



CoastalPulse

Team 1

Enhancing ROI in tourism businesses by leveraging AI and open data on visitor origin, visit frequency, spending per trip, and average stay duration



[vasileiosalevizos/
coastalpulse_bog_datathon](https://github.com/vasileiosalevizos/coastalpulse_bog_datathon)



ΤΡΑΠΕΖΑ ΤΗΣ ΕΛΛΑΔΟΣ
ΕΥΡΩΣΥΣΤΗΜΑ



[Bankofgreece Datathon 2023](#)

Market and Monetizing



CoastalPulse



Open Data and AI

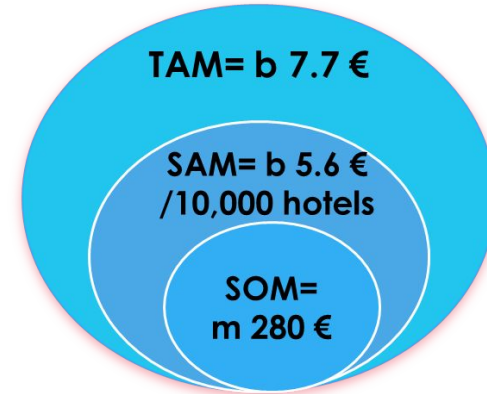


TAM SAM SOM*

*Total Tourism in Greece.

*Serviceable Business.

*Serviceable Obtainable
Business.



Datasource: BoG 2019

One-Year-Target

Hotels = 500

Subscription / month = 20€

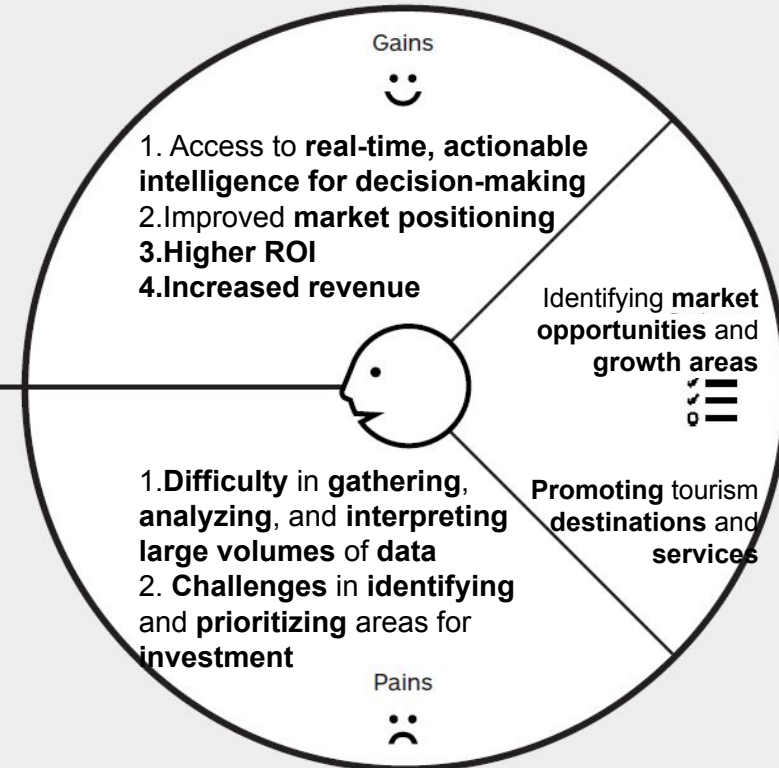
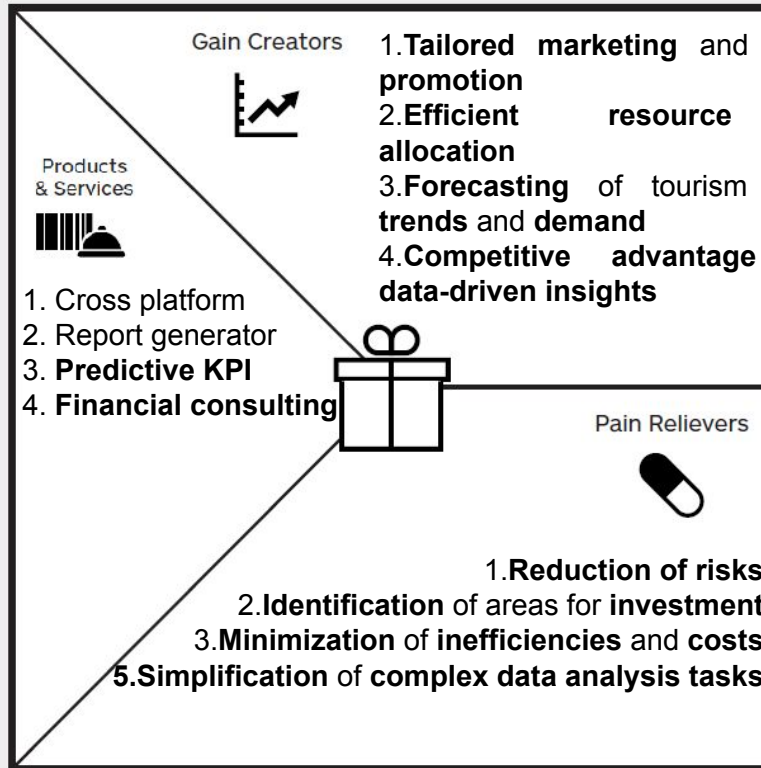
Yearly Revenue = $500 * 20 * 12 = 120,000$ €

