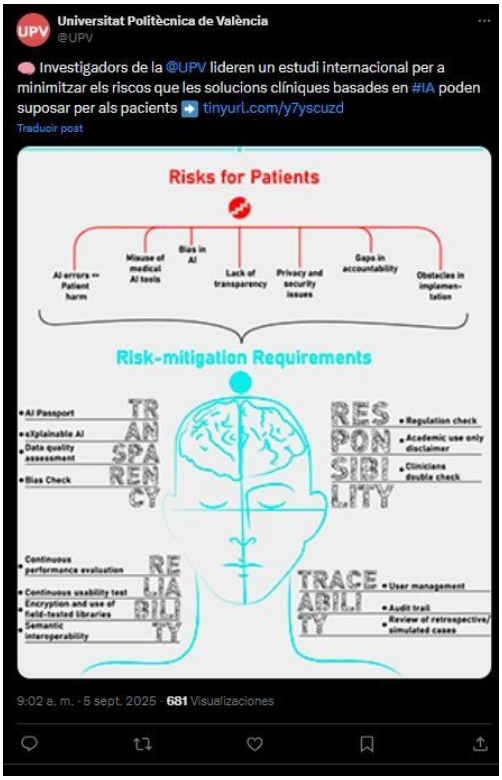
	Likes	**Comments**
Average	432,928	2,571
Total	6,061	36

Source: own elaboration.

Of the sample analyzed, only one image from an X post contained an image created using artificial intelligence. Comparing the metrics of that post with the average of posts with real images, we see that views drop from 1,736 to 681 and *likes* disappear. This post has a certain narrative sense, in that it reports that a study uses AI to minimize the risks of clinical solutions.

[1] The table shows an average of 10.2404, as opposed to the average indicated in the text of 6.4, because the text does not take into account the four tweets per weather alert issued by the DANA, which added 232 units to the calculation.

Figure 4. Presence of AI Gen in a tweet.



Source: Polytechnic University of Valencia, 2025.

UNIVERSITY OF VALENCIA (UV).

The UV stands out for having a much more reactive community on X than average, although this is heavily influenced by content of public interest (alerts about the DANA). It has 75,100 followers on X and 51,500 followers on Instagram, and all its posts are in Valencian, which further segments its *target audience*. On X, a single post reached 43,700 views with 190 retweets and 356 *likes*. Its average number of views (5,385) is one of the highest in the entire study. On Instagram, it maintains solid consistency with an average of 289.3 *likes* per post. However, in terms of ER, it ties with the UAM at 0.64% because its posts seem to be more informative than aesthetic, even making layout mistakes as glaring as putting a black square on its photos instead of resizing them.

Figure 5. Layout of an Instagram post by the University of Valencia.



Source: University of Valencia, 2025.

The UV shows that on X, content that provides immediate value (alerts, schedule changes due to weather) is the only content that manages to break through the algorithm barrier. Its X ER is 0.06%.

Table 6. Altmetrics of X at the UV.

	Comments	**Retweets**	**Likes**	**Saves**	**Views**
Average	0.545	24,909	52.09	1.545	7,828.727
Total	6	274	573	17	86,116

Source: own elaboration.

Table 7. Instagram altmetrics at the UV.

	Likes	**Comments**
Average	329,583	1,166
Total	3,955	14

Source: own elaboration.

Despite publishing exclusively in Valencian, its mobilization capacity is among the highest in the study. This suggests that language is not a barrier, but rather an element of identity that increases the loyalty of its *target audience*.

No AI Gen has been detected in its publications.

COMPLUTENSE UNIVERSITY OF MADRID (UCM).

The UCM has 106,000 followers on Instagram and 108,900 followers on X. Despite its larger number of followers—in relation to its larger number of students and staff—during the same period of analysis, it only published 11 posts on X and 6 on Instagram, most of which were related to official statements on controversial issues: the difficulty in paying teachers' salaries, an unauthorized speech by political activist Vito Quiles, and the appearance of a paint stain on a facade.

The UCM shows similar behavior to the UPV, but with a higher absolute volume due to its critical mass of followers. Instagram continues to be the channel with the greatest emotional impact and validation, with an Instagram ER of close to 0.98%, an excellent figure for an account with more than 100,000 followers. On X, despite having more followers than the UPV, the ER remains at 0.03%, reinforcing the thesis that this network is a channel for reading and not for reaction.

Second-level metrics are low, and although the UCM has very high viewing peaks (up to 5,321 views on an X post), the conversion rate to *likes* remains below 1%.

Table 8. Altmetrics for X at the UCM.

	Comments	Retweets	Likes	Saved	Views
Average	1,181	18,909	39,454	3,545	5,386,927
Total	13	208	434	39	59,256.2

Source: own elaboration.

Table 9. Instagram altmetrics at UCM.

	Likes	Comments
Average	933,666	25,833
Total	5,602	155

Source: own elaboration.

No images created using generative AI have been found on the UCM's social media accounts.

CARLOS III UNIVERSITY OF MADRID (UC3M).

