La relación entre la digitalización del destino y la sostenibilidad turística: cuadro de mando para Andalucía y el resto de regiones de la UE

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Tourmarketing

Introducción

- Turismo sostenible y digitalización: dilema
- Argumentos a favor y en contra
- Sostenibilidad ha de ser vista desde una triple perspectiva:
  - Ambiental
  - Social
  - Económica

DESI & Sustainability Dashboard

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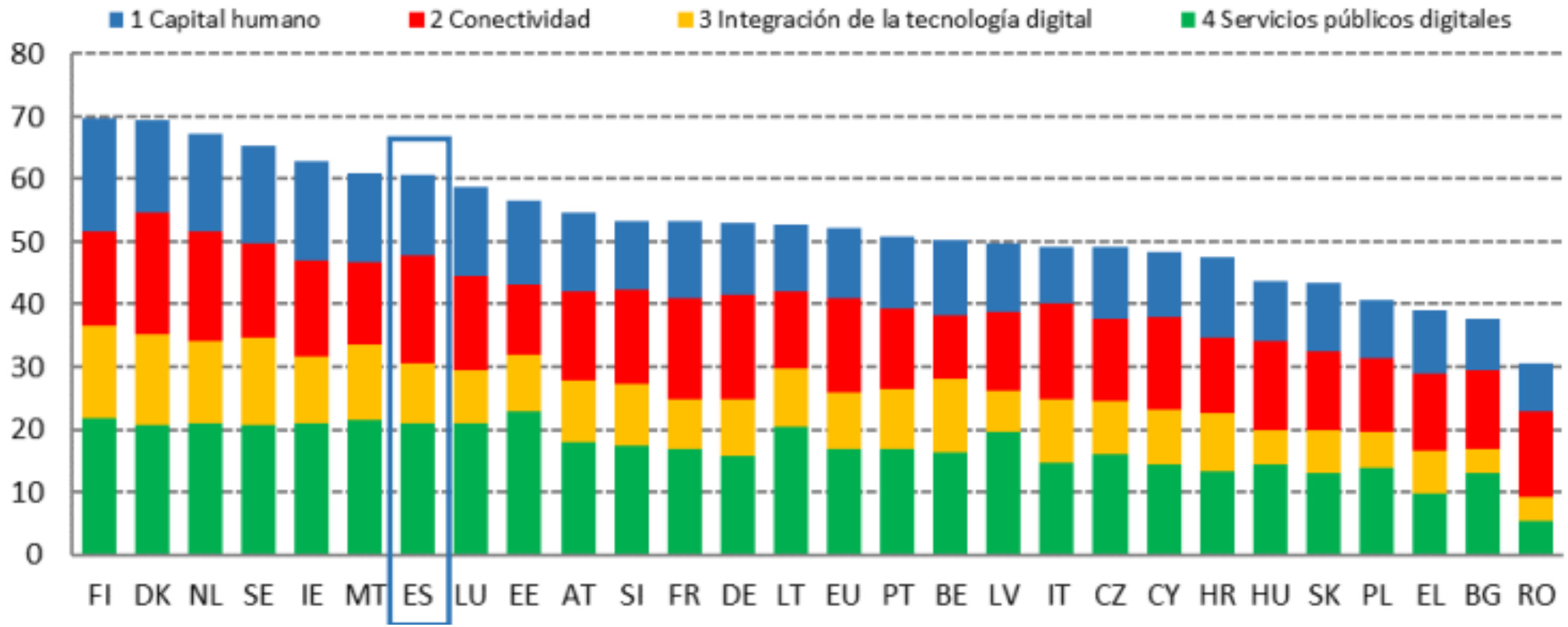
Fuente: Comisión Europea

Capital Humano	Conectividad	Integración de la tecnología digital	Servicios públicos digitales
Habilidades de los usuarios de internet (4)	Adopción de banda ancha fija (3)	Intensidad digital (1)	e-Gobierno (5)
Habilidades avanzadas y desarrollo (4)	Cobertura de banda ancha fija (3)	Tecnologías digitales para las empresas (7)	
	Banda ancha móvil (3)	e-Commerce (3)	
	Precios de la banda ancha (1)		



