Chatbots, regional development, and tourism: Exploratory analysis of algorithmic representations of Agadir and the Souss-Massa region

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Abstract

Since 2022, the widespread adoption of conversational agents (ChatGPT, Claude, Gemini, Copilot, Le Chat) has been reshaping the way travelers access regional information. These algorithmic systems are gradually replacing search engines and tourist offices as the primary sources for trip planning, without the internal logic behind the generation of their narratives or the structural biases that permeate them being truly documented. This paper offers an exploratory analysis of the representations of Agadir and the Souss-Massa region produced by five large language models (LLMs), queried according to a standardized protocol in French using thirteen prompts covering the entire tourism spectrum (description, itineraries, history, Amazigh culture, hinterland, authenticity, gastronomy). The resulting corpus comprises 65 verbatim responses, totaling 38,402 words of automated tourism discourse. The analysis employs a theoretical framework that integrates the theory of devices (Peraya, Jeanneret), algorithmic mediation (Cardon, Rouvroy), and critical AI studies (Bender, Crawford), and combines quantitative methods (lexicometry, thematic coding, TF-IDF cosine similarity) to measure inter-model convergence, spatial coverage, and the depth of cultural treatment. The results show a marked spatial asymmetry favoring the coastline, significant inter-model lexical convergence that peaks in prompts with strong encyclopedic

markers (history, Amazigh), a spontaneous erasure of the Amazigh dimension, corrected only when explicitly requested, and a systematic reconfiguration of Agadir's authenticity in contrast to the imperial cities (Marrakech, Fes), revealing an interpretive framework shared by all five models. The study proposes a conceptualization of chatbots as devices of territorial mediation that produce regimes of algorithmic visibility, and discusses their implications for regional tourism communication.

Keywords: chatbots, large language models, algorithmic mediation, tourism communication, territorial representations.

1. Introduction

The widespread adoption of large language models (LLMs) since the launch of ChatGPT in November 2022 has led to a quiet but profound shift in travelers' information practices. Whereas previous generations successively consulted search engines, paper guidebooks, review sites (TripAdvisor, Booking), and then institutional tourism offices, a growing proportion of tourists now turn directly to a conversational agent to plan a trip, choose a destination, or form a mental image of a region. This shift is not neutral: it introduces a massive algorithmic intermediary between the region and its audience, an intermediary whose internal logic of discursive production remains largely opaque.

This opacity raises a fundamental communication issue that goes beyond mere technology: chatbots are becoming **new devices for territorial mediation**, in the sense that Peraya (1999) and Jeanneret (2014) use this concept. They do not merely transmit pre-existing information; they **produce** it, **prioritize** it, **select** it, and **format** it according to their own logic—inherited from their training corpora, the cultural biases that permeate them, and the architectures that structure them. The representations they circulate are not a reflection, but a construction.

For non-Western territories, and particularly for Moroccan destinations, this issue takes on special significance. The Agadir and Souss-Massa region is, in this regard, a particularly relevant area of inquiry: Morocco's leading seaside destination (with over six million overnight stays annually before the pandemic), it is also a culturally diverse territory, deeply rooted in the Amazigh (Chleuh) world, whose identity cannot be reduced to the coastal façade alone. What do chatbots say about this region? Which places do they highlight? Which cultural dimensions do they emphasize or omit? Do their narratives converge, or do they produce differentiated representations?

This paper presents an **exploratory study** of the representations of Agadir and Souss-Massa produced by five mainstream conversational agents (ChatGPT, Claude, Gemini, Copilot, and Le Chat de Mistral), queried according to a standardized protocol using thirteen prompts covering the spectrum of classic

tourism-related questions. The resulting corpus—65 authentic verbatim transcripts, 38,402 words—enables the testing of four hypotheses concerning the standardization of narratives, the spatial invisibility of the hinterland, the erasure of the Amazigh dimension, and inter-model divergence.

The article falls within the field of Information and Communication Sciences (ICS) and integrates several theoretical strands: the theory of devices, the sociology of algorithmic mediation, tourism communication studies, and critical AI studies. Beyond its empirical contribution, it proposes a conceptualization of the chatbot as **a device for territorial mediation** and discusses the operational implications of its findings for regional actors in tourism communication, in a context where control over algorithmic narratives in the region is becoming a strategic issue of narrative sovereignty.

1.1 Research question

The central research question can be formulated as follows: " *How do consumer-facing conversational agents produce, mediate, and circulate representations of the tourism territory of Agadir and the Souss-Massa region, and what regimes of algorithmic visibility result from this?* "

This main question breaks down into four operational sub-questions:

- **Q1**. Which places, activities, and imaginaries do chatbots primarily associate with Agadir and Souss-Massa?
- **Q2**. Is there a convergence or divergence in representations among the different models, and does this convergence vary depending on the type of prompt?
- **Q3**. Which dimensions of the region—notably the mountainous hinterland, the Amazigh dimension, and domestic tourism—are systematically marginalized in algorithmic discourse?
- **Q4**. To what extent do chatbots reproduce, deconstruct, or reconfigure classic tourism stereotypes (seaside tourism, Orientalism, the Agadir/imperial cities dichotomy)?

1.2 Hypotheses

Four hypotheses guide the analysis:

- **H1** : Chatbots produce a standardized, Agadir-centric tourism narrative focused on seaside resorts and internationally recognized landmarks, at the expense of the region's diversity.
- **H2** : Coastal locations are overrepresented compared to those in the mountainous hinterland, even when the prompt explicitly requests information about the region's periphery.
- **H3** : The Amazigh cultural dimension appears in the algorithmic discourse only when explicitly prompted; it is underrepresented in general descriptions of the region.
- **H4** : The five models produce representations that share a core set of references but differ in their granularity, critical stance, and treatment of identity markers.

2. State of the Art

2.1 Tourism communication and territorial representations

Information and Communication Studies have long focused on tourism discourse as a key subject of analysis, due to its performative function: tourism communication does not merely describe a pre-existing territory; rather, it **helps to construct it** as a desirable destination (Amirou, 1995; Cousin & Réau, 2009; Kadri, Khomsi & Bondarenko, 2011). Rachid Amirou's seminal work on the tourism imagination has demonstrated how destinations are discursive constructions, drawing on inherited narrative frameworks—often Orientalist in the sense of Edward Said (1978) when it comes to countries of the Global South; that shape visitors' perceptions long before their arrival.

From this perspective, institutional tourism communication (tourist offices, ministries, destination marketing) has long played a near-monopolistic role in the storytelling of territories. Charles-Édouard Houllier-Guibert's (2012) work on territorial marketing has precisely analyzed the strategies through which local authorities attempt to construct and disseminate a coherent image of their region. This discursive hegemony has been gradually eroded by the rise of participatory tourism websites (TripAdvisor, travel blogs), and subsequently by booking platforms (Booking, Airbnb), which have introduced new actors into the mediation chain (Alloing & Pierre, 2017).