Despite having a smaller follower base than the UCM or the UPV (an audience of 36,500 followers on Instagram and 47,300 on X), it registers very high levels of efficiency in specific content. Although its community is smaller, it is significantly more active and loyal.

UC3M has an ER of 0.8% on X. This means that almost 1 in 100 people who see the tweet interact with it, which is a positive content performance metric. The average number of views is 855 per post, with peaks of 1,568. As with the other institutions, X functions as a channel with wide reach but low emotional conversion. The study confirms the decline in interaction on X across the board.

On Instagram, the results show an inverse correlation between audience size and engagement rate in some cases. UC3M, with the smallest follower base among the public institutions analyzed, has high loyalty on Instagram, with an ER of 2.15%, surpassing UCM. This phenomenon suggests that the sense of belonging in more compact communities facilitates greater interaction per user.

No posts with AI Gen have been detected.

Table 10. Altmetrics of X at UC3M.

	Comments	Retweets	Likes	Saved	Views
Average	0	2,416	6.25	0.1666	753.75
Total	0	29	75	2	9,045

Source: own elaboration.

Table 11. Instagram altmetrics at UC3M.

	Likes	Comments
Average	267,888	1,444
Total	2,411	13

Source: own elaboration.

UNIVERSITY OF SALAMANCA (USAL).

With regard to X, it has 73,300 followers. Despite peaks in views—mostly due to the honorary degree awarded to Spanish athlete Rafa Nadal—emotional conversion on X is marginal. The algorithm does not seem to favor USAL's organic content as much as that of UC3M. USAL suffers from the same decline in interaction as the rest. With an average of 2.4 *likes*, its performance on X is lower than that of UPV and UCM. X, with an ER of 0.003%, functions merely as an informational bulletin board for USAL.

For USAL, Instagram is the network where its identity and sense of community reside. Its average number of *likes* is robust and competitive compared to universities with larger budgets or reach, with a particular focus on shared content or collaboration with other accounts—for example, CSIC—which yields good results by increasing its reach among the followers of those accounts.

USAL has almost twice as many followers as UPV, but its ER (0.52%) is far from the leadership of UC3M. It has a very large critical mass, but only a small fraction reacts to the content. Its performance is more similar to that of CEU San Pablo (0.46%) than to that of the other public

universities in Madrid. Users validate the content, but do not generate dialogue. USAL does not use clear calls to action (CTAs), resulting in almost zero second-level metrics.

Like UCM and UC3M, USAL relies on real photography. There is no trace of AI.

Table 12. Altmetrics for X at USAL.

	Comments	Retweets	Likes	Saves	Views
Average	0.180	3,459	9,546	0.202	901.163
Total	33	633	1,747	37	164,913

Source: own elaboration.

Table 13. Instagram altmetrics at USAL.

	Likes	Comments
Average	892,414	10,536
Total	36,589	432

Source: own elaboration.

AUTONOMOUS UNIVERSITY OF MADRID (UAM).

Despite having more followers on X (65,900) than on Instagram (53,700), the latter social network is the most dominant, with an average of 344 *likes* per post and peaks exceeding 500—such as when a Gorillaz concert was featured. On X, the average is between 2 and 6 *likes* per post. X views are also low for an account with 65,000 followers: about 500 per post, suggesting that X's algorithm is not showing the content even to its own followers.

Its ER for X is very low (0.01%), while its ER for Instagram is in line with the average for the other institutions analyzed (0.64%). Like the others, the UAM suffers from a low comment rate. Followers validate the content with their *likes*, but they do not generate debate.

Table 14. Altmetrics for X at the UAM.

	Comments	Retweets	Likes	Saves	Views
Average	0.168	1.28	5.247	0.325	1015.865
Total	15	114	467	29	90,412

Source: own elaboration.

Table 15. Instagram altmetrics at the UAM.

	Likes	Comments
Average	133,042	0.851
Total	6,253	40

Source: own elaboration.

Its ER for X is very low (0.01%) and that of Instagram is in line with the average for the other institutions analyzed (0.64%). Like the rest, the UAM suffers from a low comment rate. Followers validate the content with their *likes*, but do not generate debate.

Figure 6. Presence of AI Gen in a UAM Instagram post.



Source: Autonomous University of Madrid, 2025a.

Figure 7. Presence of AI Gen in a tweet from X by the UAM.



Source: Autonomous University of Madrid, 2025b.

Regarding the use of AI, four posts with images created using AI Gen have been detected with a lower than average number of *likes* compared to other posts. In an institution with as much symbolic authority and tradition as the Autonomous University of Madrid, the Instagram audience seems to punish synthetic images. Users prefer to see the campus, their classmates, or real researchers (family photos or events) rather than an illustration or image generated by AI, which has lower metrics.

UNIVERSITY OF ALICANTE (UA).

It has 100,600 followers on X and 51,700 followers on Instagram, but the posting style on both networks is completely different. On X, it posts in Spanish, and on Instagram, it has bilingual content in Spanish and Valencian, even trilingual content adding English in crisis situations. This means that its multilingual management increases its accessibility and the perception of global public service.

