ETC HANDBOOK ON TOURISM FORECASTING

METHODOLOGIES

(UPDATE)

Invitation to Tender

1. **Introduction**

World tourism continues to rise¹ in both emerging and advanced economies inviting destinations to adapt to the rapid advances in digitalisation, innovation, consumer and societal changes and increased accessibility, to foster the sustainable development of tourism while remaining competitive.

In the travel and tourism sector, an accurate prediction of tourist arrivals, overnights, expenditure, etc., remains essential for effective business decisions, planning year over year, and for monitoring and benchmarking purposes. Destinations today, can obtain valuable information from Big Data² to forecast e.g. tourist demand in a given city, in month, season or year. Accurately predicting tourist arrivals will provide indications in terms of implementing targeted marketing and promotional campaigns, managing tourist flows or addressing sustainability matters. These efforts can ultimately result in better decision-making, improved productivity and increased tourism satisfaction for both travellers and locals.

Predicting the future may appear as an easy task, especially when what is predicted is available periodically and follows a regular pattern (e.g. weather forecasts). However, for many researchers in the travel industry, travel demand can be a difficult variable to predict provided the number of external factors that are involved (e.g. health of the economy, natural disasters, terror attacks, fuel prices, geopolitical environment, etc.). Furthermore, identifying which variables should be considered while forecasting is not always obvious. The rapid advances in Information and Communication Technology (ITC) and the wide range of possibilities to retrieve and disseminate information have allowed tourism researchers to explore numerous data sources and methods to predict tourism demand.

ETC envisages the updated version of the ETC-UNWTO Handbook on Tourism Forecasting Methodologies (2008) to provide National Tourism Organisations (NTOs) and Destination Management Organisations (DMOs) with the necessary guidance, practical tools and up-to-date techniques for effective tourism forecasting. This handbook is expected to provide a better understanding of tourism forecasting practices in general and encourage NTOs and interested individuals to engage with forecasting methods and applications in a very practical and user-friendly way.

The project is intended to deliver a comprehensive report, including accompanying deliverables, for the benefit of the members of the commissioning organisation (for ETC see [http://etc-corporate.org/members](http://etc-corporate.org/members)) and the tourism sector as a whole.

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¹ International tourist arrivals grew 5% in 2018 compared to the 2017 (UN World tourism Organization)

² Big data is a field that treats ways to analyse, systematically extract information from, or otherwise deal with data sets that are too large or complex to be dealt with by traditional data-processing application software
2. **Purpose of the study**

The aim of the Handbook is to provide ETC member organisations with an introduction, knowledge and practical guidance in the field of tourism forecasting. Results should provide up-to-date insights into the forecasting process, practices, methods and analysis in the field of tourism in a practical and user-friendly way. Additionally, the study shall highlight success stories in forecasting practices in the travel and tourism industry. Essentially, ETC foresees this research to achieve the following objectives:

- Provide an in-depth understanding of tourism forecasting including its value, its advantages and limitations and its implications in tourism businesses decision-making.
- Provide an identification and analysis of latest available forecasting methodologies and techniques including practical guidance for their deployment based on practical and explicit examples.
- Identify a number of best-practice examples (case studies) used by NTOs/DMOs in the field of tourism forecasting.
- Provide strategic recommendations on how to choose the appropriate forecasting methodology and its application.

3. **Structure and Content of the Report**

The study is envisaged as an updated version of the ETC-UNWTO Handbook on Tourism Forecasting Methodologies (2008). The handbook is aimed at individuals that while having to deal with forecasting in business may have not had a comprehensive training in this field (not for econometricians) and should be practical as opposed to academic. ETC envisages this project to consist of one full report and accompanying deliverables, as specified in 4.3 below. The findings should be based on secondary research and provide an in-depth analysis of available forecasting methods and their implementation to predict tourism indicators. Key results should be illustrated by means of charts, tables or infographics that are both visually appealing and informative. Based on the aforementioned objectives the final report should consist of five chapters and should be structured as follows:

3.1 **Introductory chapter: Understanding tourism forecasting**

This section should begin by explaining the purpose and goals of the overall handbook. The analysis of this chapter should describe and elaborate on the following items:

