

Balancing Tourism Growth and Sustainability

Turning Data into Decisions through Impact Assessment, Indicator Systems, and Governance Models

A Measurement Perspective on Sustainable Destination Management

Dr. sc. Damir Krešić | Institute for Tourism

Prof. dr. sc. Vjekoslav Bratić | Institute of Public Finance

Presentation Roadmap

01

Tourism's Economic Weight in the EU

Scale, strategic importance and structural dependencies across the EU-27

02

How Vulnerable Is EU Tourism?

Geographic, temporal and systemic risk measurement across EU regions

3.1 Tourism Intensity · 3.2 Tourism Seasonality · 3.3 Regional Vulnerability Index

03

The Measurement Imperative

Why rigorous impact assessment is the foundation of effective destination policy

04

Indicator Systems & Monitoring Frameworks

ETIS, visitor flow tools, carrying capacity frameworks and site-to-territory aggregation

05

Governance: Who Measures What and at Which Level?

Multi-level accountability from EU to destination - with Croatia as a transferable model

06

Evidence-Based Scenario Planning

Modelling destination futures using measurement data - worst case, business as usual, best case

07

Translating Data into Actionable Policy

From indicators to decisions: six EU recommendations and lessons from the Croatian experience

08

Conclusion - The EU Destination Fingerprint Principle and next steps

Tourism in the EU-27: Scale, Value & Structural Vulnerability

10%

of EU GDP (direct & indirect)

25M+

tourism jobs across EU-27

- 1,2B trips
- 350M abroad
- 600M domestic
- 250M EU

83%

SMEs in EU tourism sector

Structural vulnerabilities threatening long-term competitiveness:

Extreme geographic concentration

Top 10 regions receive 40%+ of all EU tourist nights - pressure far exceeds what headline averages suggest.

Acute seasonality

Mediterranean destinations absorb 60-70% of demand in Jul - Sep, overwhelming local infrastructure & ecosystems.

Overtourism hotspots

Barcelona, Venice, Amsterdam, Dubrovnik - cities face resident displacement and heritage degradation.

Measurement blind spots

Same-day visitors - the primary overcrowding driver - are systematically absent from official EU statistics.

Overtourism: A Complete Taxonomy of Destination Impacts

SOCIAL, ECONOMIC & CULTURAL

01 Housing Unaffordability
STR platforms inflate rents; younger residents forced to leave

02 Gentrification & Depopulation
Historic centres lose resident communities to tourist monoculture

03 Cultural Commodification
Heritage becomes scenery; traditions staged for visitor consumption

04 Erosion of Resident Quality of Life
Noise, congestion, loss of local amenities and public space

05 Tourism Economic Monoculture
Dependence on single sector; seasonal jobs displace traditional industries

06 Anti-Social Tourist Behaviour
Public disorder, disrespect for local norms, 'selfie tourism' concentration

INFRASTRUCTURE & GOVERNANCE

07 Water, Energy & Waste Overload
Peak-season infrastructure saturation; costs borne by resident taxpayers

08 Traffic & Transport Saturation
Road gridlock; overwhelmed public transit; compromised emergency access

09 Housing Market Distortion
STR conversion reduces long-term residential stock; rents spiral

10 Rising Cost of Living
Food, services and everyday goods inflated by tourist-level pricing

11 Loss of Green & Civic Space
Parks and public areas converted to tourism infrastructure

12 Public Safety Pressures
Emergency services strained by crowd management and disorder events

ENVIRONMENTAL & EXPERIENTIAL

13 Ecosystem & Biodiversity Loss
Marine, coastal and terrestrial habitats degraded by visitor pressure

14 Heritage Structural Damage
Physical deterioration of monuments, floors and carvings from foot traffic

15 Pollution & Waste
Air, noise, water and litter pollution from tourist-linked activity

16 Declining Visitor Experience
Overcrowding destroys the authenticity that attracted visitors originally

17 Social Media-Driven Concentration
Viral content hyper-concentrates demand at fragile iconic sites

18 Irreversible Carrying Capacity Breach
Once ecological or social thresholds are crossed, recovery may be impossible

Measurement - The Core Problem Facing EU Destination Management

"You cannot manage what you cannot measure"

Peter Drucker

"Without data you are just another person with an opinion"

W. Edwards Deming

"Est modus in rebus"

Horace — There is measure in all things

Defining Destination Carrying Capacity — The EU Policy Context

UN Tourism / EU Transition Agenda Definition

The maximum number of people who can visit a destination without causing destruction to the physical, economic, and sociocultural environment - or an unacceptable decrease in quality of visitor satisfaction.

