

Knowledge Transfer Network

**Understanding the Growth Potential of the UK Composites
Industry
Quantitative Evidence Study**

**Invitation to Tender
Statement of Works
KTN-ITTA0323-01**

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Date of issue	04 November 2019
Version number	1.0
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1. Background

KTN is the UK's innovation network; we work in support of UK businesses to accelerate innovation. We work in support of UK government, primarily funded by Innovate UK (UK's innovation agency), to connect innovators and entrepreneurs to knowledge, technology, funds and markets. We particularly seek out, and seek to support through networking, high-growth-potential innovative businesses that can make an impact on the UK economy through improved productivity, jobs safeguarded and created and Gross Value Added (GVA) contribution.

A number of studies have concluded that there are considerable opportunities for polymer composites growth in different industrial sectors in the UK. Based on a strategy report published by the Composites Leadership Forum (CLF)¹ in 2016, the eight sectors identified as having the highest growth potential, in order of maximum predicted value in 2030, are:

1. Aerospace
2. Automotive
3. Construction
4. Defence
5. Renewables
6. Oil & Gas
7. Marine
8. Rail

In order to assist with future policymaking, BEIS has highlighted the need to carry out a refresh of the underpinning data contained within the 2016 CLF report. The study has also been requested and will be used by industry and representative sector bodies (eg Composites UK, Chemistry Council) to inform their wider communities.

Working collectively, BEIS, Innovate UK, High Value Manufacturing Catapult and KTN teams have developed a scoping document and KTN has been tasked with taking the lead to execute this refresh activity.

The aim of the KTN project is to:

- quantify the current UK composites industry
- using evidence, project future growth in the industry
- gain an understanding of composites production in the UK
- identify any gaps in the evidence base
- understand trading patterns
- leave a legacy of improved data capture

The purpose of the KTN project is to provide evidence regarding the sectors that will provide the greatest potential for growth, and the lowest barriers to sustainable growth, in the

¹ <https://compositesuk.co.uk/leadership-forum/about-clf>

composite industry. This will allow future policy and future investments to be better focused and targeted to the most effective areas for growth.

KTN is seeking specialist assistance to deliver the project and the intent will be to engage external expertise through the placement of a contract through the standard KTN competitive tendering process.

In scope: Reinforced Polymer Matrix Composites

Of primary interest is information about the use of higher performance composites so the focus is on raw materials and applications using multiaxial, tow, tape and woven fabric reinforced thermosets and continuous fibre thermoplastic structural composites.

Out of scope: Filled polymers, Metal Matrix Composites and Ceramic Matrix Composites.

2. Services Required

This project is split into 2 parts:

- Part 1: Composite Market Analysis
- Part 2: Demand Sector - Specific analysis

Part 1. High level view of the UK composite industry

The core purpose of Part 1 of this study is to describe the UK composite industry and establish the market size and value.

We need to achieve clear understanding of the UK market dynamics, key players in the UK composites supply/ value chain and where any future UK Government support would make the biggest impact to help the UK composites industry grow and maintain global competitiveness.

The contractor must supply sufficient information to show how this requirement will be met. Contractors should also use their existing market knowledge in order to meet the objectives.

In addition to the quantitative market analysis, we require a high-level overview of the supply/ value chain today for the UK composites industry. This overview should include:

- what raw materials are currently being imported or produced locally in the UK
- what is being manufactured in composites in the UK by the key markets
- where UK composite components end up e.g. Airbus A350, Boeing 787 aircraft.

Part 2. Detailed Analysis

Our objective is to identify the most value-added steps to anchor to the UK. To do this we required a more focused and detailed analysis for 4 key markets. The key markets are:

- (1) Aerospace
- (2) Defence
- (3) Automotive

(4) Wind Energy

A 'granular level' understanding of the UK supply/value chain for these key composite market case studies is required. The supply/value chain description should specify the value add (£/kg) at various stages of the value chain (resin manufacture, formulation, pre-preg, components, etc.) especially as it relates to activities carried-out in the UK or elsewhere.

NOTE: It is important to identify value generated both at the component and systems level.

Example: BAES has secured 17% by value of all F-35 aircraft sales (>3500 aircraft). This was secured primarily because BAES had unique expertise in fabricating high precision composite components and assemblies. The value of those components/assemblies equates to a fraction of that 17% but were instrumental in securing the full 17%. This type of systems consideration needs to be factored into any findings from the project.

Data collection for Parts 1 & 2

Data and data collection methodology is important for both parts of this study. Although, we require contractors to detail their data collection plans, methodologies and analysis, in their response, we also provide some extra guidance below after consultation with BEIS economists.

In order to obtain a quantitative analysis of the composites supply chain within the UK from raw materials to finished components and platforms, the initial step is the identification of companies. Below is a non-exhaustive list of data points that would be required for each company evaluated.

