

Aviation

Business Scenario

Airtime Helicopters (Airtime) was established in 2008 to provide charter, scenic and photography services.

Airtime felt a need to further enhance the recording quality and stability of its current camera unit to improve clarity and visibility during vertical, monochromatic imaging, mapping and surveying. In 2009, Airtime began an R&D project dedicated to developing and designing a camera which would provide helicopter camera crews with unprecedented levels of equipment reliability for use in mapping and imaging applications.

Airtime engaged in a program of systematic, investigative and experimental activities to overcome the significant technical uncertainty and develop new knowledge regarding the impact of specific variables on the effectiveness of the new attachment design.

After experimentation, Airtime needed to determine the eligibility of its proposed R&D activities in order to know if it qualified for the R&D Tax Incentive. Once it identified the specific activities that qualified as R&D, Airtime needed to assess whether each activity was a core or supporting R&D activity. After self-assessing, Airtime decided to register one core activity and two supporting activities with AusIndustry.

Airtime's Core R&D Activity:

Design and development of a series of prototypes to achieve the technical objectives and prove the hypothesis (design and development of a camera for mapping and surveying purposes).

Airtime conducted the design and development of spring settings on specific camera types, as well as design consideration on the impact of different wind conditions.

Airtime believed its camera solution could be achieved by conducting the following activities to reduce the unit's vibration:

- A series of information was gathered and evaluated to identify knowledge gaps and achieve the technical objectives.
- A series of design experiments were undertaken to prove the hypothesis.
- A series of trial data was analysed and evaluated to achieve satisfactory reproducible results.
- A series of developments and modifications were undertaken to interpret the algorithm data and draw conclusions that served as a starting point for the new design hypothesis.



Commentary

Identifying Core R&D Activities

There are two types of core R&D activities:

1. Experimental activities whose outcome can not be determined in advance on the basis of current knowledge, information or experience, but can only be known by exercising a systematic progression of work that follows the principles of established science, proceeding from hypothesis to experiment, observation and evaluation, and lead to logical conclusions.
2. Experimental activities that are conducted for the purpose of creating new knowledge.

Hypothesis Defined

AusIndustry recognises a hypothesis as a statement or proposition about what result is expected if certain conditions are put in place and certain actions are carried out in an experiment. It can range from an assumption or proposition to a theory, but it must establish the experimental activity and form part of a broader systematic progression of work undertaken by the company. It must be evident that the claimed experiment has been designed to test the hypothesis.

If the outcome of an activity can be obtained without a hypothesis, then the activity will not be considered R&D.

Airtime's Supporting R&D Activities:

Background research to evaluate current knowledge gaps and determine feasibility (background research for mapping and surveying camera unit).

The following background research was conducted by Airtime:

- Literature search and review
- Consultation with industry professionals and potential clients to determine the level of interest and commercial feasibility of such a project
- Preliminary equipment and resources review with respect to capacity, performance and suitability for the project

Airtime's background research qualified as R&D because it assisted in identifying the key elements of the project, thereby directly supporting the core activity.

Ongoing analysis of customer or user feedback to improve the prototype design (feedback R&D of the camera and its mapping and surveying abilities).

Airtime conducted the following R&D activities:

- Ongoing analysis and testing to improve the efficiency of the project
- Commercial analysis and functionality review

The analysis process was necessary to evaluate the performance capabilities of the newly developed design in the field and to improve any imperfections, and therefore qualifying the experiments as supporting R&D activities.

Commentary

Identifying Supporting R&D Activities

Activities that do not form part of the core experimental activities may still be eligible as supporting R&D activities. Supporting R&D activities are directly related to an eligible core R&D activity. They must have been performed for the primary purpose of supporting a qualified R&D activity.

What records and specific documentation did Airtime keep?

To meet the R&D Tax Incentive requirements, Airtime had to save documents that outlined what it did in its core R&D activity, including experimental activities and documents to prove that the activities took place in a systematic manner.

Airtime only kept records of its literature search findings, leaving vast room for improvement in the area of substantiation.

As a company claiming R&D, you always want to be 'compliance ready' – meaning if you were selected for an AusIndustry audit, you could present documentation to show the progression of your R&D activity. Here are some types of documentation that would be beneficial to save in the case of an audit:

- Project records/lab notes
- Photographs/videos of various stages of build/assembly/testing
- Prototypes
- Testing protocols
- Results or records of analysis from testing/trial runs
- Tax invoices
- Conceptual sketches
- Email correspondence
- Patent application number
- Progress reports and meeting notes