Objective and goal setting

As part of your first progress review we ask you to set at least 4 objectives you would like to achieve by the end of the apprenticeship. In order for objective and goal setting to be effective it is important to think carefully about what they should be and to identify if they are SMART.

We ask that you please complete and **upload this form to APTEM prior to your first progress review and have them available to refer to during your review.** During your progress review your coach will discuss your objectives with you further and your line manager will be brought into the conversation.

**Identifying objectives**

To identify your objectives it may be useful to consider the following

* Why have you enrolled onto the apprenticeship?
* Is there something specific you would like to achieve or improve for your department/company using your new skills, for example, improving an existing process or system? Or a change you want to make?
* Is there a key skill you would like to develop and utilise for a specific reason
* Is there a soft skill you would like to improve, for example presenting complex information effectively?
* You may find the link below a useful way to find inspiration when identifying areas you would like to develop and goals you would like to achieve. [6 Goals | LINDEN COACHING (lindenlearning.org)](https://www.lindenlearning.org/6-goals)

**Breaking down and testing your objectives.**

It is important your objectives are SMART to ensure they are achievable. Below is a table asking you to consider your chosen objectives in more detail with an explanation of the SMART model. Please state the objective at the top of each table. You may find it useful to make notes on the table provided to help you test and feel more confident in your objectives.

**Objective 1 To develop a robust pipeline for statutory reporting of air quality data**

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| **S** Specific | Statutory annual reporting of air quality is a business need and requires a range of data sources, transformations and analyses. The current process is piecemeal, not well documented and error prone. An improved process using documented scripting is required. | Notes: Will feed into ASR reporting process. Outputs will be tables, maps and charts |
| **M** Measurable | By March 2023 a new process will be in place and will be reviewed by a peer to ensure it meets the needs for the reporting. | Notes: Andy to help review |
| **A** Achievable | The goal can be accomplished using existing data sources but building a set of routines in R and RMarkdown (for documentation) and using the targets package to manage the workflow. | Notes: Parameterised RMarkdown document rendered as Word, also output tables direct to ASR tables template.xlsx  Will depend on the consistency of Defra reporting requirements. Approach could also be adopted for CAZ reporting. Depends also on the availability of the Open Data Portal. May need to build in redundancy. |
| **R** Relevant | This fits well with business objectives, it is a core function of the air quality team and should reduce potential errors associated with data analysis using GUI applications. It will save time in the long term. | Notes: |
| **T** Time-bound | This is achievable by March 2023. I will work on this goal in normal office hours and it should not require additional working time. | Notes: Aim to have MVP by February 2023 |

**Objective 2 To develop an open data dashboard for low cost sensors as part of the Slow the Smoke project**

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| **S** Specific | The Slow the Smoke (StS) project aims to engage citizens through a locally developed citizen science approach on the issue of local air pollution. Key to this is the analysis of data captured from low cost sensors deployed at the homes of citizen scientists.  In order to engage with citizen scientists and the community, a dashboard is needed which summarises data from the sensors in a way that is accessible and meaningful for all.  I will develop a dashboard to facilitate this during 2022. | Notes: [Luftdaten Air Quality (PM) data — Open Data Bristol](https://opendata.bristol.gov.uk/explore/dataset/luftdaten_pm_bristol/map/?disjunctive.sensor_id&q=sensor_id+%3D+66963+OR+sensor_id+%3D+66966+OR+sensor_id+%3D+66970+OR+sensor_id+%3D+66972+OR+sensor_id+%3D+66974+OR+sensor_id+%3D+66979+OR+sensor_id+%3D+66987+OR+sensor_id+%3D+67568+OR+sensor_id+%3D+67655+OR+sensor_id+%3D+67665&sort=date&location=14,51.4704,-2.58574&basemap=jawg.streets) |
| **M** Measurable | The dashboard can be developed in stages, for example, simple analysis for an individual sensor, moving on to more complex analysis, including wind data, advanced visualisations and multiple sensors. The dashboard will be tested with a subset of our citizen scientists and our academic partners. | Notes: |
| **A** Achievable | The dashboard can be developed on our open data portal. The data is already published there and I have experience developing air quality data products on this platform. The platform uses a combination of HTML, AngularJS and CSS to develop dashboards and data stories. | Notes: My idea is to use plumber and openair package in R to produce compelling visualisations which explain pollution patterns to the public and citizen scientists. |
| **R** Relevant | This is in line with business objectives, and specifically the aims of the StS project. We need to deliver a dashboard by the end of the project (31/12/2022) and ideally before the 2022 heating season (October 2022).  I have the necessary resources (access to the portal, an R development environment and a VM running R). This is in line with my long term goals of increasing familiarity with advanced data analysis and visualization. | Notes: |
| **T** Time-bound | This is achievable by the end of the apprenticeship, I will work on this during normal working hours. I have allocated time for the StS project, which this work is part of. | Notes: |