For each business engaged in the composite market in the UK, **the UK market information** required is:

- Position of UK business in supply chain (e.g. OEM, Tier 1, Material Supplier, etc...)
- For the UK business, the percentage of sales of composite:
 - By value
 - By value add
 - By volumeinto each sector
- For OEMs, the % of the product which is composite (by value)
- The unit of each major type of composite is produced/sold per annum
- The weight (Kg) of composite within each unit
- The number of units of each major type exported per annum
- The value add associated with the composite (see F-35 example above) and to state methodology used to determine this
- The composite raw materials used by the UK business to produce the composite part (e.g. fibre, resin, pre-preg, core, ...)
- The company and country from where the UK business sources its raw materials
- The products supplied by the UK business

- The HS / SIC codes are assigned to these, if they are assigned
- The amount of composite that is imported or exported

Contractors should note the following general points:

1. To size and value the UK Composites market today we expect data to be collected from companies and players in all 8 sectors described in section 1.
2. The data for the most recent complete company financial year (eg FY2018/19) should be obtained and used as the baseline for the study.
3. Forecasts should be provided for calendar years 2025, 2030 and (where possible) 2035, together with the appropriate underpinning assumptions regarding product and market trends, including potential sources/timings of legislative or societal disruptions.
4. The current and forecast market value should be based on the major raw materials consumed.
5. Data collection should cover volume applications in Building and Construction, Infrastructure, Marine, Chemical Containment, Transportation (incl. auto, specialty vehicles and rail), Aerospace & Defence, Wind & Renewable energy.
6. The data collected should be provided to KTN in an excel spreadsheet. The source of all data should be noted, and all formulas should appear in their native form. Any methodologies used to forecast or interpret data should be described clearly.

It is essential to provide the market size and value and we would like applicants to state the other parameters above that they will provide.

3. Deliverables Required

The following deliverables are required:

1. A final public report with the high-level findings (e.g. 10 pages)
2. A final private report with:
 - a. all the findings
 - b. all the underpinning assumptions made
 - c. full detail of the methodology used
 - d. lessons learnt in carrying out the study
3. An easy to access excel spreadsheet with all the data collected and its sources
4. Attendance at virtual monthly update meetings to review progress
5. Final presentations in person of the findings to the Steering Group

Timescales for deliverables

DELIVERABLES:	Draft	Final
1. A report detailing the high-level insights and recommendations suitable for publication	28 Feb 2020	13 March 2020
2. A private report containing all detailed findings and recommendations	28 Feb 2020	13 March 2020

3. An excel spreadsheet containing the data collected. The spreadsheet should: <ul style="list-style-type: none"> • contain details of the source of the data • include formulas in their native form (no hard coding) • include an explanation of any formulas • include other explanations as necessary 	28 Feb 2020	13 March 2020
4. Attendance at physical or virtual monthly update meetings to review progress	Monthly from award of contract to end of the project	
5. Presentation of the findings to the Steering Group	28 Feb 2020	13 March 2020

4. Quote for Services – Fees

The maximum budget available for this work is £40,000 including VAT against the requirements above.

If a supplier can identify additional or supplementary information at an additional cost, then this may be considered.

5. Term and Expiry Date

This tender will be in the public domain for 30 days. The evaluation period will be 2 weeks from the deadline. KTN reserves the right to not award a contract.

6. Submission

In response to this Tender, please provide a narrative description of how your organisation(s) will meet the service requirement.

The tender will be assessed on the baseline requirements of £40,000 inc. VAT and not the additional and supplementary proposal.

Scoring submission will be weighted as follows:

Independence of the supplier (Pass/Fail)

Previous relevant experience related to composites (20%)

Relevant skills and qualifications of proposed team (10%)

Understanding of this specific project requirements (20%)

Methodology and approach proposed (50%)

Applicants should demonstrate that they are independent and have no vested interest in the outcome of the study.

6.1 Previous relevant experience to composites (20%)

Applicants should give examples for previous work they have carried out on market studies in composites or other industry sectors.

6.2 Relevant skills and qualifications of proposed team (10%)

Applicants should include the CVs of all of the project team working on this study and what percentage of their time will be spent on this work. The person who will be the main KTN POC should also be identified. If there is more than one organization delivering the work, mention should be made of how the different organizations will collaborate and how that will be managed.

6.3 Understanding of this specific project requirements (20%)

Applicants should demonstrate that they have understood the specific project requirements.

6.4 Methodology and approach proposed (50%)

Applicants should detail their methodology and approach. This should show that it will meet the specific project requirements. A draft format for the final report and associated supporting evidence base should be provided in the proposal as well as an indication of the minimum number of companies that will be engaged?

6.4 (Cont'd) Additional Information

- Any additional information and/or services you could provide to enhance the project scope

6.5 Legal information

- Your standard T&Cs

Please provide the information requested above by 4th December 2019 at the latest. Submissions will be assessed on an ongoing basis until this date.

Shortlisted proposers will be notified on 9th December 2019 and may be asked to present their proposals in person in London on 13th December 2019.

7. Principal Contact for the Invitation to Quote

Please direct any questions or communications on this Invitation to Quote to:

Ajay Kapadia
Email: ajay.kapadia@ktn-uk.org

8. Terms and Conditions

This Invitation to Quote is subject to “KTN’s Terms and Conditions of Contractor Engagement – Company Edition”, which are provided separately.

Please note that KTN reserves the right to not select any supplier if we feel none meet our requirements and budget.