The Global Economic Space Index

Partnership Opportunities

Introduction

Z/Yen is working alongside the UK Space Agency to develop a Global Economic Space Index. This document introduces the index and invites partners to join us in supporting the programme.

Background

Around the world there is recognition that the space sector plays a vital role in supporting economic growth, sustaining technological progress and protecting the environment.

Satellite technology is essential for navigation, communications, and earth observation, and the data it produces is feeding a thriving ecology of new applications that are enabling transformation in smart city management, agriculture, natural resource management, health, AI applications, and the modelling of threats such as climate change and land degradation.

Governments are increasingly seeing space as the catalyst which can set their nations on the path for the fourth industrial revolution and an enabler with applications in other sectors, blurring the boundaries between the physical, digital, and biological worlds and ushering-in long-term sustainable economic growth.

But how should policy makers go about encouraging the growth of the space and other sectors? What do effective policy interventions look like? And which nations are currently most successful in their efforts to build a thriving commercial space ecosystem?

> ***"If you can't measure it, you can't improve it."***
> Peter Drucker

UK SPACE AGENCY

Z/Yen

The Project

In February 2019, Z/Yen was asked by the UK Space Agency to conduct directed market research into the feasibility of developing a Global Economic Space Index, designed to investigate and score aspects of the space sector across different countries.

Z/Yen was selected for this project due to our extensive experience in the development of factor assessment indices, used around the world for modelling policy impacts within the financial services and technology sectors.

For the feasibility study we consulted with over 180 organisations in the sector in 31 countries, comprising commercial, academic and governmental institutions, including:

- Manufacturing;
- Earth Observation;
- Insurance;
- Venture Capital;
- Legal Services And Academic;
- National Space Agencies And Associations.

Our findings, endorsed by the UK Space Agency, are, that whilst there are currently a number of data sources which detail the technical aspects of country performance with the space sector, **there are no models yet available which explore how economic and other policy changes could grow the space industry in a country**.

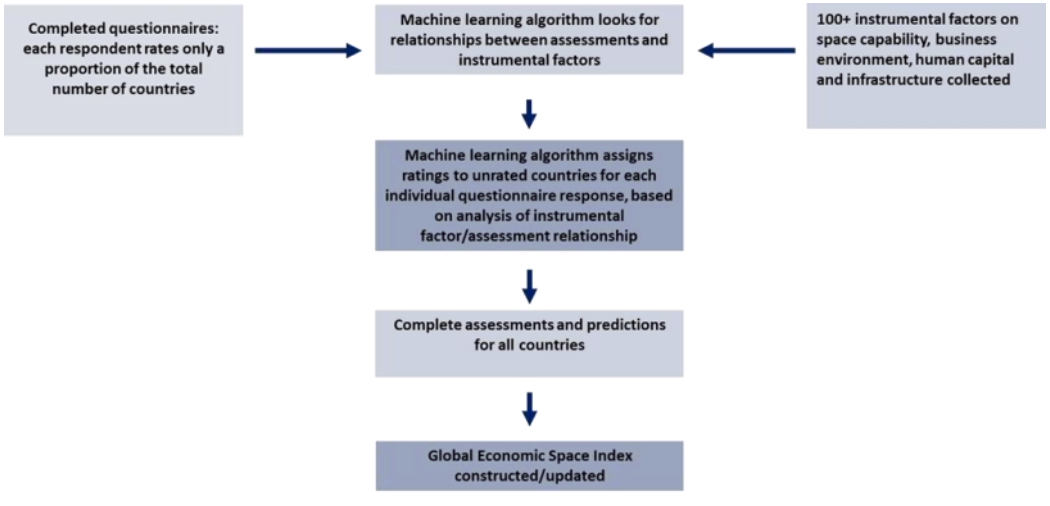
The Proposal

Z/Yen is proposing the construction of a global index - the **Global Economic Space Index (GESI)** designed to assess countries' capability and delivery of up-stream (manufacture and launch) and downstream (services and data) space related business.

