

# Architecture

## Business Scenario

Freeman Home Builders (Freeman) is a custom home construction company involved in designing, constructing and managing home builds from conception to delivery.

In 2012, Freeman identified that the inefficiencies that occurred during the building process were a result of poor industry practices, which were manual, resource-intensive and poorly organized.

Freeman saw a need for a new, all-encompassing software that could handle all aspects of its business instead of the existing market technology that focused strictly on design. Freeman formulated a hypothesis for its new R&D project:

“A management system can be designed and developed to manage all aspects of a building project by integrating the functions of design, customer relationship management (CRM) and accounting software.”

Freeman projected its R&D project would be ongoing for four years. The company believed its new management software (FMS) could be achieved by implementing four key R&D activities.

## Freeman’s Core R&D Activities:

Design and development of a series of prototypes to achieve the technical objectives (design of FMS).

This core activity focused on whether a management system could be designed and developed to manage all aspects of a building project by integrating the functions of design, CRM and accounting software.

After cycles of coding, testing and re-coding, Freeman was able to prove the theoretical feasibility of developing FMS.

Trials and analysis of data to achieve results that can be reproduced to a satisfactory standard and to test the hypothesis (prototype development and testing of FMS).

The hypothesis for this core activity was to prove that theoretical conclusions from the design phase could be realised through development and testing of FMS, and conclude that a management system could be designed and developed to manage all aspects of a building project by integrating the functions of design, CRM and accounting software.



## 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.

### Freeman's Supporting R&D Activities:

Background research to evaluate current knowledge gaps and determine feasibility (background research for the design of FMS).

Freeman engaged in background research for three years which included the following activities:

- Literature search and review
- Consultation with industry professionals and potential customers 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
- Consultation with key component/part/assembly suppliers to determine the factors they considered important in the design and to gain an understanding of how the design needed to be structured accordingly

These specific background research activities were directly related to Freeman's core R&D activities because

they assisted in identifying the key elements of the research project, therefore qualifying as supporting R&D activities.

Ongoing analysis of customer or user feedback to improve the prototype design (feedback R&D of FMS).

Freeman's supporting R&D work included activities such as ongoing analysis and testing and continuous development and modification to interpret the experimental results.

These activities were necessary to evaluate the performance capabilities of the new design in the field and to improve any flaws in the design, thereby directly relating it to the core activities of the project.

## 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 Freeman keep?

To meet the *R&D Tax Incentive* requirements, Freeman had to save documents that outlined what it did in its core R&D activities, including experimental activities and documents to prove that the work took place in a systematic manner. Freeman saved the following documentation:

- Error log and fixes
- Conceptual sketches
- Technical drawing revisions
- Screenshots of various build versions / final version
- Email correspondence
- Progress reports and meeting minutes
- Staff time sheets
- Tax invoices
- Patent application number
- Backup copies of the program and reports for each release
- Documentation of changes and source code in an online, private revision control system

This is a perfect example of how to be 'compliance ready' – meaning if you were audited by the ATO, you could present documentation to show the progression of your R&D activity.