- Provide information to further understand the importance of tourism forecasting: *What is forecasting? Why to forecast? Principles and objectives of forecasting (e.g. effective planning, marketing, operational marketing, etc.). What can be forecasted? What factors can affect forecasting* (data availability, unanticipated events, etc.) and potential solutions.
- **Time scales**: i.e. distinction between short-, mid-, and long-term forecasting.
- **Variables to be forecasted** (dependent variables) i.e. which focus on arrivals, overnights and receipts by nation or specific region, and which may additionally cover employment, GDP and trend analysis.
- **Variables to forecast from** (independent variables) on a general level or broken down by, for instance, generating markets:
o Social and demographic variables (population growth, changes in age distribution, family composition, etc.).

o Economic variables (GDP growth, unemployment, exchange rates, oil prices, etc.).

o Market variables (market and consumer trends, accessibility, development of supply, prices, availability of attractions, impact of events etc.).

o Political variables (stability etc.).

− Implications of forecasting very long and short time series

− Required resources (systems, programmes, skills, etc.) to support forecasting methodologies.

### 3.2 Forecasting methodologies in practice

This section should provide a short conceptual description of existing forecasting techniques/models including their advantages and disadvantages. This section is expected to address the following areas:

− Step-by-step forecasting tasks summary. *How to get started?* I.e. Problem definition, data collection, preliminary (exploratory) analysis, model selection, etc.

− Basic description of forecasting methods (quantitative and qualitative) including a short step-by-step guide on how to apply the given technique, related equations (where applicable) and short examples.

− Use and evaluation of forecasting model (evaluating forecast accuracy): Techniques for the selection of predictors\(^3\) and forecast KPIs\(^4\) to measure accuracy and elaborate on data interpretation and use of results.

− Identification of the limitations or disadvantages of selecting a forecasting methodology, provided their appropriateness to forecast a given dependent variable. *E.g. one methodology might be suitable for forecasting volumes of total international arrivals (higher level) and not appropriate for forecasting the same volumes for a number of specific outbound markets (lower level).*

The end of each forecasting method should include a list of “*further reading*” including links to suggested textbooks or studies that further elaborate and provide a more advanced explanation of a given subject.

This section should also reference real life examples whenever possible and useful, such as: *Extrapolation* (based on data of the actual evolution of tourism in a previous period); *Econometric modelling* (models using the expected evolution of external variables such as GDP growth); *Delphi type of studies* (expert assessment of trends); *Scenario studies* (‘what if’ type of reasoning with different outcomes depending upon variation in conditions); *Qualitative assessment of trends* (e.g. OECD’s ‘Megatrends’ approach); *Travel intention and consumer and business confidence type of measurement* (e.g. ETC Long-haul Travel Sentiment Index & Survey or the business confidence type of measure applied in the UNWTO Panel of Experts); *Other relevant techniques*; and a combination of these techniques.

\(^3\) These may include a list of useful predictors and approaches to select the best predictors such as (Adjusted R\(^2\), Akaike Information Criterion (AIC), etc.)

\(^4\) Mean Absolute Percentage Error (MAPE), Mean Absolute Error (MAE), Root Mean Square Error (RMSE)
3.3 “How to” forecasting manual

This section should serve as a highly practical manual covering the most appropriate techniques that can be applied considering their usefulness and feasibility. This section of the handbook should provide a detailed description of how to choose the most appropriate forecasting strategy to adopt\(^5\) and methodology to implement\(^6\). The general process for strategy selection and methodology adoption should be highly supported by visually appealing diagrams, charts, matrices, etc.

The awarded tenderer should also provide a description of free downloadable forecasting packages\(^7\) (e.g. R, Python, Eviews, etc.) currently used including an assessment of the advantages and disadvantages that might exist by using each software.

3.4 From practice to business: Forecasting for better business decisions

Given that forecasts are often a result of mathematical/statistical modelling (e.g. ARIMA) and lack a description of underlying factors, explaining and translating the results into business strategies can be arduous.