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Environmental dimension

Theoretical indicator	Interpretation Guide	Formulation
Tourists per area (tourism density)	The measurement of the pressure exerted on the systems can be an indicator of potential and suffered damages. Measuring the intensity of tourism can be useful to study the pressure level the natural environment is under.	Number of tourists received on a year/region surface
Percentage of the region surface deemed as protected nature zone.	This indicator assesses the efforts made to protect natural variety of the area (fauna, plants, unique ecosystems, . . .) and to guarantee its public use through activities that do not endanger natural resources.	Direct data from Eurostat
Construction density per unity of surface	These indicators assess the visual impact of the facilities and infrastructures in the surrounding of a region. The buildings and any other facilities must be integrated within the landscape and environment. Efforts to preserve or enhance the natural environment are evaluated, as well as strategies to prevent erosion.	Built plots (m^2))/(All plots(m^2))
Total surface in a state of erosion		Elevated erosion + Very elevated erosion
Energy consumption per person and day	These indicators are useful for observing trends in energy consumption, while they also allow the destination to monitor performance. Reducing the amount of energy used in tourism is a good indicator of sustainability since it generates important environmental benefits (such as the preservation of natural resources or a drop in the pollution levels). In addition, destinations that use renewable energy are deemed as more sustainable.	Electricity consumption / (Population×(365−30)/365 +Overnight stays/365)
Energy consumption produced by renewable resources per person and day		Renewable energy consumption / (Population×(365−30)/365 +Overnight stays/365)
Total daily volume of water consumed	This indicator is useful for the need to manage the demand and supply of water. It can be key to measure the capacity to receive tourism in destinations with a lack of water, while it also serves as a warning on the possible overexploitation of the supply system.	Average daily water consumption/ (Population×(365−30)/365 +Overnight stays/365)
Total volume of waste produce in the region per person and day	The amount of waste must be reduced as it is a risk to the environment and damages the image of the destination. It is also useful to see the trend in the production of solid waste and to monitor the destination so that appropriate measures can be taken.	Total Municipal Waste / (Population×(365−30)/365 +Overnight stays/365)
Atmospheric pollution levels	Lower levels of air pollution reduce the negative effects on cultural heritage (acid rain on historical monuments) and natural (damage to species and impact on ecosystems).	Total Pollution / (Population×(365−30)/365 +Overnight stays/365)

Economic dimension

Theoretical indicator	Interpretation Guide	Formulation
Direct effect in tourism sector		
Number of tourists received	The high demand, the average stay and the tourist expenditure are indicative of great economic benefits. These indicators allow us to monitor the increase/decrease in tourist expenditure, the contribution to the GPD and to the income of the community. With these, it is possible to decide if the community should encourage local or foreign tourism and how to do it, or if, on the contrary, it should stop development.	Direct data from Eurostat
Average stay		Annual overnight stays/Total number of tourists
Tourist expenditure		Direct data from Eurostat
Regulated accommodation places offered	This indicator shows the provision of regulated accommodation services that are available to the demand. The total number of places available must be quantified by adding the places available in each type of tourist accommodation.	Direct data from Eurostat
Percentage of employees in the tourist sector compared to all the employment	This indicator shows the employment generated in the tourism sector directly through the activity recorded in regulated tourist accommodation activities. A tourist destination can have many of the ingredients for success: interesting tourist attractions, great weather, five-star accommodations, and great services. However, if qualified employees are not available to provide the services and operate the facilities, tourism will not be sustainable in that destination.	(Total contracts in the tourism sector/Total contracts)x100
Indirect effect in all sectors		
Average net income declared per inhabitant	This indicator provides an indirect measure on the contribution of tourism to the local economy. It tries to control whether the improvements in the amount of tourist activity are reflected in the average income levels per inhabitant in the area.	Direct data from Eurostat
Percentage of permanent contracts registered compared to the total	These indicators are used to evaluate the quality of the employment in the area by analyzing its duration and the levels of education and/or qualification of the employees hired.	(Total permanent contracts) / (Total contracts)×100
Percentage of contracts registered for employees with higher education		(Registered contracts of employees with higher education) / (Total contracts)×100