The Value Proposition Canvas

Harnessing the power of Data and Explainable AI to provide Insights for Strategic Decision-Making in the Tourism Industry

Greek B2B

Idea & Target group



The Business Model Canvas










Designed for:

Designed by:

Date:

Version:

Value creation and Revenue model

<p>Key Partners </p> <ol style="list-style-type: none"> 1. Google Maps 2. Satellite and surveillance camera providers 3. Payment processing companies 	<p>Key Activities </p> <ol style="list-style-type: none"> 1. AI-driven data analysis and forecasting 2. Development of tailored marketing strategies <hr/> <p>Key Resources </p> <ol style="list-style-type: none"> 1. AI platform and algorithms 2. Data from various sources 3. Skilled data scientists and engineers 4. Marketing and sales teams 	<p>Value Propositions </p> <ol style="list-style-type: none"> 1. Facilitating accurate data gathering 2. Valuable AI insights and data-driven predictions to inform marketing decisions and ensure long-term success 3. Improved allocation of marketing resources and targeted promotions for increased ROI 	<p>Customer Relationships </p> <ol style="list-style-type: none"> 1. Personal assistance and support 2. Online and self-service tools 3. Regular updates and improvements <hr/> <p>Channels </p> <ol style="list-style-type: none"> 1. Platform and API 2. Direct sales and marketing efforts 3. App stores 4. Tourism boards and associations 	<p>Customer Segments </p> <ol style="list-style-type: none"> 1. Hotels, resorts, and accommodation providers 2. Airlines, cruise lines, and transportation companies 3. Tour operators and travel agencies 4. Marketing organizations
<p>Cost Structure </p> <ol style="list-style-type: none"> 1. Platform development and maintenance 2. Data acquisition and storage 3. Salaries for data scientists, engineers, and support staff 		<p>Revenue Streams </p> <ol style="list-style-type: none"> 1. Subscription-based pricing 2. Customized solutions and consulting services 3. Commission or referral fees from partners 4. Advertising and sponsorship deals 5. White-labeling 		



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Customer Journey



Demo

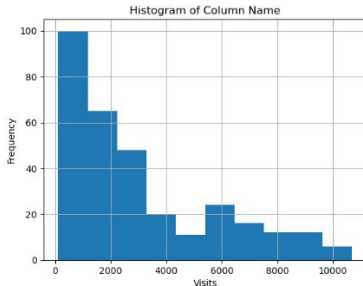
```
# Load the generator model
loaded_generator = Generator(input_dim=latent_dim, output_dim=1)
loaded_generator.load_state_dict(torch.load('generator_model.pt'))
loaded_generator.eval()

# Generate synthetic data using the trained generator
def generate_synthetic_data(generator, num_samples, latent_dim):
    noise = torch.randn(num_samples, latent_dim)
    synthetic_data = generator(noise).detach().numpy()
    return synthetic_data

num_samples = 10
synthetic_data = generate_synthetic_data(loaded_generator, num_samples, latent_dim)
print("Synthetic data:")
print(synthetic_data)
```

Synthetic data:

```
[[0.35919797]
 [0.37082583]
 [0.43005165]
 [0.4649125 ]
 [0.45529687]
 [0.43460461]
 [0.43604937]
 [0.44424593]
 [0.3903681 ]
 [0.33715442]]
```

