# **Tech Ops Lead Challenge**

## **Skillset Requirement:**

This challenge is not limited to people with an existing skillset in GIS software. It’s possible to solve this challenge by watching a few “how-to” YouTube videos and by leveraging an open-source download of QGIS (<https://qgis.org/en/site/>).

Skyports is not looking for GIS experts but for people that can demonstrate the ability to learn a new skill in a short amount of time to solve a complex problem.

## **Case Study question**

**Where in the UK should Skyports be focussing their efforts on setting up a medical drone delivery network for the NHS?**

## **Background information**

To complete this analysis, you’re asked to consider the following factors that could impact your decision-making process:

1. **Topography**
2. **Access to airspace**
3. **Weather Limitations**
4. **Build up areas**
5. **NHS trust geographies**

These are just some of the factors that we take into account during our analysis. Don’t feel constrained by the list above as it’s by no means exhaustive. Bonus points for any additional factors that you can think of that may help to determine a good location for a medical drone delivery network.

## **Solution format**

The output of your analysis should be summarised on a handful of slides (no death by PowerPoint, please, show that you can tell a story to a non-technical audience in a concise manner).

Please also send over any GIS or modified dataset files that were created during the execution of this case study. These will be used to understand your ability to manipulate data and create an easy-to-use tool.

## **Final note**

Remember that there is no single right answer to this assignment. This assignment is designed to demonstrate that you can structure your thinking, make assumptions where required, and summarise your results in a concise format.

This assignment is a good example of what a typical day at Skyports would look like as a TechOps lead, if you enjoy learning new skills and tackling big problems, don’t hesitate to e-mail your results together with your resume to our Head of Technology: [jef@skyports.net](mailto:jef@skyports.net)

# **Appendix A: UAS Additional Information**

You can assume that we’ll be using the Swoop Kite aircraft for the medical deliveries. You can find more information about the aircraft here: [https://swoop.aero/kite](https://gbr01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fswoop.aero%2Fkite&data=05%7C01%7C%7C1c9e9c7a21824b3c4bea08da37432898%7C7c20608d4a1b45e8b5533ef51e6a1960%7C0%7C0%7C637883058822988837%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=lLUsjToleqk88yEmFixot4C7ObCwU9C1jUFGbCQEprs%3D&reserved=0)

Additionally, you can make assumptions on any additional parameters that you think you need as you see fit.

# **Appendix B: Additional information for people new to GIS modelling**

## Analysis Format Requirements

You are expected to use a GIS processing tool to create a map that can be used to answer the main question. We are interested in your view on the answer, however, the most important element is enabling others within your team to make better decisions.

To create this tool, you should utilise open-source GIS datasets and format them in a way that makes it easy for people without your skillset to interpret the data.

Examples of free datasets that can help you answer the challenge:

* <https://osdatahub.os.uk/downloads/open/Terrain50>
* <https://geoportal.statistics.gov.uk/>
* <https://nats-uk.ead-it.com/cms-nats/opencms/en/uas-restriction-zones/>
* <https://figshare.shef.ac.uk/articles/dataset/A_Land_Cover_Atlas_of_the_United_Kingdom_Maps_/5219956>
* <https://data.humdata.org/dataset/united-kingdom-high-resolution-population-density-maps-demographic-estimates>
* <https://data.gov.uk/dataset/de5ad374-53b7-474f-b1c0-725687af1ed4/settlements-scotland>
* <https://www.vodafone.co.uk/network/status-checker>

For those without a preference on a GIS tool, we recommend the open-source software QGIS as it offers a wealth of plugins that can be used for any complex analysis.

Below are some suggested skills that you may wish to utilise in your analysis:

* Georeferencing an image
* Importing Vector and raster datasets
* Manipulating datasets to be ingested correctly
* Hillshade and terrain analysis
* Packaging layers into a geopackage

Good luck!