Social dimension

Theoretical indicator	Interpretation Guide	Formulation
Tourist population per local resident (tourism pressure)	This indicator evaluates and establishes limits regarding the number of tourists that the local community can welcome without a negative impact.	Tourism received in a year / Total population of the region
Population variation	Tourism growth can cause a considerable change in the number and composition of residents: the oldest ones leave due to the excessive transformation of their community or city and new ones fill the jobs and take advantage of the opportunities tourism offers. A touristic destination is deemed more sustainable when it tends to maintain the amount of resident population and there is a balanced population structure. The changes in structure registered must be linked with tourist development in order to assess (even qualitatively) its influence on population changes.	(Most recent year population) / (Reference year population) ×100−100
Percentage of young population		(Population between 15 and 24 years of age/Total population of the region)x100
Percentage of elderly population		(Population over 64 years of age/Total population of the region)×100
Amount of passenger transport vehicles	This indicator seeks to evaluate the benefits in terms of improvements in the provision of transportation services as a result of the tourism activity in the area.	(Total amount of buses/Total population of the region)*1000

Tentative Sustainability Indicator - Weightings

Indicator	ID blancas indicator	Sign	Issue	Issue Weight	Indicator Weight	FINAL weight
Environmental						
Tourist density	Ien22	-	Intensity of tourist use	0,1167	1,0000	**0,1167**
Protected area	Ien1	+	Protection of the natural ecosystems	0,2929	1,0000	**0,2929**
Construction	Ien19	-	Management of the visual impact of facilities and infrastructure	0,1248	0,4719	**0,0589**
Land erosion	Ien20	-	Management of the visual impact of facilities and infrastructure	0,1248	0,5281	**0,0659**
Daily electrical consumption	Ien2	-	Energy management	0,1658	0,4821	**0,0799**
Daily renawable electrical consumption	Ien3	+	Energy management	0,1658	0,5179	**0,0859**
Pollution sent to the atmosphere	Ien17	-	Atmospheric pollution	0,1421	1,0000	**0,1421**
Daily waste	Ien8	-	Management of solid urban waste	0,1577	1,0000	**0,1577**
Social						
Tourism pressure	Is19	-	Social carrying capacity	0,3600	1,0000	**0,3600**
Population shift	Is15	-	Effect on national population structure	0,1944	0,3332	**0,0648**
Passenger vehicles	Is3	+	Socio-cultural effects of tourism on host community	0,4456	1,0000	**0,4456**
Young population	Is12	+	Effect on national population structure	0,1944	0,3339	**0,0649**
Elderly population	Is13	-	Effect on national population structure	0,1944	0,3330	**0,0647**
Economic						
Number tourist	Ie1	+	Economic benefits of tourism for the host community and destination	0,4952	0,1963	**0,0972**
Household home	Ie9	+	Economic benefits of tourism for the host community and destination	0,4952	0,1643	**0,0814**
Number of bed places	Ie14	+	Tourist offers —providing a variety of experiences to visitors	0,1725	1,0000	**0,1725**
Tourism expenditure	Ie3	+	Economic benefits of tourism for the host community and destination	0,4952	0,2269	**0,1124**
Permanent contract in all sectors	Ie5	+	Economic benefits of tourism for the host community and destination	0,4952	0,2067	**0,1024**
Tourism participation	Ie23	+	Tourism employment	0,3323	0,5083	**0,1689**
Average night per tourist	Ie2	+	Economic benefits of tourism for the host community and destination	0,4952	0,2059	**0,1020**
Employees with higher education	Ie27	+	Tourism employment	0,3323	0,4917	**0,1634**