The approach proposed for the index is a factor assessment model, which is constructed by combining assessments made by professionals in the space sector with quantitative instrumental factors, drawn from a wide variety of data.

The assessments and instrumental factors are combined using statistical learning theory delivered through a machine learning algorithm, which classifies and models complex historic information in order to make predictions on new data. The predictive model is illustrated in figure 1.

Figure 1: GESI Predictive Model



In short, the algorithm can answer the following type of question:

"If a Chinese-based expert in space technology rates China, the USA, and India X, Y, and Z, then based on the relevant *instrumental factors how would he or she rate the UK or the Russian Federation."*

The key strength of this approach is that the model can also be used in a '*what if?*' mode, for example:

"What impact would an improvement in the STEM skills base have on the Netherland's ranking within the GESI index?"

"Where should I base my business and where might I build successful partnerships?"

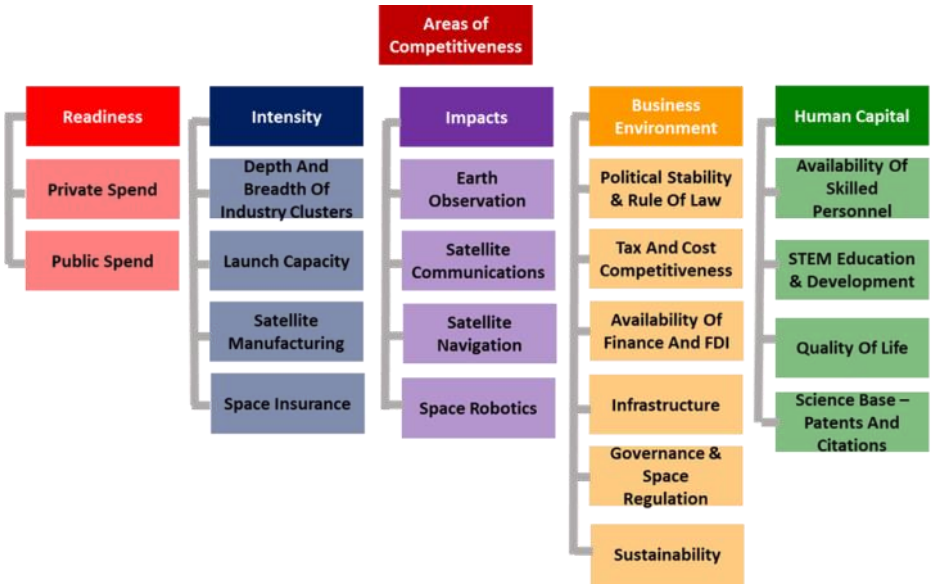
Methodology

The methodology used in constructing the GESI will respond to three aspects of the sector:

- The type of space activity which is undertaken;
- The quantitative factors that influence the development of space capability;
- The range of industry sectors with an interest in space.

The space sector is diverse, ranging from big science, to space-enabled business using earth observation and navigation data. Different countries have a greater interest in some areas than others. The index would reflect this by dividing the sector into three **activity** areas: science & exploration, the satellite industry, and space-enabled business. The index will score and rank these areas independently to capture the different capacity of countries.

Collecting the right **quantitative data** for the model is important, and to ensure that an accurate picture is created we will be gathering quantitative factors across the following fields, the first three of which correspond to the OECD classification of the space sector:

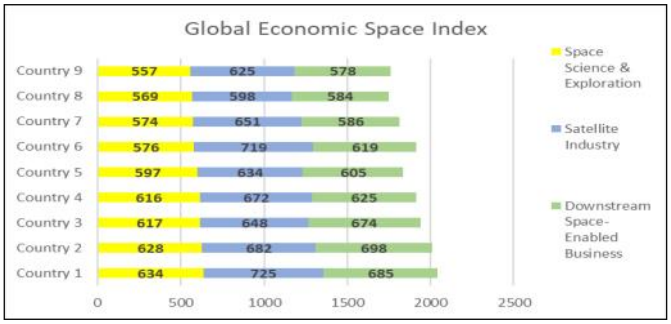


The final aspect to consider is the division of **space industry sectors**. This is particularly important in designing the survey approach, and the questionnaire, which will reflect the full spectrum of specialisms and services within the sector.