2.2 Algorithmic mediation and platforms

For the past fifteen years or so, the sociology of digital platforms has documented how recommendation, ranking, and filtering algorithms produce differentiated visibility effects on content and, by extension, on territories (Cardon, 2015; Bullich & Guignard, 2014). Dominique Cardon has notably distinguished several algorithmic regimes—popularity, authority, reputation, prediction—that structure the visibility architectures of the contemporary web. Antoinette Rouvroy, for her part, has spoken of **algorithmic governmentality** (Rouvroy & Berns, 2013) to refer to the specific modes of power exercised through massive data processing.

These analyses were primarily developed in relation to sharing and search platforms (Google, Facebook, TripAdvisor). However, the arrival of large language models marks a qualitative leap: while traditional algorithms **filter** content produced by humans, LLMs directly **generate** discourse. The chatbot no longer refers users to sources they must then consult; it produces the response itself, condensing, rephrasing, and sometimes inventing. This shift calls for a new conceptualization of algorithmic mediation.

2.3 Chatbots, conversational agents, and critical AI studies

The emerging field of *critical AI studies* (Bender, Gebru et al., 2021; Crawford, 2021) has begun to document the structural biases of large language models: underrepresentation of low-resource languages, reproduction of cultural and gender stereotypes, factual hallucinations, and opacity of training corpora. The seminal article by Emily Bender et al. (2021), titled *"On the Dangers of Stochastic Parrots,"* warned of the partial, situated, and potentially harmful nature of the representations conveyed by these systems. More recently, Kate Crawford (2021) and, in the Francophone context, Marcello Vitali-Rosati (2024) have expanded this critique by examining the material and political conditions of generative AI production.

However, the application of these critiques to non-Western territories remains limited. Empirical work on how LLMs **represent** a specific territory remains scarce, and virtually nonexistent in the Moroccan context. This research aims to fill this gap by proposing a systematic empirical study.

2.4 Theory of apparatus

To theorize the chatbot as a producer of representations, this research draws on the theory of dispositifs developed in SIC, particularly the work of Daniel Peraya (1999), further developed by Yves Jeanneret (2014). A dispositif is not merely a tool: it is a **technical**, **semiotic**, **and social arrangement** that produces effects of knowledge and representation by shaping what can be said and thought. The chatbot, considered as a device, therefore deserves to be analyzed not in terms of

technical performance, but in terms of the enunciative frameworks it imposes, the categories it mobilizes, and the discursive hierarchies it establishes.

This perspective aligns with the complementary one offered by Emmanuël Souchier, Yves Jeanneret, and Joëlle Le Marec (2003) on digital writing, who invite us to analyze machine-generated content in light of its **architexts**—that is, the technical structures that determine its appearance and circulation.

3. Theoretical framework

This research brings together four converging theoretical frameworks to understand chatbots as devices for territorial mediation.

3.1 The chatbot as a mediation device

According to Peraya (1999), a mediation device is characterized by three inseparable dimensions: a **technical dimension** (hardware infrastructure), a **semiotic dimension** (forms of expression employed), and a **relational dimension** (modes of user engagement). The conversational chatbot integrates these three dimensions in a novel way: technically, it relies on deep learning architectures trained on massive corpora; semiotically, it employs a natural language dialogic register that simulates interpersonal exchange; relationally, it establishes an asymmetrical yet personalized relationship with the user. This configuration produces an effect of **deceptive transparency**: the fluidity of the interaction masks the complexity of the selection, weighting, and generation processes underlying each response.

3.2 Algorithmic mediation and regimes of visibility

The concept of algorithmic regime, borrowed from Cardon (2015), refers to the way in which technical architectures organize the visibility of content. Extended to LLMs, this concept allows us to consider how certain places, cultural elements, or narratives are made more visible than others in algorithmic discourse. Algorithmic visibility is not equivalent to value or relevance: it results from technical configurations and hierarchies embedded in training corpora.

In the territorial context, we can speak of **regimes of algorithmic territorial visibility**: configurations that make certain spaces, practices, and narratives dominant in automated discursive production, and others marginal. This inequality of visibility produces concrete effects on the perception and visitation of territories.

3.3 Tourism communication and interpretive frameworks

The work of Amirou (1995) and Cousin & Réau (2009) on the tourist imagination provides the conceptual framework for analyzing the representations conveyed. Every destination is associated with **interpretive frameworks** (Goffman, 1974) that shape its perception: for Moroccan destinations, these frameworks typically draw on the contrast between authentic imperial cities (Marrakech, Fes) and modern seaside resorts (Agadir, Saïdia), between the traditional interior and the Westernized coast.

The question is whether chatbots reproduce these inherited frameworks, or whether they contribute to reshaping them. The results of this study will provide empirical evidence on this point.

3.4 Critical AI Studies and narrative sovereignty

Finally, this work aligns with the perspective of critical AI studies, which examine the social, economic, and political conditions under which artificial intelligence is produced. The training corpora of major LLMs are, according to the available public estimates, overwhelmingly English-language (on the order of 60%), with French (roughly 5–10%) and Arabic (roughly 2–3%) far behind. This distribution introduces a structural asymmetry: territories are represented in algorithmic discourse in proportion to their presence in the corpora, which themselves reflect global epistemic hierarchies.

For regions of the Global South, and particularly for regions with a strong minority cultural component (such as Amazigh culture), this asymmetry raises the question of **narrative sovereignty**: who tells the region's story, based on which sources, and within which frameworks? This research contributes to documenting this question in the case of Souss-Massa.

4. Methodology

The methodology combines a **quantitative** approach (lexicometrics, thematic coding, similarity measures) with a **qualitative** dimension (detailed analysis of

verbatim transcripts). It is designed with an exploratory focus, given the novelty of the subject matter and the scarcity of previous empirical studies.

4.1 Corpus construction

The corpus was constructed according to a standardized protocol designed to ensure data **comparability** across models and prompts. Five consumer-facing conversational agents were selected for their representativeness of the current market and their accessibility to the general public:

Model	Publisher	Version tested	Technical Feature
ChatGPT	OpenAI	GPT-5 / GPT-4o	Consumer market benchmark
Claude	Anthropic	Sonnet 4.x / Opus 4.x	Renowned for its argumentative quality
Gemini	Google	2.5 Flash / Pro	Native integration with the Google ecosystem
Copilot	Microsoft	Balanced mode	Web search enabled by default (RAG)
Le Chat	Mistral AI	Standard version	European model, open

Table 1 : The five chatbots surveyed

The questioning protocol followed six strict rules to ensure scientific comparability:

- Rule 1: A new conversation was opened for each prompt to avoid contextual contamination.

- Rule 2: Systematic deactivation of memory and custom instructions in each interface.
- Rule 3: Disabling, where possible, active web search (Copilot being an acknowledged exception, as its RAG function is part of its technical identity).
- Rule 4: Full copy of the response, without cuts or rephrasing.
- Rule 5: Queries conducted within a narrow time window (two days) to minimize the effects of version updates.
- Rule 6: Use of the exact same prompt, copied and pasted, for all models.