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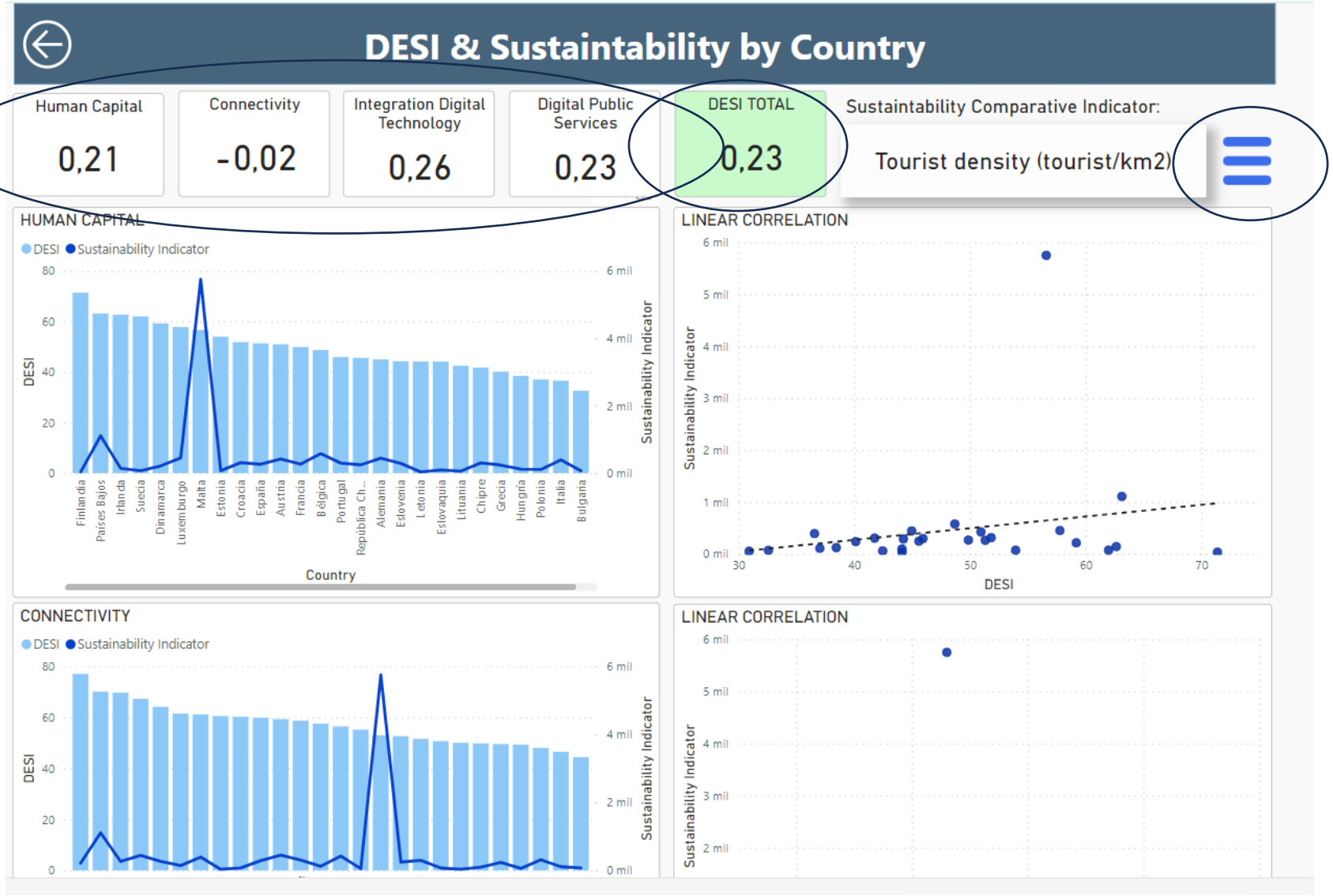