On X, the eight tweets posted during the analysis period were all weather warnings and announcements that conditions had returned to normal, while Instagram featured more content related to student life—sports awards, welcome events, and the Barry B concert—and science—European Researchers' Night, the latest research, and the death of Jane Goodall.

X appears to be a dying social network used solely as another channel for communicating emergency situations, sharing nothing more than weather warnings. Instagram, on the other hand, follows a content strategy that makes it an emotional channel promoting university pride (sports, music, science). Its ER on X is less than 0.01%.

The UA has two key milestones on Instagram: an ER of 2.58% and an average of 1,322 *likes* per post on this social network, surpassing even the UCM (which has twice as many followers). Its highest-rated post reached 3,894 *likes*.

No posts with AI have been detected.

Table 16. Altmetrics for X at the UA.

	Comments	Retweets	Likes	Saved	Views
Average	1,625	20.25	44.25	2	3,727.666
Total	13	162	354	16	22,366

Source: own elaboration.

Table 17. Instagram altmetrics at the UA.

	Likes	Comments
Average	1,322,217	6,173
Total	30,411	142

Source: own elaboration.

UNIVERSITY OF MALAGA (UMA).

This is the university with the most followers on X in the study (113,800). However, its ER on X is only 0.006%, tying with the minimum of the University of Salamanca (USAL). This shows that accounts created more than a decade ago (2010) accumulate many followers who are no longer active or whom the algorithm has stopped prioritizing.

On Instagram, with 53,400 followers, it achieves an average of 422 *likes* per post, indicating that its content is more effective for its size. Despite having less than half the followers than on X, Instagram generates 33 times more total interactions. An ER of 1.16% is very healthy for a public institution.

Table 18. Altmetrics for X at the UMA.

	Comments	Retweets	Likes	Saves	Views
Average	0.081	1.635	2.858	0.114	785,516
Total	15	301	526	21	144,535

Source: own elaboration.

Table 19. Instagram altmetrics at the UMA.

	Likes	Comments
Average	422,464	1,410
Total	23,658	79

Source: own elaboration.

An AI Gen image has been detected promoting the application period for mobility abroad.

Figure 8. Presence of IA Gen in an Instagram post by the University of Malaga.



Source: University of Malaga, 2025.

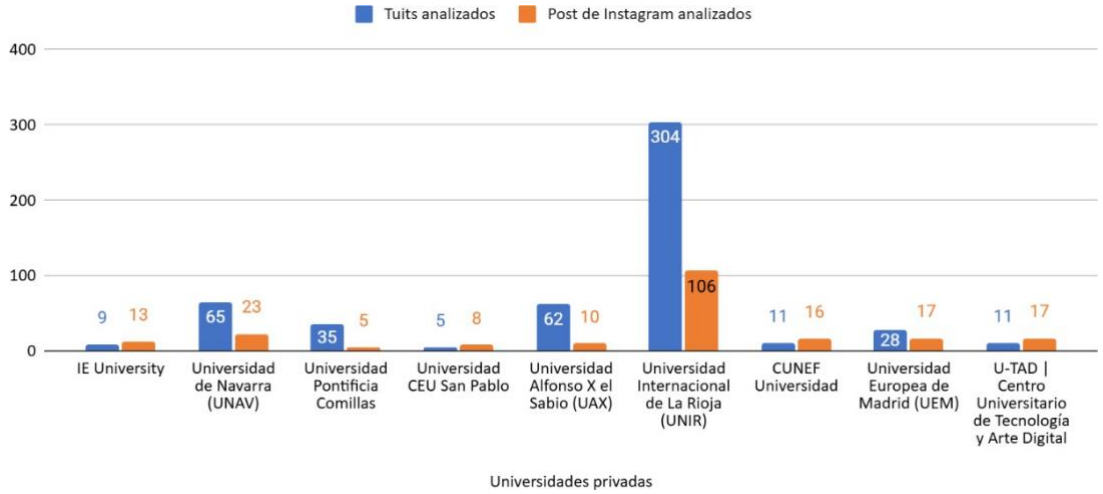
3.2. Private universities

Five of the private universities have a larger corpus of posts on X than on Instagram, but the difference between the number of posts is not as great as in the public universities. In the other four, the proportion of posts between X and Instagram is more balanced, although there is a greater preference for Instagram.

These universities have a consistent tone and design—predetermined color palettes, templates for the same types of posts—with a preference for professional photographs without embedded text that show students in social situations and close-ups of branding, such as *merchandising*. Wide shots are reserved for buildings. Major events and welcome days are

presented as photoblogs, and there is a trend away from photography in favor of vertical-format video.

