

## MANAGERIAL ANALYSIS

**BYP17-2** **Ideal Manufacturing Company** of Sycamore, Illinois, has supported a research and development (R&D) department that has for many years been the sole contributor to the company's new farm machinery products. The R&D activity is an overhead cost center that provides services only to in-house manufacturing departments (four different product lines), all of which produce agricultural/farm/ranch related machinery products.

The department has never sold its services outside, but because of its long history of success, larger manufacturers of agricultural products have approached Ideal to hire its R&D department for special projects. Because the costs of operating the R&D department have been spiraling uncontrollably, Ideal's management is considering entertaining these outside approaches to absorb the increasing costs. But, (1) management doesn't have any cost basis for charging R&D services to outsiders, and (2) it needs to gain control of its R&D costs. Management decides to implement an activity-based costing system in order to determine the charges for both outsiders and the in-house users of the department's services.

R&D activities fall into four pools with the following annual costs.

Market analysis	\$1,050,000
Product design	2,350,000
Product development	3,600,000
Prototype testing	1,400,000

Activity analysis determines that the appropriate cost drivers and their usage for the four activities are:

<u>Activities</u>	<u>Cost Drivers</u>	<u>Total Estimated Drivers</u>
Market analysis	Hours of analysis	15,000 hours
Product design	Number of designs	2,500 designs
Product development	Number of products	90 products
Prototype testing	Number of tests	500 tests

### *Instructions*

- Compute the activity-based overhead rate for each activity cost pool.
- How much cost would be charged to an in-house manufacturing department that consumed 1,800 hours of market analysis time, was provided 280 designs relating to 10 products, and requested 92 engineering tests?
- How much cost would serve as the basis for pricing an R&D bid with an outside company on a contract that would consume 800 hours of analysis time, require 178 designs relating to 3 products, and result in 70 engineering tests?
- What is the benefit to Ideal Manufacturing of applying activity-based costing to its R&D activity for both in-house and outside charging purposes?