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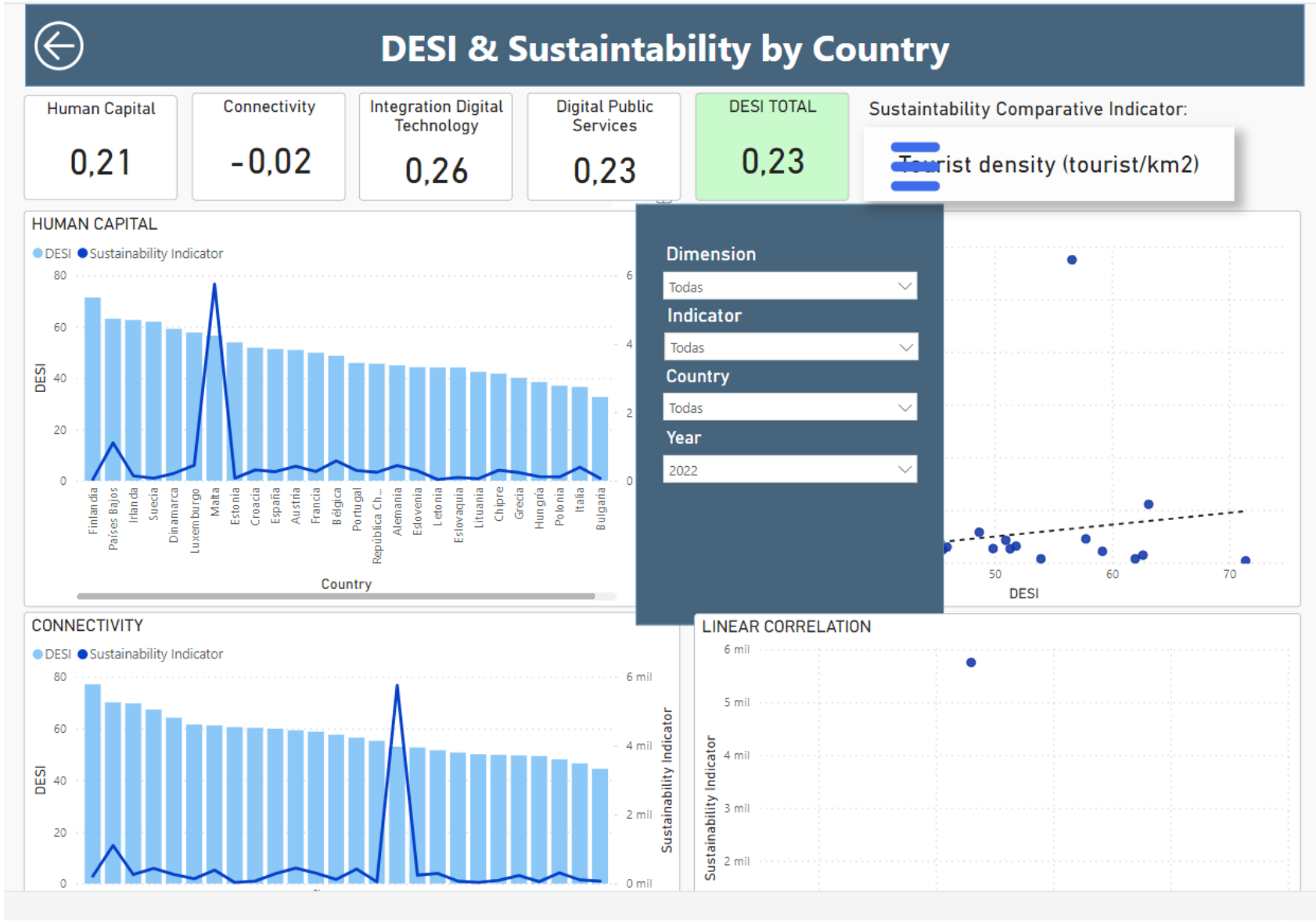