Not a fixed number

A dynamic threshold range - signals when intervention is needed; aligned with EU Sustainable Tourism Transition agenda

Destination specific

Shaped by each place's ecology, culture, infrastructure & governance - no single EU ceiling applies to all

Evolves over time

Shifts as climate, demographics, and economic conditions change - demands continuous, harmonised EU monitoring

Multi dimensional

Economic, environmental, social, experiential - ETIS (European Tourism Indicator System) addresses all four concurrently

ETIS: The European Tourism Indicator System

ETIS provides 43 core + 40 optional indicators across four dimensions



Destination Management

- Sustainability strategy & governance
- Visitor satisfaction & awareness
- Tourism enterprise sustainability



Economic Value

- Tourist flow (volume & value)
- Business performance
- Quality & quantity of employment



Social & Cultural Impact

- Community social impact
- Cultural heritage protection
- Inclusion & accessibility



Environmental Impact

- Transport impact reduction
- Waste management
- Water & energy consumption

Voluntary • Locally-led • Participatory • 100+ destinations piloted since 2013

Data sources: From Site to Territory

⚠ Key Data Gap: Same-day visitors - the primary overtourism driver - remain systematically absent from EU official statistics. No common EU methodology currently exists.

Official registration systems

Scale: National / Regional

✓ Complete overnight data, legally enforceable. Croatia's Evisitor delivers real-time arrivals for all operators.

! Misses same-day visitors and informal economy stays.

Mobile & GPS data

Scale: City / Destination

✓ Real-time crowd density and movement patterns - without requiring visitor interaction.

! Requires telecoms agreement and careful GDPR handling.

Online booking platforms

Scale: Destination / Site

✓ Supply, pricing, seasonality and visitor origin at fine spatial granularity.

! Platform-dependent; API access restricted for most DMOs.

Physical visitor counters

Scale: Site / Heritage asset

✓ Exact entry volumes and peak-hour patterns at very low ongoing cost.

! Counts entries not unique visitors; needs seasonal calibration.

Visitor exit surveys

Scale: Site / Destination

✓ Spending behaviour, satisfaction, demographics and purpose of visit.

! Resource-intensive to run continuously; sampling bias risk.

Tourism Satellite Account

Scale: National (+ regional)

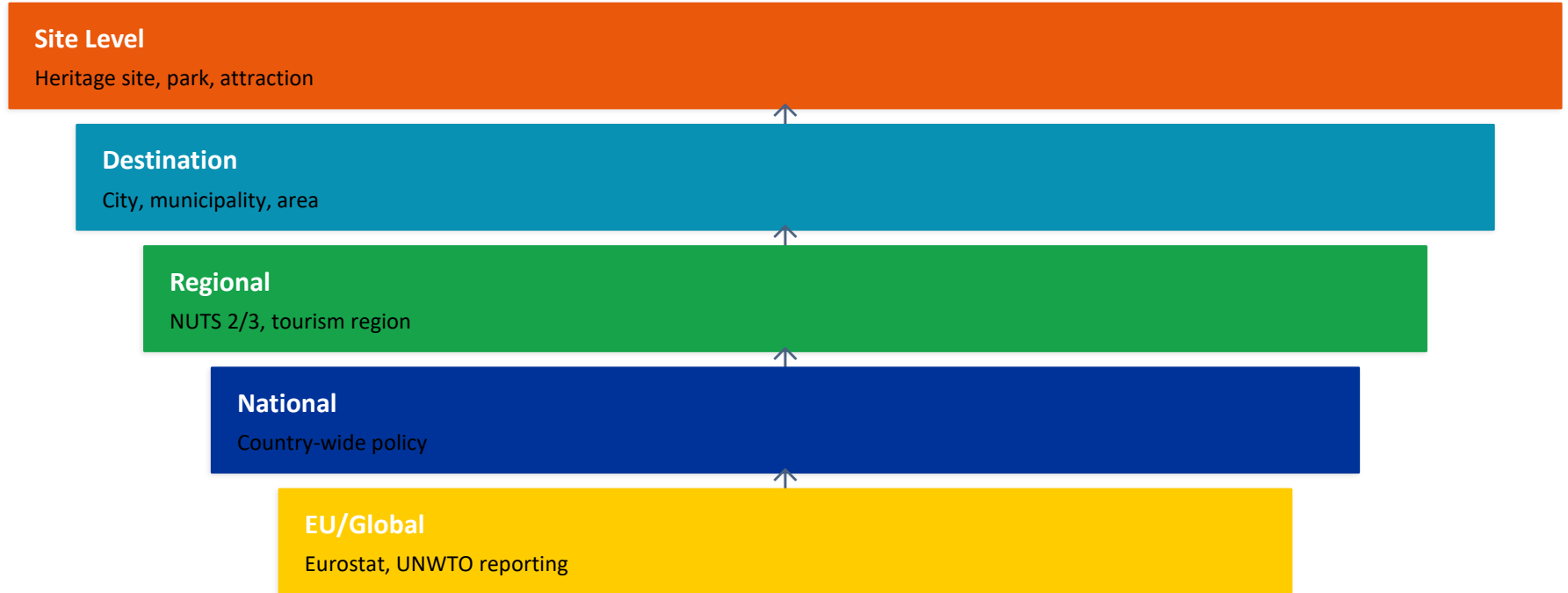
✓ Full GDP, employment and value-added contribution - the recognised gold standard.