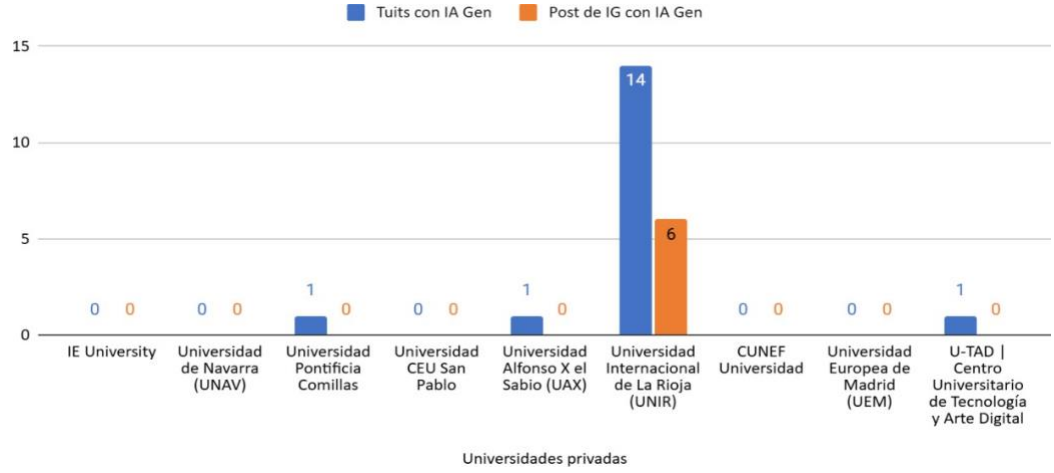
Figure 9. Tweets and posts analyzed on X and Instagram from private universities.



Source: own elaboration.

Almost half of private universities use Gen AI in their images on a residual basis, except for the International University of La Rioja (UNIR), which uses it regularly, generally to illustrate courses and training related to AI.

Figure 10. Presence of AI Gen in private universities.



Source: own elaboration.

CEU SAN PABLO UNIVERSITY.

This university has a sample of 5 posts on X, where it has 15,100 followers, and 8 on Instagram, with 39,300 followers. On the X platform, CEU San Pablo shows the highest rate of passivity, with an interaction ratio per 10,000 followers close to zero. X views are very low (average of 183 per post) compared to its followers. This suggests that the X algorithm is not showing CEU content even to its own followers.

CEU San Pablo has a significantly lower ER on Instagram (0.46%) than UCM (0.98%) and UPV (0.86%). On X, interaction activity is practically non-existent in the sample, despite having a base of 15,100 followers, indicating an almost total disconnect between the content and user response on that platform.

There is one post with 256 comments on Instagram, a figure that breaks the trend of passive consumption seen in public universities. However, this data appears to be an outlier, linked to an

exclusive concert by the group Hakuna for this university community2 . No images created using generative AI have been found on CEU San Pablo's social media accounts.

Table 20. Altmetrics for X at CEU San Pablo.

	Comments	Retweets	Likes	Saved	Views
Average	0	0	0.8	0	196.2
Total	0	0	4	0	981

Source: own elaboration.

Table 21. Instagram altmetrics at CEU San Pablo.

	Likes	Comments
Average	264,875	33,625
Total	2,119	269

Source: own elaboration.

UNIVERSITY COLLEGE OF FINANCIAL STUDIES (CUNEF).

[2] UC3M had a similar case with the Tulsa concert, with a low rate in X.

It stands out for the photographic quality of its posts on both social networks, which suggests that it has specialist professionals.

CUNEF breaks the trend of passive consumption. On X, with 3,966 followers, its ER is very low (0.058%), despite its institutional and bilingual content.

On Instagram, with 13,400 followers, its efficiency per follower is by far one of the highest: with the smallest base, it achieves an ER on Instagram of 3.02%, the second highest in the sample. Its bilingual and short video strategy is the most effective for young audiences. While universities such as USAL need 180 people to get a *like*, CUNEF only needs 33. Its post with 1,200 *likes* (a bilingual *reel*) is a milestone: it manages to attract almost 10% of its entire follower base to a single post, something that no other university in the sample achieves. There is a clear commitment to the *reel* format and the use of bilingualism, with the majority of posts in Spanish and some posts in English aimed at international students, which resonates with its audience.

No images created with AI Gen are visible.

Table 22. Altmetrics for X at CUNEF.

	Comments	Retweets	Likes	Saves	Views
Average	0	1,181	2,727	0.09	441,272
Total	0	13	30	1	4,854

Source: own elaboration.

Table 23. Instagram altmetrics at CUNEF.

	Likes	Comments
Average	339,187	2,625
Total	5,427	42

Source: own elaboration.

UNIVERSITY CENTER FOR TECHNOLOGY AND DIGITAL ART (U-TAD).

U-tad shows greater efficiency in X than the average. With 6,913 followers, it has an ER of 0.081%. U-tad manages to get a higher proportion of its small community to interact. This suggests that its niche—technology, video games, and design—is much more likely to use X.

On Instagram, it achieves an ER of 1.47% and averages 288 *likes* with just 19,000 followers. Like CUNEF, U-tad demonstrates that segmentation is the key to current success. Its followers are not only students, but also fans of the technology topics taught by the university.

Table 24. Altmetrics for X at U-tad.

	Comments	Retweets	Likes	Saves	Views
Average	0	0.454	1.545	0.09	221.636
Total	0	5	17	1	2,438

Source: own elaboration.

Table 25. Instagram altmetrics at U-tad.

	Likes	Comments
Average	246	2
Total	4,182	34

Source: own elaboration.