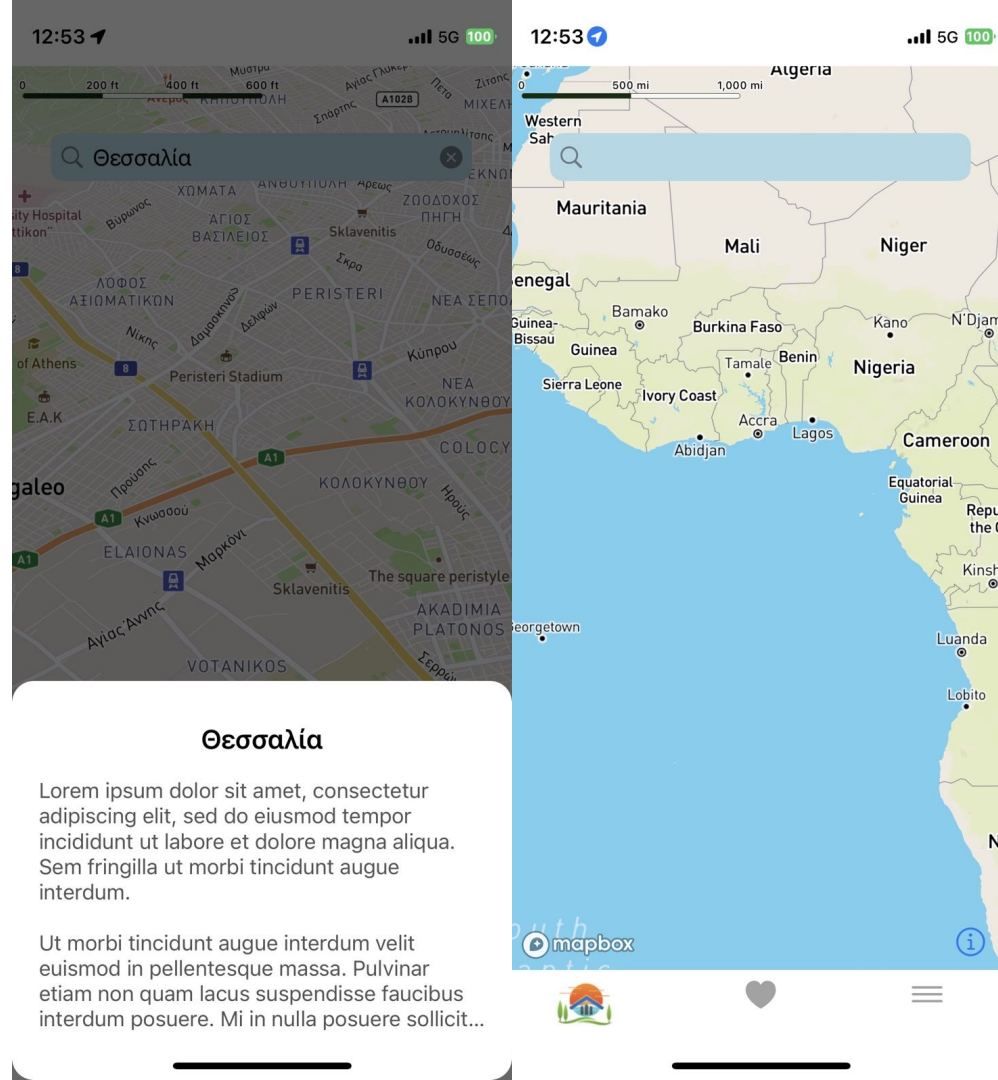


```
# Find the top 5 countries with the highest ROI
top_5_countries = roi_per_country.sort_values('ROI', ascending=False).head(5)

print("Top 5 countries with the highest ROI:")
print(top_5_countries)
```

Top 5 countries with the highest ROI:

Χώρα προέλευσης	ROI
1	1 79.211436
9	9 72.718837
20	20 68.130353
0	0 67.101038
4	4 61.207095