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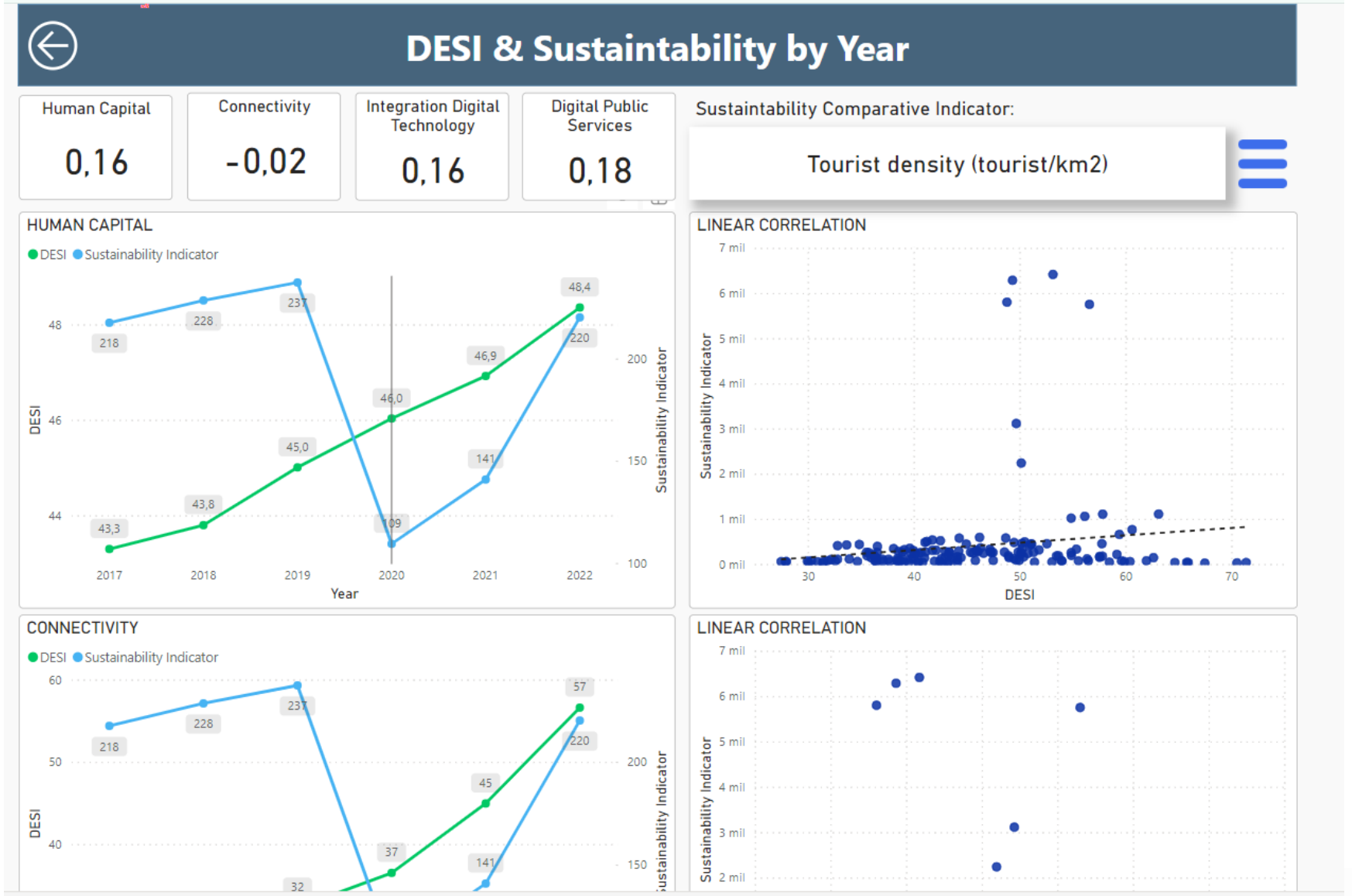