! Published 2-3 years late; fewer than 30% of EU states produce it annually.

- **Administrative records:** land use, planning, employment, waste collection, recycling, water supply, energy use, public transport
- **Utility-provider data:** electricity, water, wastewater, and solid-waste
- **Surveys:** Resident, visitor, and destination-management surveys
- **Business data:** hotel and accommodation association data, tourism business records

Methodological Challenge 1: Aggregation & Scaling

How do we scale evidence from individual sites up to regional, national and EU level?



Methodological Challenge 2: Key Aggregation Barriers



Definitional Inconsistency

Different definitions of 'tourist', 'overnight stay' and 'heritage site' across administrative levels make direct comparison unreliable.



Data Availability Gaps

Rich site-level data rarely flows upward systematically; national statistics aggregated top-down lose local nuance.



Temporal Mismatch

Quarterly national data vs real-time site monitoring - different tempos make integration difficult for adaptive management.



Governance Fragmentation

Multiple responsible authorities (local, regional, national, EU) with overlapping mandates and no shared data infrastructure.

Methodological Challenge 3: The 'Last Mile' Problem

Data is often collected but never reaches decision-makers - or reaches them too late



Critical failure point: Steps 4–5 (Decide → Act) often break down due to lack of political will or accountability

Importance of Managing and Measuring at Heritage Sites: Why They Require Tailored Approaches

Cultural heritage sites face unique measurement and management challenges

Irreversible Damage Risk

Unlike beach erosion, cultural fabric loss is permanent - thresholds must be preventive, not reactive. Once monuments degrade, recovery is impossible.

Intangible Values Matter

Authenticity, atmosphere and 'sense of place' are real tourism assets but hard to quantify. Traditional metrics miss what matters most.

Seasonal & Event Spikes

Single events (festivals, Game of Thrones effect in Dubrovnik) can exceed capacity in days, not seasons. Requires real-time monitoring.

Dual Experience Imperative

Quality of visit AND quality of resident life must be measured simultaneously. Heritage sites are lived-in places, not museums.

Multi-stakeholder Complexity

Site managers, local government, UNESCO, national heritage bodies, tourism industry and local communities all have stakes and different priorities.

Case Study Dubrovnik: From Data to Action

The Challenge

- 27 tourists per resident at peak times
- Up to 40,000 simultaneous visitors recorded historically
- UNESCO World Heritage site at risk
- Cruise ship arrivals overwhelming Old Town daily
- Resident quality of life severely impacted
- 'Game of Thrones' effect amplified pressure

Evidence-Based Response

1. Carrying Capacity Study

Comprehensive analysis established scientific limit: 10,000 visitors maximum in Old Town

2. Booking System Development

Mandatory pre-booking system for Old Town access planned for implementation in 2026

3. Cruise Ship Management

Cruise arrivals now capped and timed to spread load across the day and week

4. Real-Time Monitoring

Digital counters track visitor numbers; data feeds into daily management decisions

5. Multi-stakeholder Governance

City, UNESCO, national government and community all involved in threshold-setting

Policy Recommendations for Destination Management

01

Make ETIS Mandatory, Not Optional

Voluntary adoption has plateaued. Link ETIS requirements to EU different EU Fund access - a strong incentive for all 27 member states.

02

Close the Same-Day Visitor Data Gap

Commission a coordinated EU methodology using harmonised telecom data, sensor networks and cross-border statistics.

03

Devolve Accountability to Destination Level

Transfer data authority and carrying capacity mandates to local level - matched with integrated real-time dashboards, as OECD (2024) recommends.

04

Place SMEs at the Centre of Assessment

Redesign EU tourism economic accounts to capture SME multipliers, value chain position and resilience thresholds - not just headline receipts.

05

Blend Objective & Perception Data

Require EU-harmonised resident and visitor perception surveys alongside quantitative indicators - subjective data captures what numbers miss.

06

Redefine Success: Growth ≠ Development

Shift EU tourism KPIs from arrivals to quality-adjusted indicators: resident wellbeing, environmental integrity, visitor satisfaction, SME vitality.

Conclusion: Key Takeaways & Recommendations

Carrying capacity is not a number - it is an assessment/range

Every EU destination has a unique threshold shaped by its ecology, culture, infrastructure and governance - no single ceiling applies across two destinations

Data without governance is just noise

Measurement systems must be embedded in accountable EU and local governance structures - with political mandates to act on what the data shows.

Redefine success: Growth does not necessary EQUALS to development

Destinations that protect their cultural and natural assets will outperform those that sacrifice them for short-term volume - growth \neq development.

SMEs and residents define sustainable tourism

The quality of life of host communities - and the vitality of local enterprises - are the true measure of whether EU tourism is succeeding.

Thank You

for your attention!

Dr.sc. Damir Krešić, Institute for Tourism

Prof.dr.sc. Vjekoslav Bratić, Institute of Public Finance

E: damir.kresic@iztzg.hr

E: vjekoslav.bratic@ijf.hr