4.2 The prompts

Thirteen prompts were designed to cover all dimensions of regional tourism discourse. They are calibrated according to an analytical typology that allows for the systematic testing of the formulated hypotheses:

No.	Prompt	Analytical Category	Hypothesis tested
P1	What to do in Agadir?	General open	H1 (standardization)
P2	Recommend a 5-day trip to Agadir.	Structured itinerary	H1, H2
P4	Describe Agadir to me as a tourist destination.	Identity description	H1, H4
P5	What excursions are available from Agadir?	Surrounding Area	H2
P7	What is the history of Agadir?	History / Heritage	H3, H4
P8	What is there to see in the Agadir hinterland?	Spatial Invisibility Test	H2

P9	Tell me about Amazigh culture…	Amazigh dimension test	H3
P10	What are the local artisans and crafts?	Local economy	H1, H3
P11	What cultural events take place in Agadir?	Cultural life	H1
P12	Compare Agadir to Marrakech.	Implicit categories	H4
P13	What is the best neighborhood to stay in?	Residential spatiality	H1
P14	Is Agadir an authentic destination?	Stereotype test	H1, H4
P15	What are the local culinary specialties?	Gastronomy	H1, H3

Table 2 : List of prompts used

4.3 Volume of the collected corpus

The final corpus consists of **65 authentic verbatim transcripts** ; that is, five models multiplied by thirteen prompts; collected in French between May 3 and 11, 2026. The total volume amounts to 38,402 words, or 250,426 characters. Because the corpus was collected in French, all chatbot excerpts quoted in this article have been translated into English by the authors. The table below shows the distribution by model:

Model	No. of verbatim transcripts	Total words	Average per verbatim	Median	Min – Max
ChatGPT	13	6,138	472	465	325 – 784

Claude	13	12,785	983	1,039	294 – 1,774
Gemini	13	6,477	498	498	420 – 588
Copilot	13	4,229	325	327	248 – 420
Le Chat	13	8,773	675	564	267 – 1,480
TOTAL	**65**	**38,402**	**591**	**486**	248 – 1,774

Table 3 : Corpus volume by model

This distribution reveals **significant variation in verbosity across models**: Claude generates, on average, three times as many words as Copilot for the same prompt (983 words versus 325 words). This difference is not insignificant: it partly determines representational richness, as we will see in the results section.

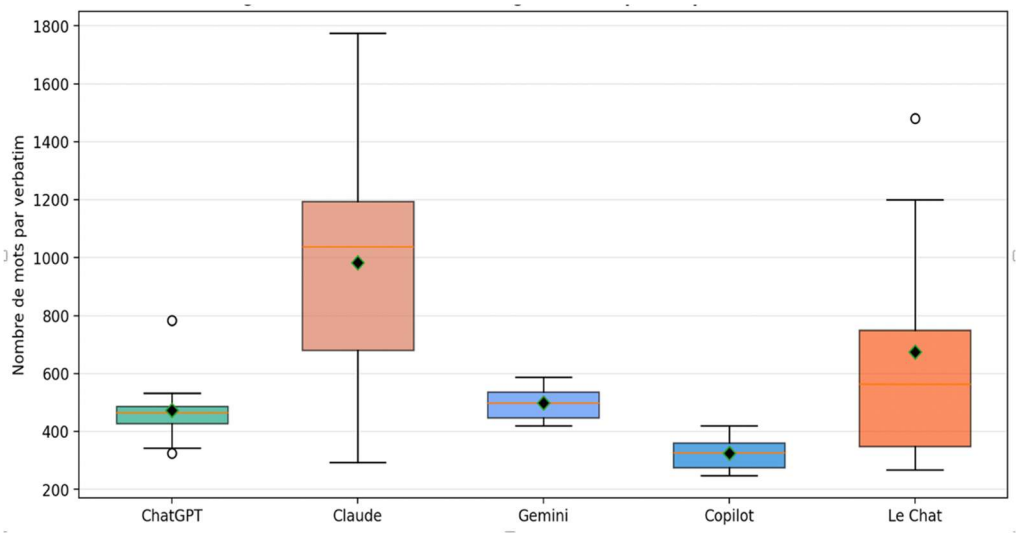

Figure 1 : Distribution of response length by model

4.4 Analysis strategy

The analysis combines four complementary approaches:

4.4.1 Lexicometry and frequency analysis

A lexical frequency analysis was conducted on the entire corpus, using thematic dictionaries constructed a priori based on hypotheses and then inductively enriched through the reading of the verbatim transcripts. These dictionaries cover: (1) coastal locations (23 categories), (2) inland locations (22 categories, including Moroccan destinations outside the region for comparison purposes), (3) Amazigh markers (12 markers), (4) markers related to the 1960 earthquake (4 markers), (5) seaside stereotypes (10 markers), (6) vocabulary related to authenticity (5 markers), and (7) Orientalist markers (6 markers).

4.4.2 Systematic thematic coding

Each verbatim was subject to thematic coding across fifteen variables: number of coastal locations, number of inland locations, occurrences of Amazigh markers, mention of the 1960 earthquake, density of seaside stereotypes, occurrences of the vocabulary of authenticity, presence of comparisons with the imperial cities, and any factual errors. The coding was performed through systematic pattern recognition (regex), with manual verification of ambiguous cases.

4.4.3 Inter-model similarity measurement

To measure the convergence or divergence of narratives between models, a similarity matrix was calculated based on TF-IDF vectorization (1-2 n-grams, maximum of 2,000 features, French stop-words), followed by the calculation of cosine similarities between pairs of verbatim responses to the same prompt. The values were aggregated by model pair across all prompts, then compared prompt by prompt to identify the topics on which the models converge or diverge the most.

4.4.4 Qualitative analysis of transcripts

In addition, a detailed analysis of the verbatim responses was conducted to identify **recurring interpretive frameworks**, stereotypical formulations, and

editorial discrepancies between models. This analysis draws on classical discourse analysis in SIC (Charaudeau & Maingueneau, 2002), while being adapted to the specific nature of texts generated by LLMs.

4.5 Methodological limitations

Several limitations must be acknowledged from the outset. **First**, the corpus is limited to French: hypotheses regarding linguistic variation cannot be tested in this study and will be the subject of a future extension (English and Arabic). **Second**, the lack of perfect reproducibility in LLM responses (due to temperature and model updates) introduces an element of randomness: the same prompt may produce slightly different responses depending on the session. To limit this effect, data collection was conducted within a narrow time window. A direct consequence must nonetheless be stated plainly: every quantitative figure reported in this article derives from a single response per model and prompt. The values given (ratios, similarity scores, location counts) should therefore be read as indicative orders of magnitude rather than as stable point estimates, and a multi-run replication (three to five draws per cell, reporting means and dispersion) is a priority for the planned extension. **Third**, the selection of chatbots reflects the options available at the time of data collection (May 2026); native Arabic-language models (Jais, Fanar) were not included. These limitations are acknowledged as inherent to an exploratory study whose results call for further methodological investigation.