One of its posts uses AI, but it is understood to be relevant insofar as it announces a masterclass on the use of AI in digital VFX composition. This post has very low performance, with only 189 views.

Figure 11. Presence of AI Gen in a tweet from X at U-tad.



Source: U-tad, 2025.

ALFONSO X EL SABIO UNIVERSITY (UAX).

Like U-tad and CUNEF, it stands out for its professional photographs.

It has 11,000 followers on X and 46,000 followers on Instagram. UAX achieves an Instagram ER of 1.16%, placing it among the most efficient profiles. It is capable of generating more than 500 *likes* on average, surpassing much larger universities such as USAL and UPV. This shows that its commitment to professional photography and video posts (*reels*) has a direct return in user validation.

UAX has the same problem as USAL and CEU San Pablo: an almost total disconnect on X. While its community is more active on Instagram, on X its posts go virtually unnoticed with an ER of 0.01%.

Table 26. Altmetrics for X at UAX.

	Comments	Retweets	Likes	Saves	Views
Average	0.145	0.403	1.661	0	247.87
Total	9	25	103	0	15,368

Source: own elaboration.

Table 27. Instagram altmetrics at UAX.

	Likes	Comments
Average	1,101.7	663.1
Total	11,017	6,631

Source: own elaboration.

Its language is accessible, and it holds monthly raffles on social media for students: a pair of brand- name sneakers and two concert tickets during the period analyzed.

In X, it presents an AI-generated image to illustrate a scientific news story.

Figure 12. Presence of AI Gen in a tweet from X at UAX.



Source: UAX, 2025.

INTERNATIONAL UNIVERSITY OF LA RIOJA (UNIR).

The analysis of UNIR reveals the most atypical profile of the entire study. This institution has 42,200 followers on X and 248,000 followers on Instagram, and is one of those with the highest volume of posts: 304 tweets on X and 106 on Instagram in two months.

It focuses on global volume marketing, becoming the Instagram giant in terms of number of followers, but with significant challenges in its response rate. Despite having almost a quarter of a million followers on Instagram—by far the highest number—its ER is the lowest in the study (0.15%), which matches its ER of 0.004% on X. This indicates that a large part of its audience is passive or was captured through massive advertising campaigns, but does not interact with daily content. The UA, which is public and has five times fewer followers, gets four times more *likes* on average than UNIR. Its interaction metrics on X are marginal—an average of 1,546 likes—confirming that X is a repository of informational links. However, this volume of posts may be part of a massive SEO strategy for its website, as all content is linked to training courses on its website.

Perhaps does not intend to build community or debate, but rather to use its social media platform to better position its brand on Google when users search for specific academic training3 .

Table 28. Altmetrics for X at UNIR.

	Comments	Retweets	Likes	Saves	Views
Average	0.134	0.881	1.546	0.062	426.45
Total	41	268	470	19	129,641

Source: own elaboration.

Table 29. Instagram altmetrics at UNIR.

	Likes	Comments
Average	94,257	2,657
Total	9,897	279

Source: own elaboration.

In any case, it stands out for its use of AI, the highest in the sample. While at UPV and UAX AI seemed like an aesthetic mistake, at UNIR it makes narrative sense: selling AI training. UNIR integrates it coherently with its academic offering, as in most cases it uses AI-generated images mainly to promote courses and lectures on AI. There is only one exception to this rule.

Figure 13. Presence of AI Gen in an Instagram post by UNIR.



Source: International University of La Rioja, 2025a.

Figure 14. Presence of AI Gen in a tweet by X from UNIR.



Source: International University of La Rioja, 2025b.

PONTIFICAL UNIVERSITY OF COMILLAS.

With a base of 14,300 followers on X and 21,400 followers on Instagram, it achieves solid interaction ratios. Although its ER on X is low for a private university (0.041%), it is significantly higher than that of most public universities (except those in Valencia due to the effect of weather alerts for the DANA).

[3] The more links on the web that lead to a particular page, the better its ranking will be on Google.

On Instagram, it is a very efficient university, with an average of 449 *likes*. On this network, it focuses on the *reel* video format.

Table 30. Altmetrics for X at Comillas.

	Comments	Retweets	Likes	Saved	Views

Average	0.085	1.285	5.228	0.114	541.6
Total	3	45	183	4	18,956

Source: own elaboration.