Architecture/ Problems faced / resolved

dmlc
XGBoost

Financial KPIs

 **Shap**

Synthetic simulation

Report generation

 **PyTorch**



OpenAI
ChatGPT 4.0

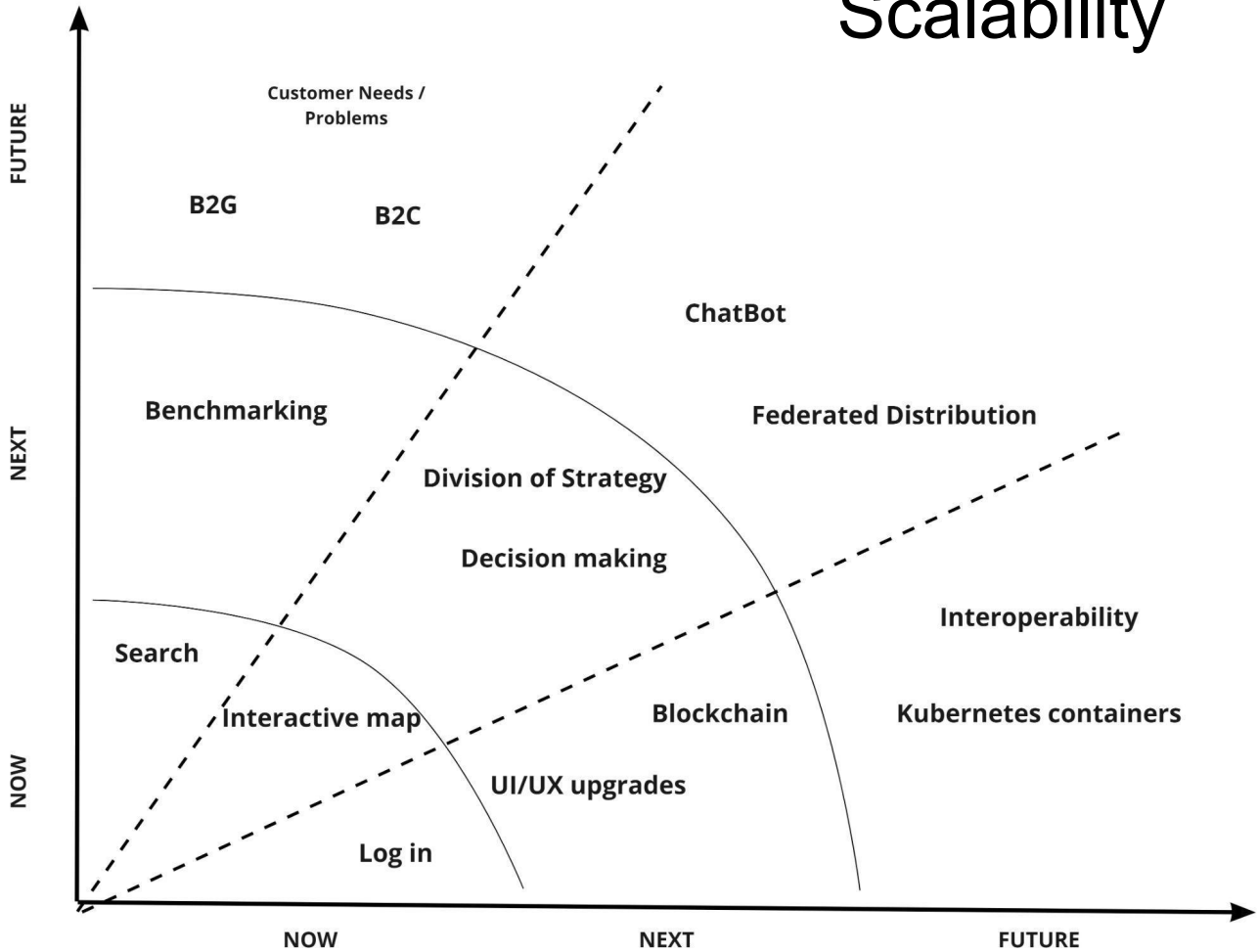
Data quality and inconsistency

1. Incompatible interpretation (ex. (:))
2. Missing valuable key elements
3. Age range
4. Demographics (such as cities)

```
Top 5 countries with the highest ROI:
Χώρα_προέλευσης      ROI
1                      1  79.211436
9                      9  72.718837
20                     20 68.130353
0                      0  67.101038
4                      4  61.207095
```

1. Travellers activity for each country and region
<https://opendata.bankofgreece.gr/> [35, 26, 27, 28, 29, 41, 43, 30, 42, 23]
2. Travellers by age, according to destination and length of trip in [Spain](#)

Scalability



The Team

Scrum ready Product Development Team

Project Manager [core] Vasileios (Vasilis) Alevizos Scrum Certified, PhD candidate

Product Owner [core] Ilias Georgousis Scrum Certified, CBAP®, PhD candidate

UI/UX [core] Alexis Stathopoulos, BSc

Developer Georgios (Giorgis) Hobis MSc

Mobile Developer [core] Dimitra Malliarou MSc

Developer [core] Adonis Messinis Scrum Certified, MSc

Developer Matthaïos Tasios, MSc

THANK YOU

Giorgos Zibaras
Spyros Gardikiotis
Tonia Aslani
Kalliopi Akatziliotou
Katerina Klouri
Maria Mouti
Tatiana Megalopoulou
Costas Skiadiotis
Costakis Petros
Spyros Kapenakis
Georgios Kousiouris
Haris Alexopoulos
Alexandros Melidis
Michalis Bafopoulos
Euthimios Tabouris
Giorgos Karamanolis
Vasileios Veskoukis
Adonios Stasis
Tasos Koultras
et al.