5. Results

The results are presented in six subsections, each corresponding to an axis of analysis: (5.1) volume and lexical richness, (5.2) mapping of places and spatial asymmetry, (5.3) inter-model convergence and divergence, (5.4) treatment of the Amazigh dimension, (5.5) memory of the earthquake and historical narrative, (5.6) authenticity and comparison with imperial cities.

5.1 Volumetry and lexical richness

The first observation concerns **the variation in verbosity** among the five models. Figure 1 (see the methodology section) had already highlighted this

phenomenon: Claude stands out for its consistently longer responses (median of 1,039 words), while Copilot is the most concise model (median of 327 words). This difference is not merely a matter of stylistic parameters: it determines each model's **representational capacity**. The longer a response is, the more likely it is to mention locations, nuances, and counterpoints.

This initial observation is confirmed by an analysis of the number of locations mentioned. Claude cites an average of 7.46 coastal locations and 6.00 inland locations per verbatim, whereas Copilot limits itself to 4.85 coastal locations and 1.69 inland locations. Claude's verbosity thus translates into denser spatial coverage. However, as we will see, this density does not systematically translate into territorial balance. Because these are raw counts, they are mechanically sensitive to response length; the inter-model comparison of absolute counts must therefore be read alongside the verbosity differences noted above, and is best complemented by length-normalized measures (occurrences per 100 words), as is done for the Amazigh markers in Section 5.4.

5.2 Mapping of locations and spatial asymmetry

Analysis of the spatial distribution of cited locations reveals a **marked structural asymmetry** favoring the coast and the urban area of Agadir. Across the entire corpus, the ratio of coastal location mentions to inland location mentions averages **2.25:1**, but varies significantly across models. This 2.25:1 value is the mean of the five per-model ratios; computed on the pooled corpus (369 coastal versus 190 inland mentions), the ratio is 1.94:1. The per-model breakdown is as follows:

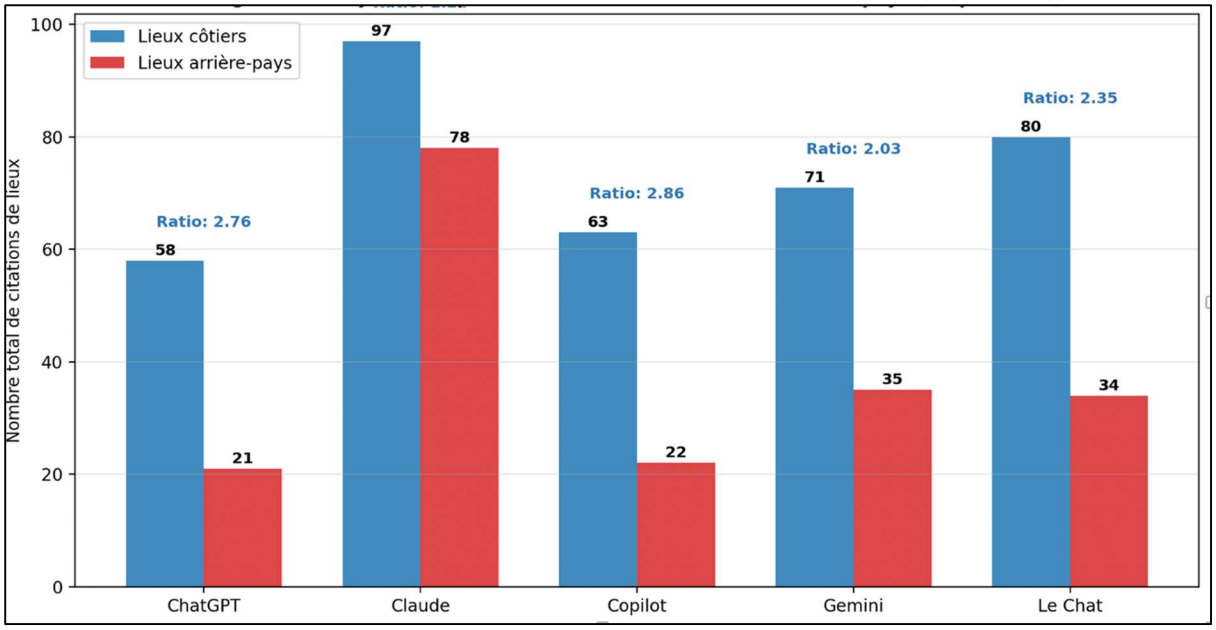

Figure 2 : Spatial asymmetry: coastal vs. inland mentions by model

Model	Coastal locations	Inland locations	Coast/Inland Ratio	% inland
ChatGPT	58	21	2.76	26.6%
Claude	97	78	1.24	44.6%
Gemini	71	35	2.03	33.0%
Copilot	63	22	2.86	25.9%
Le Chat	80	34	2.35	29.8%

Table 4 : Coast-to-Inland ratio by model

Claude stands out clearly with a nearly balanced ratio (1.24:1) and 44.6% of citations devoted to the hinterland, while Copilot and ChatGPT strongly marginalize the territorial periphery (less than 27% of citations). This difference is not merely quantitative: it reflects distinct **implicit discursive policies**. Claude consistently tends to expand the territory discussed beyond the city of Agadir,

whereas Copilot maintains a focus on the seaside resort and its immediate surroundings.

A closer analysis of the most frequently cited places reveals a **highly standardized spatial hierarchy**:

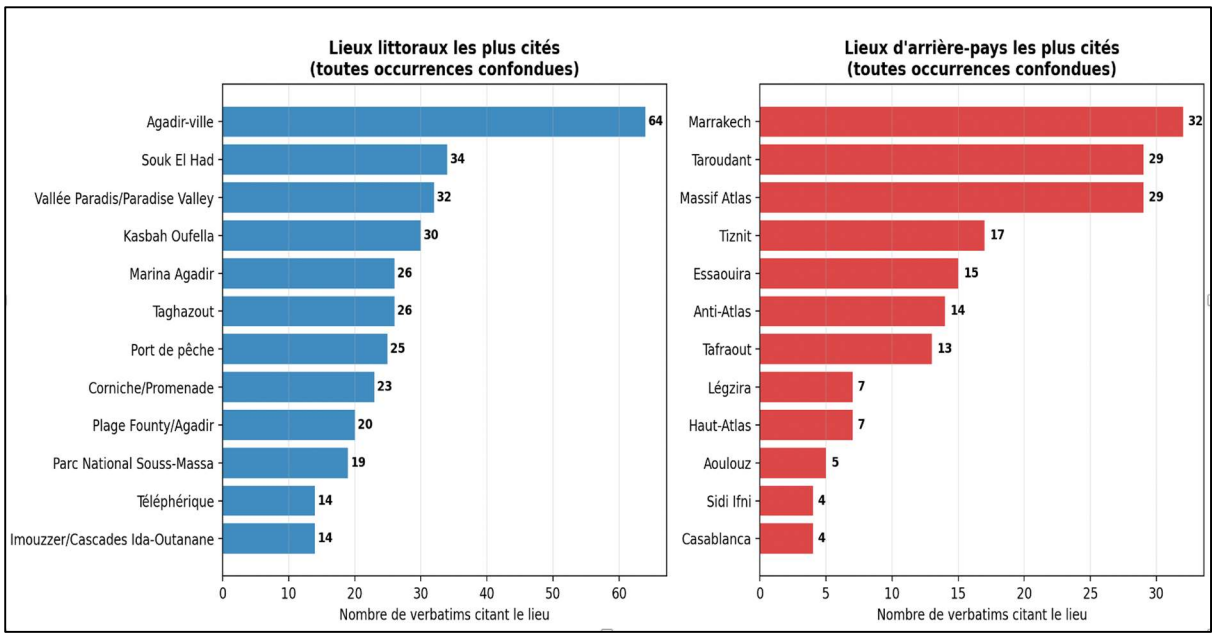

Figure 3 : Hierarchy of places in algorithmic discourse on Agadir

On the coast, **Souk El Had** (34 mentions), **Paradise Valley** (32), and the **Kasbah of Agadir Oufella** (30) form the essential trio, followed by the **Marina** (26) and **Taghazout** (26). All models converge on these markers: there is a veritable **algorithmic tourist canon** for Agadir, shared by all five chatbots.

In the hinterland, the picture is more mixed. The most frequently mentioned hinterland location is actually **Marrakech** (32 mentions), which does not belong to the Souss-Massa region but consistently appears in comparisons. Next come **Taroudant** (29) and the **Atlas Mountains** (29, generic mention). The truly characteristic locations of the Souss hinterland—**Tafraout** (13), **Tata** (1), **Aoulouz** (5), **Ammeln Valley** (2)—remain largely underrepresented, or even virtually absent. It should be stressed that the "inland" category, as coded, also includes out-of-region comparison cities—chiefly Marrakech, which is in fact the single most-cited "inland" place. Once these out-of-region references are set aside, the

asymmetry against the genuine intra-regional hinterland is more pronounced than the aggregate ratio suggests.

This result partially validates **hypothesis H2**: the hinterland exists in algorithmic discourse, but primarily through its most internationally recognized markers (Taroudant, Tafraout) and at the expense of the erasure of less publicized subregions.

5.3 Inter-model convergence and divergence

The TF-IDF cosine similarity measure between pairs of models reveals **moderate but significant** inter-model convergence: the average off-diagonal similarity is **0.356**, with a minimum of 0.300 (Copilot/Gemini) and a maximum of 0.442 (Claude/Gemini).

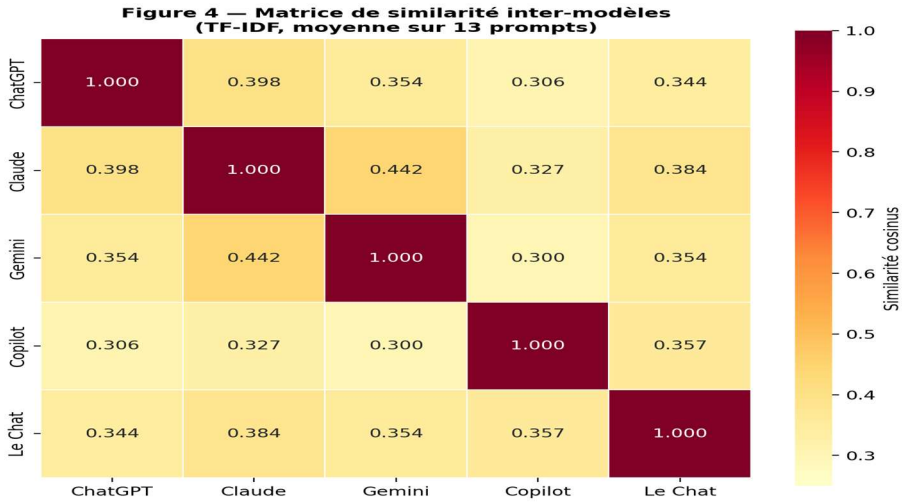

Figure 4 : Inter-model similarity matrix (TF-IDF, averaged over 13 prompts)

These values should be interpreted with caution: a TF-IDF similarity of 0.35 indicates **partial convergence**—the models share a common lexical core (likely derived from shared sources such as Wikipedia and official tourism websites), but retain stylistic and editorial differences. The most similar pair (Claude/Gemini: 0.442) suggests reliance on convergent encyclopedic sources, while the least similar pair (Copilot/Gemini: 0.300) likely reflects Copilot's distinctiveness, as its responses incorporate real-time web search elements.

But the analysis of convergence **by prompt** is more revealing:

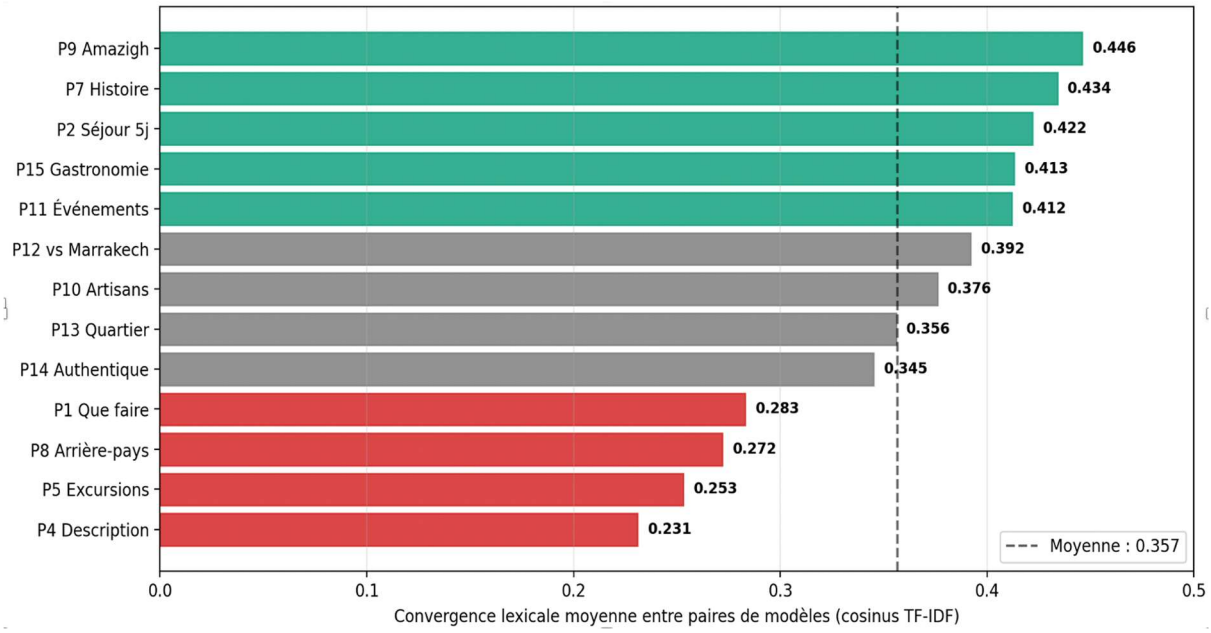

Figure 5 : Inter-model convergence by prompt: discourse standardization index

Convergence varies considerably depending on the type of prompt, ranging from 0.231 (P4, description of Agadir) to 0.446 (P9, Amazigh culture). This variation is extremely instructive:

- **Prompts with strong encyclopedic markers** (P9 Amazigh culture, P7 history, P2 5-day stay, P15 gastronomy, P11 events) generate **high convergence**: the models rely on common, well-established references within their corpora.