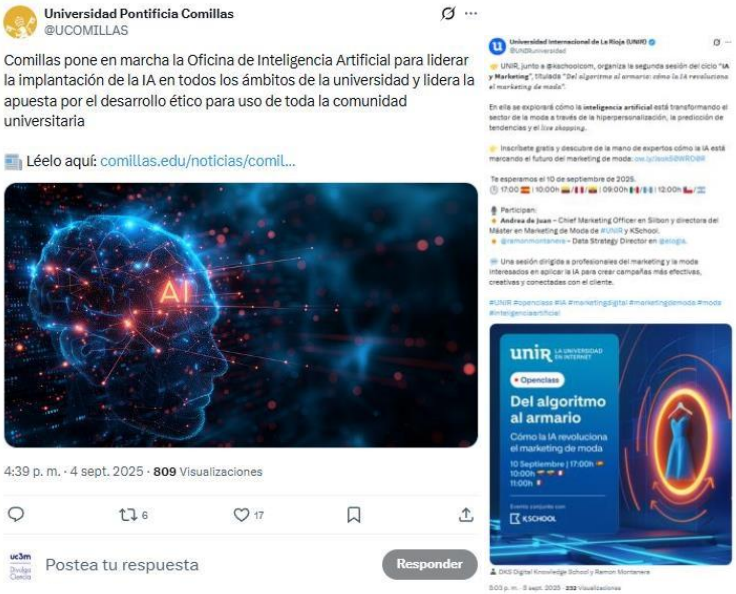
Table 31. Instagram altmetrics in Comillas.

	Likes	**Comments**
Average	449.8	1.6
Total	2,249	8

Source: own elaboration.

A tweet with AI Gen has been detected. Like UNIR, it uses its image with AI in a context in which it announces the creation of its Artificial Intelligence Office, thus using AI Gen as a narrative marketing tool. As it is a thematic use, the community receives it as part of the message, not as a lack of authenticity. It has the highest metrics in the sample for a tweet illustrated with AI Gen.

Figure 15. Presence of AI Gen in a tweet from X at the Pontifical University of Comillas.



Source: Pontifical University of Comillas, 2025.

IE UNIVERSITY.

All of its posts are in English. With 19,500 followers on X and an ER of 0.014%, it outperforms giants such as USAL and UC3M in terms of efficiency on this network. Its English-language posts seem to segment a professional and global audience very well.

With 165,000 followers on Instagram, it is the second private university with the largest audience on Instagram, behind only UNIR. It achieves an average of 511,923 *likes*, with peaks of up to 2,044 *likes* on specific posts. Its ER is 0.31%, with an international focus and in English.

It has few posts, which influences the calculation of its ER, and does not feature images with AI Gen.

Table 32. Altmetrics for X at IE University.

	Comments	**Retweets**	**Likes**	**Saves**	**Views**
Average	0.222	0.777	2,111	0.222	671,444
Total	2	7	19	2	6,043

Source: own elaboration.

Table 33. Instagram altmetrics at IE University.

	Likes	Comments
Average	511,923	2,384
Total	6,655	31

Source: own elaboration.

EUROPEAN UNIVERSITY OF MADRID (UEM).

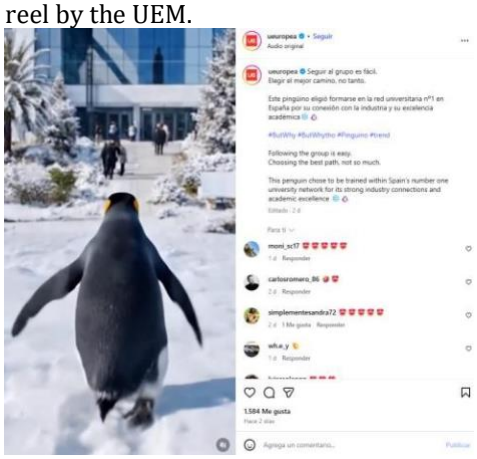
Although it did not publish any images with AI Gen during the analysis period, there is evidence that in subsequent periods—January 2026—it published videos and images created entirely with AI Gen. The UEM seems to have decided that, once it has consolidated its audience with real content, AI is the next step in scaling up video production.

Figure 16. Presence of AI Gen in an Instagram post by the UEM.



Source: European University of Madrid, 2026a

Figure 17. Presence of AI Gen in an Instagram reel by the UEM.



Source: European University of Madrid, 2026a

This university has 86,800 followers on Instagram and 44,400 followers on X.

The UEM performs solidly on Instagram, ranking in the high-efficiency block with an ER of 0.91%. It achieves an average of 783 *likes*, with outstanding peaks of up to 1,671 *likes*. This indicates that, despite not having used AI during the CSV period, its real photography and campus content have a very strong visual appeal. Like the rest of Madrid's private universities, X plays a secondary role.

With an ER of 0.005%, its metrics are negligible compared to its power on Instagram.

Table 34. Altmetrics for X at UEM.

	Comments	Retweets	Likes	Saves	Views
Average	2,071	0.142	0.857	0.071	249,607
Total	58	4	24	2	6,989

Source: own elaboration.

Table 35. Instagram altmetrics in EMU.

	Likes	Comments
Average	783,647	3,176
Total	13,322	54

Source: own elaboration.

UNIVERSITY OF NAVARRA (UNAV).

UNAV shows exceptional performance that defies the trend of passivity observed in other universities of similar size (such as USAL).

Unlike almost all others, UNAV has an average of 24,046 *likes* and 7,938 retweets, which is among the highest, without relying on emergency alerts. However, its ER remains at 0.06%.

It has 52,600 followers on X and 82,300 followers on Instagram. On Instagram, it combines the photo format with the video format, positioning itself as a leader in efficiency with an ER of

3.39% and an average of 759,565 *likes* per post, achieving 8,077 *likes* with its most successful post.