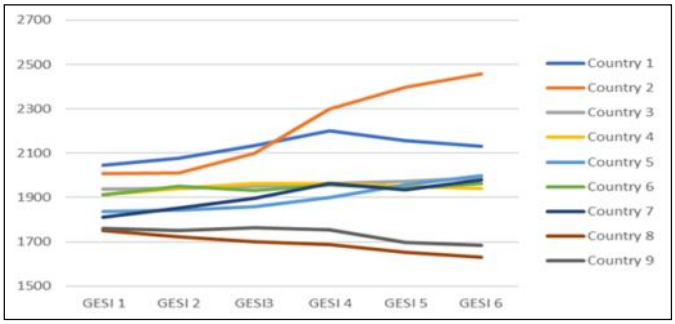
Reporting & Outputs

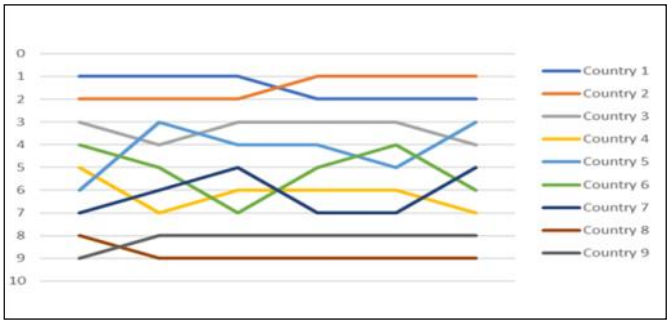
We believe that to deliver the maximum benefit, the index should be updated once a year. More regularly than that and the index will be unlikely to match the planning cycle of governments and agencies. Less regular updating will not generate the feeling of a dynamic index.

The GESI will produce rating scores for each aspect of the industry, rankings by areas of competitiveness, ranks and ratings over time, and allows a range of other analyses.



Rank	Readiness	Intensity	Impacts	Business Environment	Human Capital
1	Country 1	Country 3	Country 2	Country 1	Country 4
2	Country 4	Country 1	Country 3	Country 5	Country 6
3	Country 2	Country 2	Country 1	Country 4	Country 2
4	Country 3	Country 4	Country 5	Country 6	Country 3
5	Country 7	Country 6	Country 4	Country 2	Country 1
6	Country 8	Country 7	Country 6	Country 3	Country 5
7	Country 9	Country 5	Country 8	Country 7	Country 8
8	Country 6	Country 8	Country 7	Country 9	Country 7
9	Country 5	Country 9	Country 9	Country 8	Country 9





Z/Yen And The UK Space Agency Are Seeking Partners For The GESI

We are keen to ensure that we avoid the suggestion that any single agency has too strong an influence in the development of the index. We are therefore seeking a consortium of partners who are willing to support the creation of the index, each providing sponsorship in the range of £5,000 to £10,000 for membership of the consortium and the publication of the first edition of the index.

The benefits to partners will include:

- **Branding -** the report will be published under partners' brands, and partners will be given the opportunity to supply editorial and marketing material for inclusion in the report;
- **Publication launch arrangements -** partners will have the opportunity to host launch events for the index;
- **Enhanced access -** to GESI data and analytical tools;
- **Marketing opportunities and training -** for partners seeking to enhance their profile and reputation.

If you would like further information on the index, or the opportunities for partnership, please contact **Mike Wardle**, Head of Indices, Z/Yen Group at mike_wardle@zyen.com or on +44 (020) 7562-9562.

About Z/Yen

Z/Yen helps organisations make better choices - our clients consider us a commercial think-tank that spots, solves and acts. Our name combines Zen and Yen - 'a philosophical desire to succeed' - in a ratio, recognising that all decisions are tradeoffs. One of Z/Yen's specialisms is the development and publication of research combining factor analysis and perception surveys.