- **Prompts with a strong interpretive focus** (P4 description, P5 excursions, P8 hinterland) generate a **more pronounced divergence**: editorial freedom allows the specific characteristics of each model to emerge.

This result validates **Hypothesis H4**: the models share a core set of references but differ on open-ended questions that allow for interpretation. It also calls for a nuanced view of the image of a uniformly standardized algorithmic discourse: standardization **varies** depending on the types of discourse involved.

5.4 The treatment of the amazigh dimension

The testing of hypothesis H3 (the spontaneous erasure of the Amazigh dimension) constitutes one of the study's most striking findings. The analysis reveals a two-stage phenomenon.

5.4.1 Absence in spontaneous discourse

In the general input prompts (P1 "What to do in Agadir?", P2 "5-day stay", P4 "Describe Agadir as a destination"), the Amazigh dimension is **systematically absent or marginal**. The figures speak for themselves:

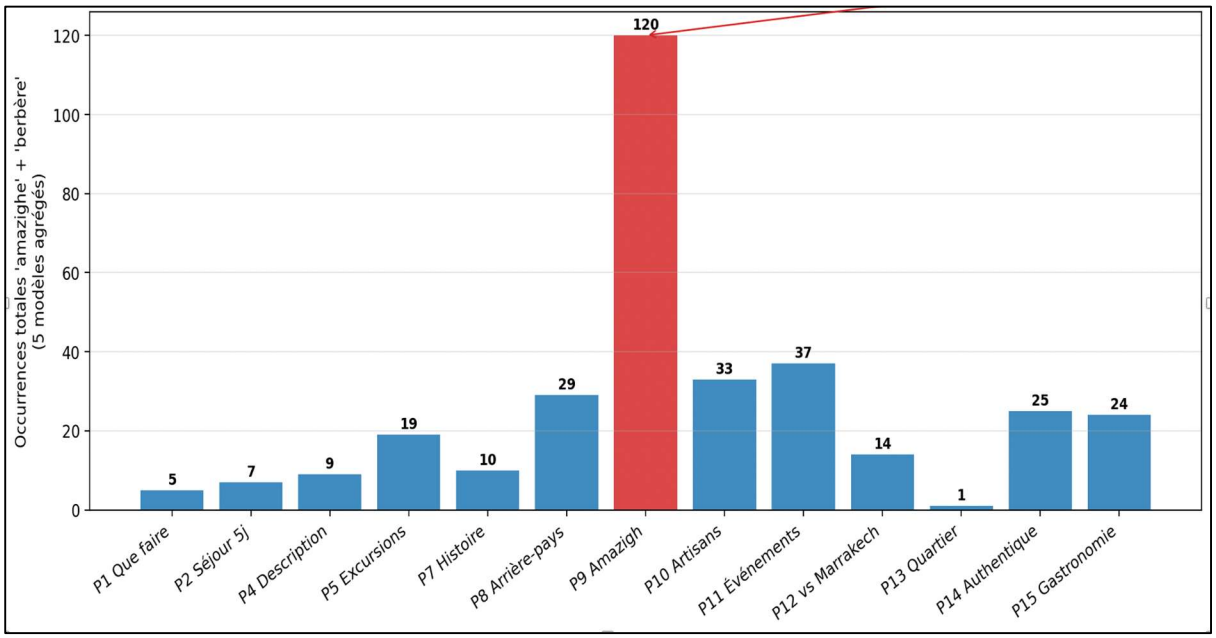

Figure 6 : Spontaneous vs. prompted mention of Amazigh culture by prompt

For prompt P1 ("What to do in Agadir?"), only **2 occurrences** of the word "Amazigh" across all five verbatim responses. For P2 ("5-day stay"), 3 occurrences. For P4 ("Describe Agadir"), 4 occurrences. For P13 ("Which neighborhood to stay in"), there was **only 1 occurrence** across all five transcripts.

These figures reveal that, **when the user asks a general question about Agadir**, **Amazigh culture is almost entirely absent from the narrative produced by the chatbots**. The automated tourist discourse on Agadir is

essentially, in its spontaneous responses, a **seaside-oriented and a-cultural** discourse, or more precisely, a discourse that invokes a generic Moroccan identity without specifying it ethnically or linguistically.

5.4.2 Explicit prompt: A partial correction

Conversely, when the prompt explicitly references Amazigh culture (P9), all models produce substantial, rich, and generally accurate responses. The figure below illustrates this reversal:

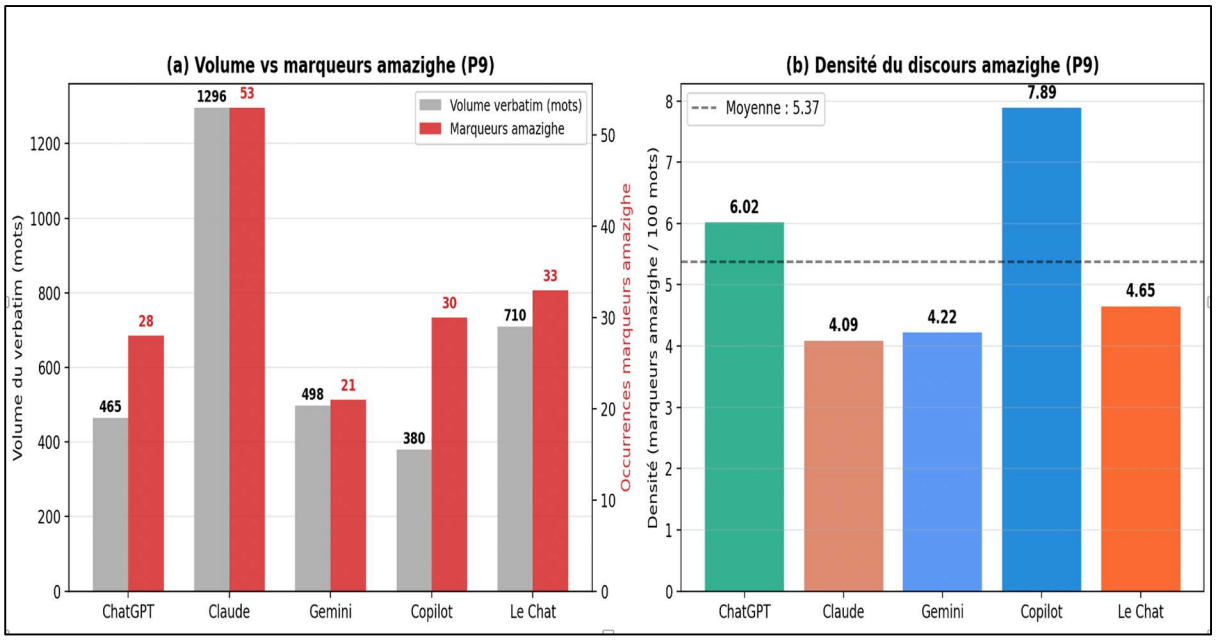

Figure 7 : Focus on prompt 9: how chatbots handle Amazigh identity

Prompt 9 generates a massive spike: 125 Amazigh markers in total, compared to 5 for P1, 7 for P2, or 9 for P4. All chatbots, without exception, are **capable** of producing detailed discourse on Amazigh culture: they correctly identify the term *Imazighen* ("free people"), the etymology of the name *Agadir* ("fortified granary"), the *Tachelhit* language, *Ahwach* art, the role of the argan tree, etc. The density of Amazigh discourse per 100 words ranges from 4.09 (Claude) to 7.89 (Copilot), with an average of 5.37 occurrences per 100 words.