No posts with AI Gen have been detected.

Table 36. Altmetrics for X at UNAV.

	Comments	Retweets	Likes	Saved	Views
Average	3,876	7,938	24,046	1,292	4,873,461
Total	252	516	1,563	84	316,775

Source: own elaboration.

Table 37. Instagram altmetrics at UNAV.

	Likes	Comments
Average	759,565	3,826
Total	17,470	88

Source: own elaboration.

4. Results

Having a larger community does not guarantee greater interaction. While public universities such as UMA and UCM dominate in terms of number of followers, their response rates are among the lowest in the study, reaching a minimum of 0.006% on X. In contrast, private institutions with much smaller and more segmented user bases, such as CUNEF University, achieve the highest levels of effectiveness.

Thus, private universities achieve a higher ER, meaning they are more adaptable than public universities. On average, private universities have an ER of 2.6% on Instagram and 0.05% on X, compared to 1.1% and 0.02% for public universities. Private universities tend to have fewer followers than large public universities (such as UCM or UV). With a smaller and more specific follower base ( ), the percentage of interaction is usually mathematically higher.

Private universities lead the way in efficiency on Instagram, a platform they use almost exclusively to connect with the students (young audience) they are trying to attract. In general, they publish more aspirational and lifestyle content, with carefully crafted images created by professional photographers and designers—going beyond photos taken with cell phones or posters designed with template software such as Genially or Canva. This content generates a stronger sense of belonging than the purely institutional or administrative communication that sometimes predominates in public universities. By avoiding purely informative content—exam

dates, scholarships, official gazettes, etc.—and focusing on the student experience, they encourage more *likes* and saves. In addition, private universities tend to use more real photos of students on campus, which generates greater empathy and *engagement* than AI Gen images, family photos of institutional events, and stock illustrations. Private universities (CUNEF, UNAV) lead the way in ER because they treat their *feed* like a lifestyle magazine: they use a consistent color palette and high-quality photographs without excessive embedded text. This encourages users to save the post, a metric that Instagram values positively for ER. In addition, private universities specializing in specific degrees, such as CUNEF and U-tad, have small but very active communities, as their content is not as generalist and they are also followed by the specific audience in their sector.

The decline of X is widespread across almost all institutions, with marginal ERs reinforcing the migration to the Instagram format, despite the fact that it continues to be the network most fed with organic content from most universities, especially public ones. X has become a sort of "miscellaneous box" where anything goes and all kinds of content is shared without segmentation by topic or target audience, mixing institutional messages aimed at attracting students with service posts (e.g., weather alerts), scientific news, information about competitions, calls for applications, and new courses: information that affects students, teaching and research staff, administrative and technical staff, and the general public. On X, the difference

between public and private universities is less pronounced because the network has been relegated to a customer service or urgent news channel. Here, public universities such as the UPV or UV sometimes make a timely comeback on issues of public interest (such as DANA alerts), but in terms of daily brand loyalty, private universities maintain a slight advantage due to their less rigid tone.

Large public universities struggle with the size and heterogeneity of their audience: they do not have a single *target* or write for a single *buyer persona*. They have a lot of visibility (reach) but find it difficult to generate an active response (passivity). The public universities with the highest ER are those that manage to balance symbolic authority with an authentic and relatable visual narrative. The University of Alicante (UA) stands out with the highest ER on Instagram (2.58%), driven by multilingual management that reinforces its identity and content focused on student life and science. For its part, the Carlos III University of Madrid (UC3M) stands out for the loyalty of its community, achieving an ER of 0.8% on X, an exceptionally high figure for this platform. These results suggest that success on social media does not depend solely on the number of followers, but on avoiding purely bureaucratic content and AI-generated images—which tend to be penalized by the audience—in favor of real photographs that show campus life and the work of its researchers. For its part, the Complutense University of Madrid (UCM) maintains a solid ER on Instagram (0.98%) considering its huge number of followers.

Posting more on X tends to be counterproductive for the ER. There is a negative correlation between the volume of purely informative posts and the ER. For Spanish universities, X has gone from being a "conversation" network to a notification network, where an excess of messages dilutes symbolic authority and student attention. In the universities analyzed, it can be seen that accounts with frenetic activity (many informative or automatic tweets) have the lowest ERs, as is the case with UNIR or USAL, where the content is perceived as noise. X no longer functions as a pure chronological feed. Its current algorithm prioritizes relevance and dwell time. Posting too many tweets in a short period of time causes the posts themselves to compete with each other to appear in followers' feeds. Universities such as UC3M maintain an above-average ER on X (0.80%) not because of quantity, but because of the type of content. The use of real images, research milestones, or current affairs generates organic interaction that cannot be achieved by bombarding users with messages.

