

The Alan Turing Institute SME Consultation

Understanding the data science and artificial intelligence (AI) needs of UK SMEs

The Alan Turing Institute has commenced work to better understand and engage with small and medium-sized enterprises (SMEs).

This work began earlier this year, when we were able to open up an existing, charged for service – the [Data Study Groups](#) – to SMEs free of charge¹. Whilst these places are limited and appropriate only for a select group of small businesses, it is a first activity to facilitate an improved connection between Turing’s research-intensive activities and smaller enterprises.

The Institute is now seeking to engage a broader community to assist us in our evaluation. Specifically, with the aim to:

1. Better understand the needs of UK SMEs² in AI and data science and how these are currently being serviced;
2. Identify what opportunities or gaps, if any, exist to support the growth of UK SMEs more broadly³; and
3. Learn what support, if any, the Turing is best placed to provide, given its aims and capabilities as an AI and data science research institute.

This paper provides an overview of the consultation, with instructions on how interested parties can contribute.

The Institute is seeking to hear from the following stakeholder groups:

- SMEs (of all stages and sectors);
- Universities, particularly the Turing’s university partners; and
- Support or service providers to include public sector, third sector and private sector organisations.

¹ In June 2018, the Institute successfully secured funding from the European Regional Development Fund to provide free places to SMEs based in London.

² This is in line with the EU definition of SMEs, being those under 250 staff and turnover <€50m pa (see http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en) though it is expected that most responders will seek to guide us on their views in relation to small companies, as opposed to medium-sized enterprises.

³ There may be an opportunity to add value to small enterprises that are data-rich, for example, but not AI or data science companies.

Background: About the Institute and consultation rationale

The Alan Turing Institute was launched in Autumn 2015 with the mission to advance data science for the benefit of science, society and the economy. In 2017, our remit expanded to include artificial intelligence in response to UK government's recommendation.

The Institute's activities are driven by three core objectives, to:

- **Advance world-class research and apply it to real-world problems:** innovate and develop world-class research in data science and AI that supports next generation theoretical developments and is applied to real-world problems, generating the creation of new businesses, services, and jobs;
- **Train the leaders of the future:** train new generations of data science and AI leaders with the necessary breadth and depth of technical and ethical skills to match the UK's growing industrial and societal needs; and
- **Lead the public conversation:** through agenda-setting research, public engagement, and expert technical advice, drive new and innovative ideas which have a significant influence on industry, government, regulation, or societal views, or which have an impact on how data science and artificial intelligence research is undertaken.

In 2018, the Institute launched [eight challenges areas](#). These are priority areas that provide a domain focus to the Turing's translational research, leading to increased engagement with major businesses.

This engagement takes the form of sponsored, collaborative research partnerships and projects of 2-5 years in duration. These engagements are highly intensive, where partnering organisations enter an iterative process to determine the right research questions, provide relevant and prepared datasets and are required to comply to the Turing's mandate to publish associated research outputs.

An additional provision is the above mentioned Data Study Groups. These are week-long events where researchers engage with research challenges presented by external organisations that have the accompanying datasets.

Together, research partnerships, research projects and Data Study Groups, form the bulk of the Institute's activities to attract and engage external organisations, particularly those from industry. These organisations are well placed to leverage the research capabilities and assets of the Turing. As such, they aid the Institute in furthering the economic and societal impact of AI and data science research in the UK.

Given the relatively short period the Institute has been in existence, this is an opportune time to visit what support, if any, the Turing might provide to the UK's SME community. We are calling on potential contributors from across the ecosystem to help us consider this, in light of the Institute's capabilities and its aims to contribute to growth and to improve the competitiveness of the UK on the global stage.

Consultation questions

Below, we have listed eight consultation questions. We do not require responders to answer all questions nor address all sections. There is no minimum contribution length, but, we do ask that answers are considered and to share rationale and relevant links wherever possible.

Context: Understanding the landscape and identifying target SME segments

- (1) Segmentation of UK SMEs: Where the ultimate aim is to achieve the best possible social and economic impact on society, across the UK, what groups or segments of SMEs should the Turing seek to better understand / potentially support and why? (e.g. data science and AI companies of particular stages of growth or sectors or, more broadly, companies operating without data science and AI capabilities but potentially are data-rich)
- (2) A competitive SME landscape: Though data is patchy, arguably, the UK fares well in the production of data science and AI companies that are reaching maturation. Therefore, what are reasonable growth ambitions for this sector? Should we expect a larger number of smaller businesses or a few larger ones to emerge? Does the UK have significant capabilities that are underexploited and, if so, what and where?

Challenges and opportunities specific to companies

- (3) Challenges specific to data science and AI companies: Across varying stages of maturation, what issues are faced by small businesses that are trying to succeed in becoming major players in data science and AI (e.g. financial, technical, talent etc)? Are some factors more significant than others?
- (4) Untapped opportunities for small company growth: Across varying stages of maturation, what opportunities are there to support small businesses in relation to data science and AI? Here, you may indicate non-technical opportunities but they must link back either to developing new data science or AI capability or enhance the firm's ability to compete within this domain.

(This should be considered, both in terms of those SMEs already operating with these capabilities or those that have the potential to benefit from these capabilities. Where possible, these ideas should indicate which type of companies would most stand to benefit).

Quality of current provision and opportunities to act for the Turing and/or others to act

- (5) State of current provision: Of existing support for small businesses across the stages of maturation:
 - What are the best practice models at work (please reference providers / programmes)? Why have these been effective?
 - If you are an SME, with which programmes have you been involved? What benefits did you receive?
 - If not already addressed above, what are the notable gaps in provision? What are the ideas or models that you would propose? Why should AI/data science companies require specific support that differs from other sectors?

(6) Role of current actors and the Turing: Given your responses above please indicate:

- Which entities / organisations are best placed to address the above opportunities or gaps?
- Given the other organisations at work, what role could the Turing play to engage and support small businesses? Are other organisations better placed to act but not doing so?
- Specifically, what services or provision would add value? Prospectively, what impact would be achieved?
- Given existing provision and current performance of the SME sector, what would be the outlook if the Turing and/or other actors did not take-up recommendations where these have been put forward?

Pipeline of UK SMEs

(7) New start-up formation: Whilst this question is not a central part of this consultation, a connected agenda to a successful SME sector is the pipeline of new start-ups. This frequently arises in discussions. Please share any thoughts you have on:

- What are the gaps or opportunities to act, if any, in relation to new start-up formation?
- Where there are opportunities to act, what models or programmes could deliver a demonstrable impact on the volume and quality of new companies? Please cite specific examples, where programmes already exist elsewhere abroad or in the UK operating at a smaller scale or in an adjacent area.

About your organisation

(8) Details of your entity: Please provide any relevant information about your organisation. (From support providers and universities, we are interested in understanding current programmes and activities and their current scale and target audience. From SMEs, this may include information concerning value proposition, sector, stage of company (such as age, funding formula, number of employees) and how the organisation currently works with data).

How to answer the consultation

Thank you for your consideration of this paper. Please refer to the notes below to guide your submission.

The deadline for contribution is noon on 26 November 2018. Though early submissions are encouraged. Responders may be contacted for further information or clarification.

Contributions should be provided as a written submission, either as a Word or PDF file to Hushpreet Dhaliwal via smeconsultation@turing.ac.uk.

There is no minimum length for submissions but please keep your contribution to a maximum length of five A4 sides (12pt). Responders are not expected to address all questions or sections, but those most appropriate to their experience and role in the ecosystem. Where possible, links to evidence or named schemes, are appreciated.