Here are some characteristic excerpts from the introductions generated by the five models in response to prompt 9:

> *"Amazigh culture is one of the oldest cultures in North Africa. It is deeply intertwined with the history of Morocco and particularly prominent in regions such as Agadir, the Souss, the Rif, and the Atlas."* — ChatGPT, P9
>
> *"Amazigh culture (often called 'Berber' in French, but Amazigh—plural Imazighen, 'free men'—is the term preferred by those concerned) is one of the oldest living cultures in North Africa."* — Claude, P9
>
> *"Amazigh (or Berber) culture is the original soul of North Africa, and the Agadir region (the Souss) is one of its most vibrant strongholds."* — Gemini, P9

These excerpts demonstrate that the LLMs possess a solid understanding of Amazigh culture: they are capable of distinguishing between the terms "Berber" and "Amazigh," noting the political dimension of the term, and correctly locating the culture in the Souss. But this knowledge is conditional: it only appears **upon request**. Outside of this explicit request, the default discourse on Agadir largely erases this dimension.

5.4.3 Interpretation: a mechanism requiring explicit activation

This result validates **hypothesis H3** in a nuanced formulation. It is not a matter of absolute erasure—the chatbots are not ignorant of Amazigh culture—but of **erasure by default**. The algorithmic system functions like a box that certainly contains the Amazigh dimension, but only makes it visible if the user knows how to explicitly request it. However, the "average" user—an international tourist planning a beach vacation—has, *a priori,* no reason to issue such a prompt.

This phenomenon can be theorized as a **regime of differential algorithmic visibility**: Amazigh culture is not absent from the system, but it is **contingent** upon the user's explicit initiative. In spontaneous discourse—that which corresponds to everyday usage—it is marginalized. This structure produces concrete effects: the majority of users, who are unaware that there is an Amazigh dimension to explore, will not encounter it in their interactions with chatbots.

5.5 The legacy of the 1960 earthquake

The earthquake of February 29, 1960, which destroyed Agadir and claimed between 12,000 and 15,000 lives, is a defining event in the city's identity. Its presence in algorithmic discourse has been systematically coded. The results speak for themselves:

Prompt	ChatGPT	Claude	Gemini	Copilot	Le Chat	Total
P7 (History)	1	1	1	1	1	5/5
P4 (Description)	0	1	1	0	0	2/5
P12 (vs. Marrakech)	0	1	1	1	1	4/5
P14 (Authenticity)	1	1	1	1	1	5/5
P10 (Artisans)	0	1	0	0	0	1/5
Total prompts	**2**	**5**	**4**	**3**	**3**	

Table 5 : Mention of the 1960 earthquake by prompt and by model

The earthquake is systematically mentioned (5/5) in prompt P7 (history)—which was expected—but also in prompt P14 ("Is Agadir authentic?"), where it is invoked as **a key** to **explaining** Agadir's modern identity. Four out of five models also invoke the earthquake when comparing Agadir to Marrakech (P12), confirming its role as **a narrative marker** structuring the city's identity narrative. Claude stands out for the systematic nature of this reference (5 out of 13 prompts).

Here is a representative excerpt:

> *"On February 29, 1960, a devastating earthquake (estimated at magnitude 5.7–5.9) virtually destroyed the city in a matter of seconds. Approximately 12,000 to 15,000 people perished. It was one of the worst disasters in modern Morocco. […] The royal decision was made not to rebuild on the original site, but to found a new city south of the bay."* — Claude, P7

This structuring of the historical narrative around the earthquake—a rupturing event, modern reconstruction, a new identity—is shared by all five models. It confirms the existence of an **algorithmic narrative canon** regarding Agadir, deeply shaped by the events of 1960.

5.6 Authenticity and comparison to imperial cities

Prompt 14 ("Is Agadir an authentic destination?") provided a particularly illuminating way to test Hypothesis H4 regarding inherited interpretive frameworks. The word "authentic" and its derivatives appear **61 times** across the five verbatim responses (10 in ChatGPT, 11 in Claude, 14 in Gemini, 9 in Copilot, 17 in Le Chat).

Qualitative analysis of the responses reveals a **surprisingly convergent** interpretive framework among the five models: all draw on the contrast between Agadir (perceived as modern, Westernized, and a seaside resort) and the imperial cities (Marrakech, Fes, Chefchaouen), which are considered the canonical benchmarks of Moroccan "authenticity." Here is how each model begins its response:

> *"Agadir is a somewhat unique destination in Morocco: it is authentic in certain respects… but different from 'traditional' Moroccan cities like Fez or Marrakech."* — ChatGPT, P14

> *"That's a valid question, and the honest answer is: not really, and it's probably even the least 'authentic' destination in Morocco—but this answer deserves some nuance."* — Claude, P14

> *"Agadir is authentic, but not in the same way as Fez or Marrakech. If authenticity means narrow medieval alleys and centuries-old palaces to you, Agadir may seem modern."*— Gemini, P14
>
> *"Agadir is a destination that is both modern and authentic, but its authenticity is most evident in its Amazigh hinterland and local traditions."*— Copilot, P14
>
> *"Agadir is a destination that is both modern and authentic, but its authenticity is expressed differently than in cities like Marrakech or Fez."*— Le Chat, P14

The five statements share an **identical rhetorical structure**: (1) an initial concession ("Agadir is authentic, but…"), (2) a comparison with Marrakech and/or Fez, (3) a **reframing** that shifts Agadir's authenticity toward its peripheral dimensions—the Amazigh hinterland, daily life, and traditions outside the tourist circuit.

In total, **Marrakech is mentioned 97 times** in the corpus (across all sources: ChatGPT 18, Claude 27, Gemini 16, Copilot 10, Le Chat 26), and **Fes appears 18 times**. This ubiquity of Marrakech as a point of comparison confirms an interpretive framework structured by the **implicit tourist hierarchy of Moroccan destinations**, in which Marrakech occupies the position of the canonical benchmark.

This result is particularly instructive for regional tourism communication: chatbots **do not create** this interpretive framework (which preexists in French- and English-language tourism literature), but they **faithfully reproduce it** and disseminate it on a large scale. The scope for repositioning Agadir outside the "Marrakech (authentic) vs. Agadir (seaside)" dichotomy is thus structurally constrained by algorithmic discursive architectures.