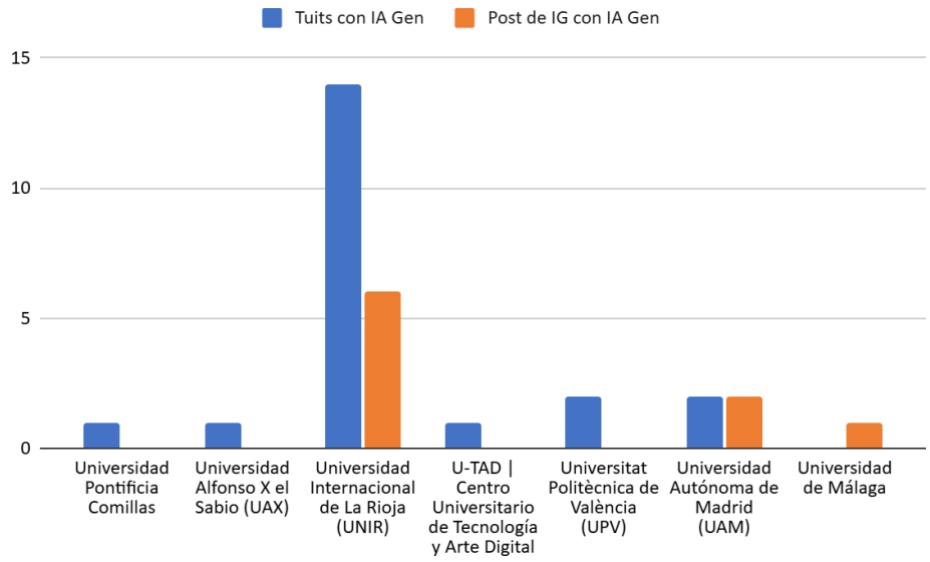
On Instagram, the algorithm and user behavior work very differently from X: what really boosts the ER at universities is the shift from the institutional to the emotional. Instagram rewards aesthetics and identification. A student is much more likely to *like* or share a photo that reflects

their daily life—the campus, the cafeteria, an event—than an informational poster about registration deadlines.

The CTA, or call to action, is also important. Institutions that use Instagram to engage with their audience—through surveys, questions, giveaways, etc.—see an immediate increase. The ER rises when the university stops monologuing and starts conversations.

Finally, images are a critical factor in attracting attention. Posting many tweets without visual support or with repetitive stock images drastically reduces the likelihood that users will stop to interact, lowering the overall ER.

Figure 18. Universities that have used AI Gen images.



Source: own elaboration.

AI Gen or stock images do not necessarily translate into interactions. Instagram users seek authenticity. AI Gen images—such as those from UPV or UAM—can be perceived as cold or fake, which breaks the emotional connection and reduces comments and shares. AI posts tend to underperform compared to real images, even when used with narrative consistency, i.e., using AI to illustrate posts about AI.

5. Conclusions and discussion

The first conclusion of this study is that the use of images is essential. Posts without images lose views and interaction. Based on this, the following conclusion can be drawn.

Instagram is more efficient and effective than X. While X has become a notification channel for administrative information, Instagram has established itself as the primary space for building visual identity and a sense of community, both in public and private universities. In fact, three universities in the sample permanently closed their X channels to focus their efforts on Instagram, an eminently visual network.

A negative correlation between the volume of posts and *engagement* has also been detected, especially on X. Universities that bombard their networks with a high volume of messages have the lowest interaction rates, and their followers perceive their content as informational noise, which is penalized by the X and Instagram algorithms.

Private universities lead the way in efficiency on Instagram by adopting a less rigid tone and addressing a single *target* audience—students—in the tone and language they use. In addition, they pay attention to the overall aesthetics of their profile and maintain consistent designs, with

logical color palettes and templates, using high-quality photographs taken by audiovisual professionals. They focus on the aspirational student experience, which generates greater brand loyalty than public universities.

The public universities with the highest ER are those that report on current issues, offer useful communications, and include calls to action for their followers.

Finally, the use of Gen AI in institutional profiles is still residual and, when used, tends to be penalized by the audience. Users show a clear preference for the authenticity of real, organic photography. Success stories in the use of Gen AI are limited to contexts where the technology has an explicit narrative purpose (advertising courses or services related to AI). Outside this framework, AI is perceived as a lack of resources or an aesthetic error that diminishes reach and interaction.

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Appendices

Appendix 1. Link to extracted data.

https://docs.google.com/spreadsheets/d/1EhHdFVwtwfZlNMnUVExeQmXXvNTF0qpf/edit?usp=sharing&ouid=103022146222525944427&rtpof=true&sd=true

Appendix 2. Operational definition

Criteria for classifying as NO (absence of Gen AI): the image is classified as **NO** if it has a clear origin as a traditional photograph, documented *stock photo*, manual *collage*, or original graphic design, and does not exhibit visual artifacts or logical inconsistencies that suggest AI intervention.

Criteria for classifying as YES (evidence of AI Gen): the image is classified as **YES** if the coder identifies, through visual inspection and the application of forensic support tools (if necessary), the presence of any of the following evidence: visual artifacts and technical errors (low fidelity), semantic and narrative inconsistencies (low coherence), and recognizable stylistic patterns (deep manipulation). These include anomalies in hands and bodies, failures in physical consistency, and language and text errors.

The operational definition is contrasted with a Google Images search and analysis with Undetectable AI.