**Objective 3 Comparing performance of low – cost sensors with reference method instruments**

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| **S** Specific | As part of the StS project (see above) two low cost sensors are co – located with “reference method” (i.e. accurate and approved) air quality monitors. This is to provide reassurance to our cohort of citizen scientists that the devices they operate are providing a reasonably accurate measurement of air quality.  I will conduct an analysis that compares the performance of the two co – located sensors with the performance of the reference method instruments using linear regression. | Notes: |
| **M** Measurable | I will prepare the analysis for submission in the final report of the project to be submitted to our funder by 31/12/2022. The devices are already co – located and collecting data. | Notes: |
| **A** Achievable | I will refer to [studies already conducted](https://s3.eu-central-1.amazonaws.com/up.raindrop.io/raindrop/files/368/164/854/atmosphere_10_00041.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=ASIAZWICFKR64YCPUABY%2F20220513%2Feu-central-1%2Fs3%2Faws4_request&X-Amz-Date=20220513T095421Z&X-Amz-Expires=300&X-Amz-Security-Token=IQoJb3JpZ2luX2VjEH0aDGV1LWNlbnRyYWwtMSJIMEYCIQDKrsBJ0JeqzbD3q6eYn9bPRzK%2F9%2B9iK2F0jJupYGS7MgIhAMI166O31elQ4RGS08SG68iUSXdZNGCA9thlKOPZFb27KvgDCFYQABoMNjY2MjYxMzQ1NDA1Igwv3L3RDVghpkyhvqIq1QMzywmV%2FLX%2B9Gf0ZLK6gRldngPYUejgoLhecQM6jLCayhWVeEEdU8%2Ff3wD1PMyIpV6IbARYobxLKserTjdGMjQCpnWGI%2FoGqnwzwe8VRpLokzY4%2B8B8a%2FIhVkgwv72RLgVxJWMsUytUYQnnIS8n%2B69mseGdfF5ZilP8TMKXB3tQLkSUVnXP1GgH32gqqVBGaxwCXXy%2B%2Bg%2BFxI%2B672YI3Ep4NzK79LyS9Nw15U1UejEdSpB%2BneSbfgsxsGU6e%2BQh7%2BWzfJZ0%2FxjekJ6YeniCMT9e2o84%2FPpzQbruCzCbS1BDGQumxjWHQbiLuPjzWNYq8VEixCj%2Bu6NEriXv8c68eiHPoVgTivR7dSO3aconSyJXpLzb5%2BLTv9ZV75KrB0C8H4%2BP6LPYuEdj4s4Pr0v3%2BMJQELp2zkZiAt08vpcTOsbbSH3ZApCx9bbwgxELuJbWdx2tI7f%2BUVRr11amemWtjxP9MFye%2Fz5eo1LY7%2F0q42Ct3Le0q4qDYbJQuTZZAI3ODtLZYQVYdugG1brOFAwhsifmwAXHkHqAHWm8Y5tghyne3jF%2B4wLpjctxu3mIJyyhY1ChDVkkWfPVVo%2BDATK5BILZ2LjWTCIqnGhJh%2FFBi0BS%2FWEGOXgNMPDF95MGOqQBgw680IWESFG7mQA%2FemrthHPFzqr4NLGQ9JEFZ2BiRrTL0TX9sq4pPG57mIPlFjzLvVxVmkfSiAtoocAu1Aci9ojv2tn%2B47NzLhnGxIqPiaZjafd3p%2BgbrFialhzTd9Z%2FJDrV1NxLfhcwq%2B%2BTAfp%2Fpo9pDtOGSv7kK93pWzK4uEg%2B15vWUj8pYXcsU9qF5WHuCOi%2BAfrXczkWUb%2FGL%2FpSgrCon8E%3D&X-Amz-Signature=5874a774e0056978e28ace2dbb01108028ce1a0d7b8f0a24a5304c40fd3a0442&X-Amz-SignedHeaders=host) to adopt a similar approach and high standard of analysis. Data are being collected on the [sensor community network](https://api-rrd.madavi.de/grafana/d/GUaL5aZMz/pm-sensors?orgId=1&var-chipID=esp8266-6496445&var-type=SDS011&var-query0=sensors). I will conduct exploratory data analysis and regression analysis using R or Python \ Pandas. | Notes: Analysis in Rmarkdown to include code and data. Public GitHub repo. |
| **R** Relevant | This is in line with business objectives, and specifically the aims of the StS project. I have the necessary resources to achieve this objective and it fits with my long term goals of improving my understanding of data modelling and analysis in preparation for entry to the L7 data scientist apprenticeship. | Notes: May need tutor support for regression components of work. |
| **T** Time-bound | This is achievable by the end of the apprenticeship; I will work on this during normal working hours. I have allocated time for the StS project, which this work is part of. | Notes: |

**Objective 4 To develop a process for monthly diagnostics and QA reporting from air monitors and telemetry devices**

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| **S** Specific | Monthly QA processes are conducted on continuous air quality data (calibration \ ratification). These devices use 4G routers, which record telemetry parameters through a REST API (data usage, signal strength etc).  In addition we receive analyses from passive samplers from an external laboratory. There is currently no formal reporting of the quality of the data or the associated diagnostics and telemetry parameters from the analysers.  I will develop a reporting pipeline that extracts these data, summarises key parameters, produces visualisations and scores the datasets in terms of their quality, flagging where there are issues. | Notes: |
| **M** Measurable | Achievement will be demonstrated when monthly reports can be generated routinely. | Notes: |
| **A** Achievable | This goal can be accomplished in several ways, which I will explore in the discovery phase. It is possible to do it in R, or Python. It may also be possible and better to do this through a dashboard on our open data portal using the ETL capabilities of FME server. I will need to consider the optimal approach in discussion with colleagues. | Notes: Could use a parameterized Rmarkdown report to do this, or a Shiny app. |
| **R** Relevant | This is in line with business objectives and could form a useful additional report for our annual reporting as well as a quality assurance product that would support the ongoing work to introduce a clean air zone in Bristol. | Notes: |
| **T** Time-bound | This is achievable by the end of the apprenticeship, and probably by the end of 2022. I will work on this during normal office hours. | Notes: |