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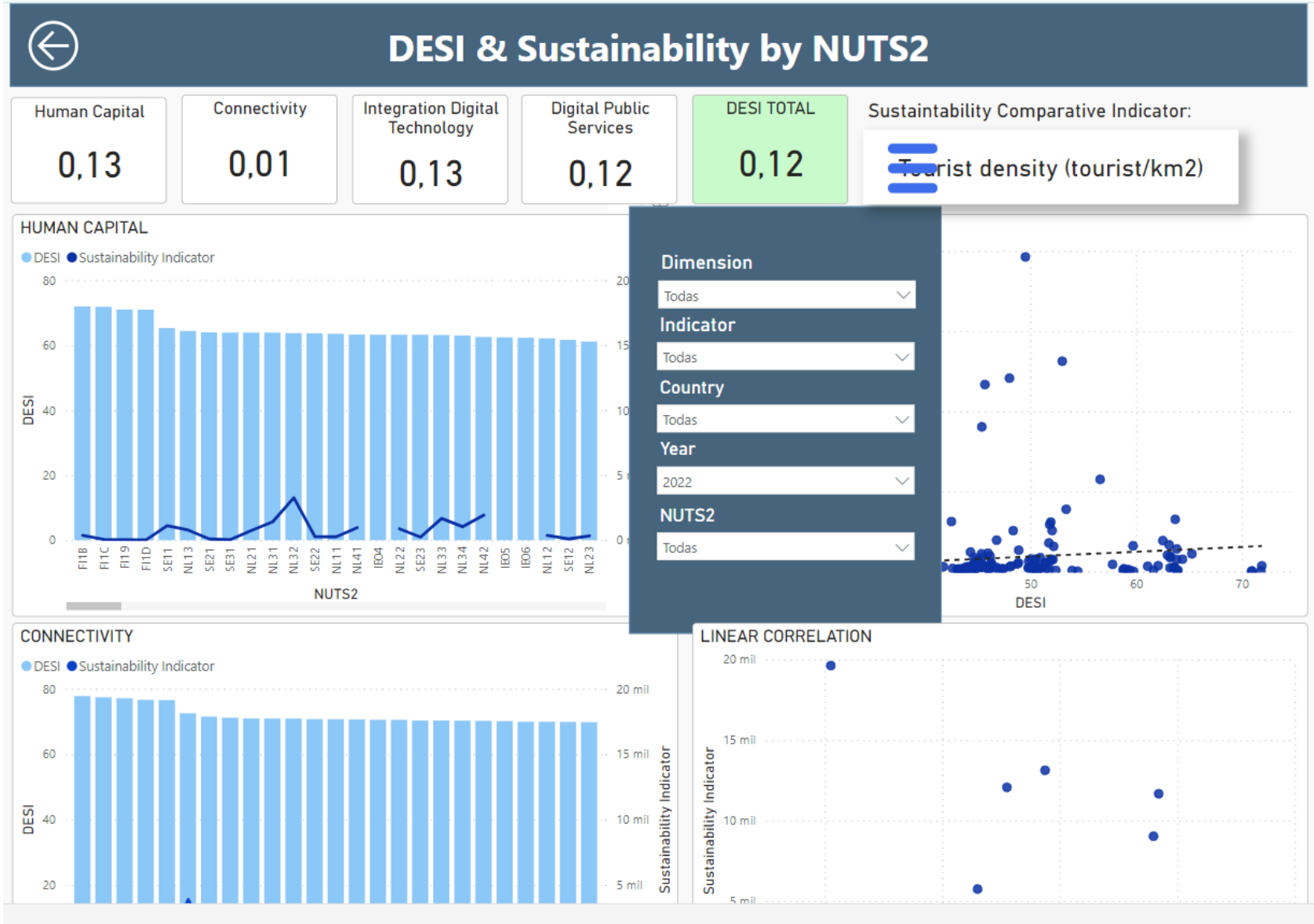