Thus, this section should elaborate on how to translate results from a forecasting model into effective business decisions and strategies, i.e. *How to complement business strategies with forecasts?* The analysis should explain what kind of information/analysis can be further expanded (e.g. scenario analysis, combination qualitative and quantitative data, modelling different outcomes, etc.) in order to achieve more clarity concerning business goals and the usability of the forecast. This chapter should also shed light on the opportunities brought by forecast insights in businesses decisions today: improve productivity and performance, reduce inefficiency, achieve operational excellence, workforce planning, etc.

This analysis should be supported by validated examples of the use of forecasts in defining a business strategy and for planning and business decisions. E.g. *How the forecast about future volume of trips is/can be used to set business goals?* Is the future volume of trips incorporated into the forecast as such? Are goals set to reach above what is forecasted (as opposed to the forecast? Situation where one is forecasting but also actively influencing what is being forecasted.

3.5 Case studies

This chapter should gather a selection of six to ten best-practice examples in tourism forecasting at National Tourism Organisations (NTOs) and other public, private bodies. Success stories should delve into the forecasting application focusing on what is proven to work and what is worthwhile implementing elsewhere or developing further. The accuracy (or not) of past forecasts should be demonstrated in the case studies, i.e. How accurate have some of the examples or case studies been, and what has or could be done to reconcile errors or inaccuracies for the future in order to improve forecasts. Case studies will be discussed and agreed between ETC and the awarded consultant prior to their inclusion in the handbook.

The handbook should include as an Annex the following items

- List of open data sources\(^8\)
- References to other handbooks that show the use of forecasting models with a certain forecasting package in practice.
- List of acronyms and a glossary with an explanation of the technical terms used in the handbook.

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\(^5\) Given the resources available (e.g. type of data, data availability, expertise, budget, etc.), what factor are to be considered to select an appropriate forecasting strategy.

\(^6\) Selection of the most appropriate methodology to implement based on data patterns (e.g. trend, seasonality, strength of relationships, etc).

\(^7\) Hyperlinks to access and download the forecasting packages should also be provided

\(^8\) Public data: web-based interfaces that contain metadata records of datasets published for re-use
All ETC publications, which may prove useful when conducting this study (e.g. ETC-UNWTO Study on Tourism Forecasting Methodologies etc.), will be made available to the selected consultant. The final handbook should provide updated content and advance ETC’s knowledge.

ETC is open to proposals suggesting different approaches that would fulfil these objectives. Please, propose the methodology (or combination of methods) that will be most insightful (within the budget available) in addressing the objectives of this handbook with justifications for your selection.

The more detailed the information provided by the consultant in his/her proposal, the better the prospects for the tender to be approved.

**Note:** The offer should include detailed information of any subcontracted consultant if the tenderer has plans to subcontract a third part to carry out any party of the research.

4. **Timescale, Budget & Deliverables**

4.1 **Timescale**

The project should be completed and ready for approval within five to six months from the date of commissioning. The tender should accommodate in his/her time plan ETC’s revision of methodological concepts and deliverables.

After the evaluation of proposals, ETC will communicate its decision to all organisations and individuals who submitted a proposal. A kick-off meeting will be held in a major European city with the awarded consultant(s). Travel and hospitality expenses for the official participation in the meeting are to be borne by the awarded consultant(s). A videoconference could be conceived for an agency based outside of Europe.

4.2 **Budget & Terms of Payment**

ETC has allocated a maximum fixed budget of **Euro 40,000** (inclusive of VAT if applicable) and the proposal should be made within this budgetary constraint (please note: this amount does not include contribution raised by potential sponsors).

All prices should be quoted in **Euro**. The contract will be issued in accordance with ETC’s rules and procedures. This exercise commissioned by ETC qualifies as “marketing services” and is therefore subject to Belgian VAT. Please note that ETC should only effectively charge VAT to Belgian companies providing such services. If companies rendering the service qualify as normal VAT taxable businesses, ETC will not have to pay VAT if the companies are not registered in Belgium.

According to ETC standard procedures, the payments for the work will be made as follows:

- 30% - on commissioning and approval of a detailed delivery schedule of the project.