6. Discussion

6.1 The Chatbot as a device for territorial mediation

The results of this study confirm the theoretical hypothesis posed in the introduction: chatbots can be analyzed as **devices of territorial mediation** in the strong sense. They are not merely transparent technical tools, but arrangements that actively produce representations of the territory by selecting certain places, mobilizing certain interpretive frameworks, and marginalizing other dimensions. This mediation produces **regimes of algorithmic territorial visibility** that structure what can be known, narrated, and imagined about a given territory.

This conceptualization allows us to move beyond a purely instrumental approach to LLMs. Far from being mere "response engines," they are **operators of symbolic framing** that participate in the social construction of tourist destinations. They extend and reconfigure the functions traditionally performed by tourism mediators (guides, brochures, tourist offices), but according to their own logic—opacity of sources, automaticity of production, simulated dialogicity—which make them a novel socio-technical object.

6.2 Three structural biases in algorithmic discourse on Agadir

Empirical analysis reveals three structural biases that run through algorithmic discourse on Agadir, beyond variations between models:

Spatial bias : Chatbots overwhelmingly favor the coastline (a mean per-model ratio of 2.25:1, or 1.94:1 pooled across the corpus, in favor of the coast over the hinterland). This focus likely reflects the structure of the sources used (tourism websites, booking platforms), which overrepresent Agadir's coastline. It raises a question of **algorithmic territorial justice**: the Souss hinterland, which already struggles to be recognized in national tourism policies, sees its digital visibility further diminished within algorithmic systems. This reproduction is not neutral, insofar as these systems themselves become prescribers of future tourism practices.

Cultural bias: The Amazigh dimension is largely erased from spontaneous discourse, reappearing only upon explicit request. This structure produces what

might be called a **default erasure**: the information exists, but it is accessible only to the user who seeks it. This paradox—conditional availability—produces concrete effects of invisibility, as few users know that they must from the perspective of narrative sovereignty: if the Amazigh dimension appears only upon request, it depends entirely on the initiative of the international user—an initiative that is statistically unlikely.

Framework bias : All models reproduce an interpretive framework that positions Agadir in opposition to Marrakech (the canonical reference for Moroccan authenticity). This opposition, inherited from Francophone tourism literature, is reproduced and amplified by the LLMs, which make it a virtually mandatory interpretive lens. For regional stakeholders seeking to build a tourism identity for Agadir outside this structural dichotomy, the room for maneuver is limited: they are forced to act against a framework deeply embedded in the training corpora.

6.3 Implications for regional tourism communication

These findings call for a rethinking of regional tourism communication in the age of LLMs. Traditional strategies—brochure production, institutional websites, social media campaigns—remain necessary, but they are no longer sufficient to shape the narratives circulating in the region. A new family of strategies is emerging, grouped under the term **Generative Engine Optimization** (**GEO**): this involves influencing the training corpora and the sources utilized by LLMs to indirectly shape their generative outputs.

In practical terms, several avenues can be explored for stakeholders in Souss-Massa (CRT, ONMT, regional authorities):

- **Production of structured content and open data on the hinterland**. LLMs rely on available textual sources. Increasing the volume of high-quality content on Tafraout, Tata, the Ammeln Valley, the Anti-Atlas, etc.—published under open licenses and well-referenced—raises the likelihood of their appearing in generated outputs.

- **Systematic promotion of the Amazigh dimension in official communications**. If LLMs default to ignoring this dimension, it is partly because institutional sources themselves rarely highlight it. Regional tourism communications that systematically incorporate the Amazigh marker could, over time, shift the training corpora.

- **Development of an identity narrative for Agadir that stands apart from the Marrakech narrative**. Rather than accepting an imposed interpretive framework, actively construct an autonomous narrative positioning (Agadir as the gateway to the Atlas Mountains, as a maritime Amazigh territory, as a laboratory for sustainable tourism, etc.) and incorporate it into the sources utilized by LLMs.

- **Regular audit of algorithmic outputs**. Establish systematic monitoring of responses generated by the region's main chatbots to detect trends, identify emerging blind spots, and inform an adaptive communication strategy.

6.4 Theoretical contributions to information and communication sciences

Beyond its empirical results, this study makes several contributions to the field of Information and Communication Sciences. **First**, it proposes an empirical operationalization of the concept of "device" as applied to LLMs, demonstrating how classical discourse analysis can be combined with quantitative methods (lexicometry, TF-IDF similarity) to characterize a conversational agent as a producer of situated representations. **Second**, it extends the notion of a visibility regime—originally theorized for sharing platforms—to generative systems that no longer merely filter but actively produce discourse. **Third**, it opens up a research perspective on the **algorithmic narrative sovereignty of territories**, an issue set to become central as LLMs establish themselves as dominant informational intermediaries.

7. Conclusion

The exploratory study presented here has documented, based on a corpus of 65 authentic verbatim transcripts produced by five general-purpose conversational

agents, the regimes of algorithmic visibility that are taking shape around Agadir and the Souss-Massa region. Four main findings can be highlighted.

First, the algorithmic discourse on Agadir is structured by a **marked spatial asymmetry** (mean per-model ratio 2.25:1, or 1.94:1 pooled across the corpus) that prioritizes the coastline and marginalizes the mountainous hinterland, with the exception of internationally recognized landmarks (Taroudant, Tafraout).

Second, **inter-model convergence** is moderate (average similarity 0.356) but varies significantly depending on the type of prompt: high for prompts with strong encyclopedic markers (P9 Amazigh culture: 0.446; P7 history: 0.434), lower for prompts with high editorial freedom (P4 description: 0.231). Algorithmic standardization is therefore not uniform: it is differential.

Third, the **Amazigh dimension** is almost entirely erased from spontaneous discourse on Agadir, but reappears richly when explicitly solicited. This structure—conditional availability, erasure by default—produces a differential regime of algorithmic visibility that concretely marginalizes this dimension in everyday usage.

Fourth, the interpretive framework of **authenticity** is reproduced by all models according to an identical rhetorical structure contrasting Agadir with the imperial cities (Marrakech, Fes), reflecting and amplifying a framework inherited from Francophone tourism literature.

These results invite us to conceptualize chatbots as genuine **devices of territorial mediation**, the analysis of which falls squarely within the realm of Information and Communication Sciences. They also call on regional actors in tourism communication to integrate the algorithmic dimension into their strategies by influencing the sources utilized by LLMs, systematically highlighting cultural dimensions that are currently marginalized, and constructing autonomous identity narratives capable of resisting imposed comparative frameworks. Control over algorithmic narratives within a region is becoming a matter of narrative sovereignty, both at the local and regional levels.

Beyond the case of Agadir, this study proposes an analytical framework—and a methodological protocol—that can be applied to other territories, Moroccan or otherwise, as LLMs establish themselves as dominant intermediaries between destinations and their audiences. The question will no longer be merely "what is a territory?" but "what is a territory as told by algorithms?"—and this question is now central to the field of territorial communication studies.

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