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DESI & Tentative Sustainability by Dimension (Experimental)

Correlation Matrix

Dimension	Human Capital	Connectivity	Integration of Digital Technology	Digital Public Services	DESI
Economic	0,03	0,47	0,11	0,01	0,14
Environmental	-0,68	-0,16	-0,66	-0,58	-0,65
Social	-0,22	-0,31	-0,35	-0,07	-0,26
TOTAL Sustainability	-0,54	-0,01	-0,58	-0,37	-0,47

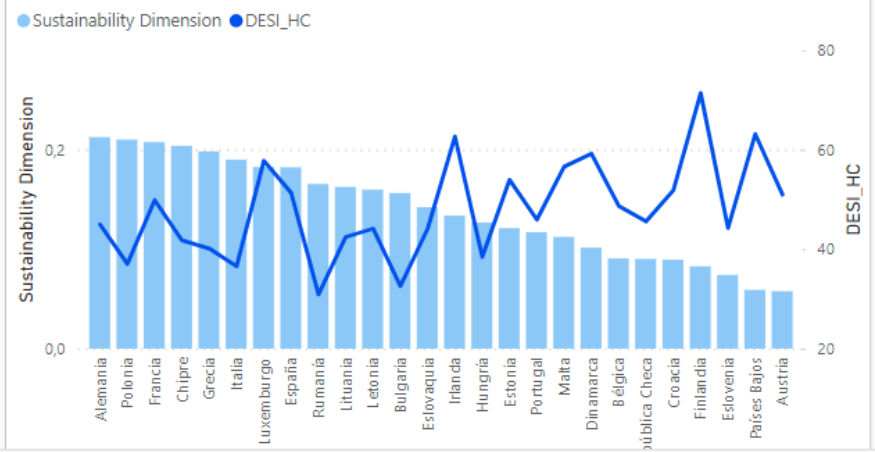
Country

Todas

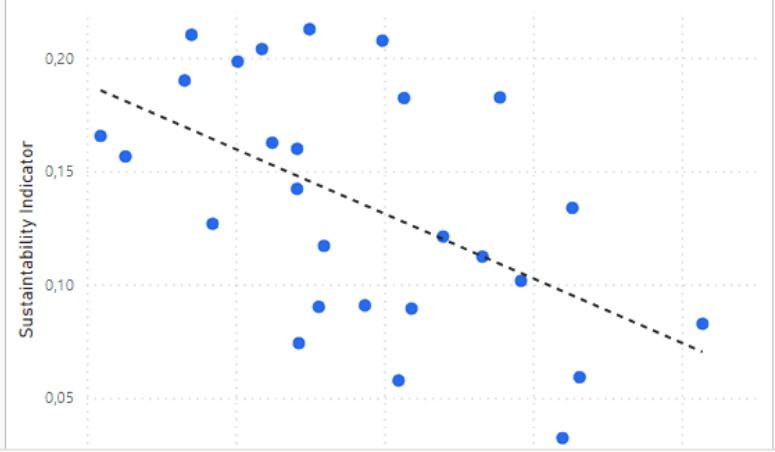
Sustainability Dimension

Economic | Environmental | Social | TOTAL Sustainability

HUMAN CAPITAL



LINEAR CORRELATION



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Country | NUTS2 | CORR = -1 | CORR = +1

Dimension	Indicador	Points COUNTRY	Human Capital	Connectivity	Integration of Digital Technology	Digital Public Services	DESI
Economic	Average night per tourist	160	-0,04	-0,14	0,06	-0,18	-0,11
Economic	Employees with higher education (%)	162	0,55	0,23	0,48	0,60	0,55
Economic	Household income (millions of euros)	121	-0,06	-0,02	0,01	-0,06	-0,04
Economic	Number of bed places	149	-0,09	-0,01	-0,02	-0,11	-0,07
Economic	Number tourist	159	-0,06	0,02	-0,04	-0,07	-0,05
Economic	Permanent contracts (%)	162	-0,33	-0,06	-0,32	-0,19	-0,24
Economic	Tourism expenditure (millions of euros)	161	0,08	0,10	0,05	0,03	0,07
Economic	Tourism participation (%)	107	0,01	-0,40	0,01	-0,13	-0,14
Environmental	Construction density (%)	27	0,17	0,03	0,29	0,23	0,22
Environmental	Daily electrical consumption (tons)	162	0,63	0,12	0,51	0,36	0,45
Environmental	Daily renawable electrical consumption (tons)	135	-0,20	-0,17	-0,05	-0,06	-0,13
Environmental	Daily waste (tons)	54	0,36	0,19	0,16	0,24	0,28
Environmental	Daily water consumption (m3)	53	-0,02	0,05	0,11	0,08	0,08
Environmental	Pollution sent to the atmosphere (tons)	162	0,27	0,00	0,11	0,23	0,18
Environmental	Protected area (%)	27	-0,32	-0,14	-0,46	-0,31	-0,36
Environmental	Tourist density (tourist/km2)	159	0,16	-0,02	0,16	0,18	0,14
Social	Elderly population (% 65 or older)	162	-0,16	0,08	0,04	-0,07	-0,03
Social	Passenger vehicles (buses) per 1000 inhabitants	133	-0,02	-0,09	-0,11	0,11	-0,01
Social	Population	162	-0,19	0,04	-0,11	-0,16	-0,12
Social	Tourism pressure	159	0,31	-0,14	0,18	0,10	0,11
Social	Young population (% 15-24 years)	162	0,56	0,11	0,45	0,18	0,34

YEAR

Todas

COUNTRY

Todas

Correlation Matrix

Dimension	Human Capital	Connectivity	Integration of Digital Technology	Digital Public Services	DESI
Economic	0,03	0,47	0,11	0,01	0,14
Environmental	-0,68	-0,16	-0,66	-0,58	-0,65
Social	-0,22	-0,31	-0,35	-0,07	-0,26
TOTAL Sustainability	-0,54	-0,01	-0,58	-0,37	-0,47

Reflexiones finales

- Tener en cuenta la sostenibilidad en su triple vertiente
- No quiere decir que la digitalización de destino sea contraproducente
- Favorece claramente la dimensión económica (mayor visibilidad, mayor seguridad…)
- Establecer políticas para gestionar el turismo (dimensión social y ambiental)
- La digitalización es necesaria, pero también es necesario anticiparse/prepararse para la llegada de turistas: evitar problemas del Overtourism

La relación entre la digitalización del destino y la sostenibilidad turística: cuadro de mando para Andalucía y el resto de regiones de la UE

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