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9 For a full list of ETC studies, please refer to [http://etc-corporate.org/research-intelligence](http://etc-corporate.org/research-intelligence).
- 40% - following submission of the handbook and its approval by ETC (N.B. This payment will only be made after all editing requests have been integrated into a final draft that has been approved by the commissioning organisation).
- 30% - the final payment will be made only after completion and approval of all deliverables as specified in 4.3.

4.3 Deliverables & Presentation of the Results

The organisation or individual(s) commissioned will be expected to include the following information (and any relevant costs) in the offer:

- A full report in electronic format (Word and PDF), with the outcome of the research and the report should include:
  - An Executive Summary.
  - A clear presentation of the main results.
  - A detailed description of the applied methodology/ides.
  - List of open data sources and links to download relevant materials (as Annex).
  - Description of free downloadable forecasting packages currently used and their links (R, Python, Eviews, etc)
- A PowerPoint presentation of main results including
  - The main results of the handbook (e.g. importance of forecasting, variables to be forecasted and to forecast from, forecasting models, evaluation metrics, forecasting strategy to adopt and methodology to implement, etc).
- An Infographic of chapter 3.3 for public dissemination.

The final handbook should be in British English (as opposed to American English). The commissioned tenderer is responsible for ensuring that the final document is of sufficiently high quality (both the English language and editing) to enable speedy publication without further editing.\(\text{\textsuperscript{10}}\)

The organisation or individual(s) commissioned should be prepared to present the findings online and in person in exclusive events of the European Travel Commission.

- The organisation or individual(s) should be prepared to organise a webinar to disseminate the main results of the study.
- The organisation or individual(s) should also be prepared to give an oral presentation at an ETC Market Intelligence Group Meeting or an ETC General Meeting - depending on the date of delivery.

Travel and accommodation costs for this presentation (1 person) will be covered by ETC.

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\(\text{\textsuperscript{10}}\) ETC will make sample reports available to the consultants as well as author guidelines for the final publication.
4.4 Sponsorship / Partnership

The Consultant is free to explore the possibility of sourcing a sponsor or partner for this study. A sponsor organisation would be willing to contribute to the cost of the research in return for co-branding the final report as an ETC sponsor report. A partner would be willing to participate in the research based on a contribution that would enhance the overall value of the project, without in any way compromising the core objectives of the study as set out in the invitation to tender. Possible sponsors or partners could be airlines, international hotel groups, credit card companies or other organisations with an interest in the topic.

Once a sponsor / partner has been explored, the cooperation will be discussed and a final decision taken by the commissioning body.

5. Proposals and Tender Evaluation

5.1 Proposals

The tender should include:

− Detailed description of the proposed secondary research methodology/ies including data sources.
− Detailed breakdown of prices (according to the research phases).
− Reference list (if applicable).
− Detailed structure of the final study. Reference to similar studies (if applicable).
− Detailed timeline for the completion of the study.
− Statement of financial viability (audited financial statement for the last three years available).
− The CV of the people involved in the project.

The provision of detailed information is considered a plus.

Proposals should be submitted in electronic format, not exceeding 20 pages, to the persons listed below by 17:30 (CET) on Thursday, 12 March 2020 at the latest:

Project leader:

Ms Jennifer Iduh, ETC Executive Unit, Brussels: jennifer.iduh@visiteurope.com

Representative of the commissioning body:

Mr. Eduardo Santander, ETC Executive Unit, Brussels: eduardo.santander@visiteurope.com

5.2 Tender Evaluation

The contract will be awarded on the basis of the consultant's proven ability to deliver on the stated objectives. The selection criteria used will include, inter alia:
- The relevant experience of the project team, with an emphasis on know-how in the field of econometrics, (tourism) forecasting methodologies, tourism sector, research methodologies and strategic consultation.
- The approach to collect secondary research data.
- The level of innovation and creativity brought to the project, the methodology and its solution.
- The most economically advantageous project, i.e. the project that offers the best value for money.

ETC reserves the right to decline from all tenders.

6. **Miscellaneous**

Please note that ETC will be the exclusive owner of the deliverables and is free to decide on their use. ETC expects the consultant(s) to respect copyrights and obtain permissions to publish third party case studies including logos, statements, images, etc. and vest them to ETC for reproduction.

Brussels, 17 February 2020

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