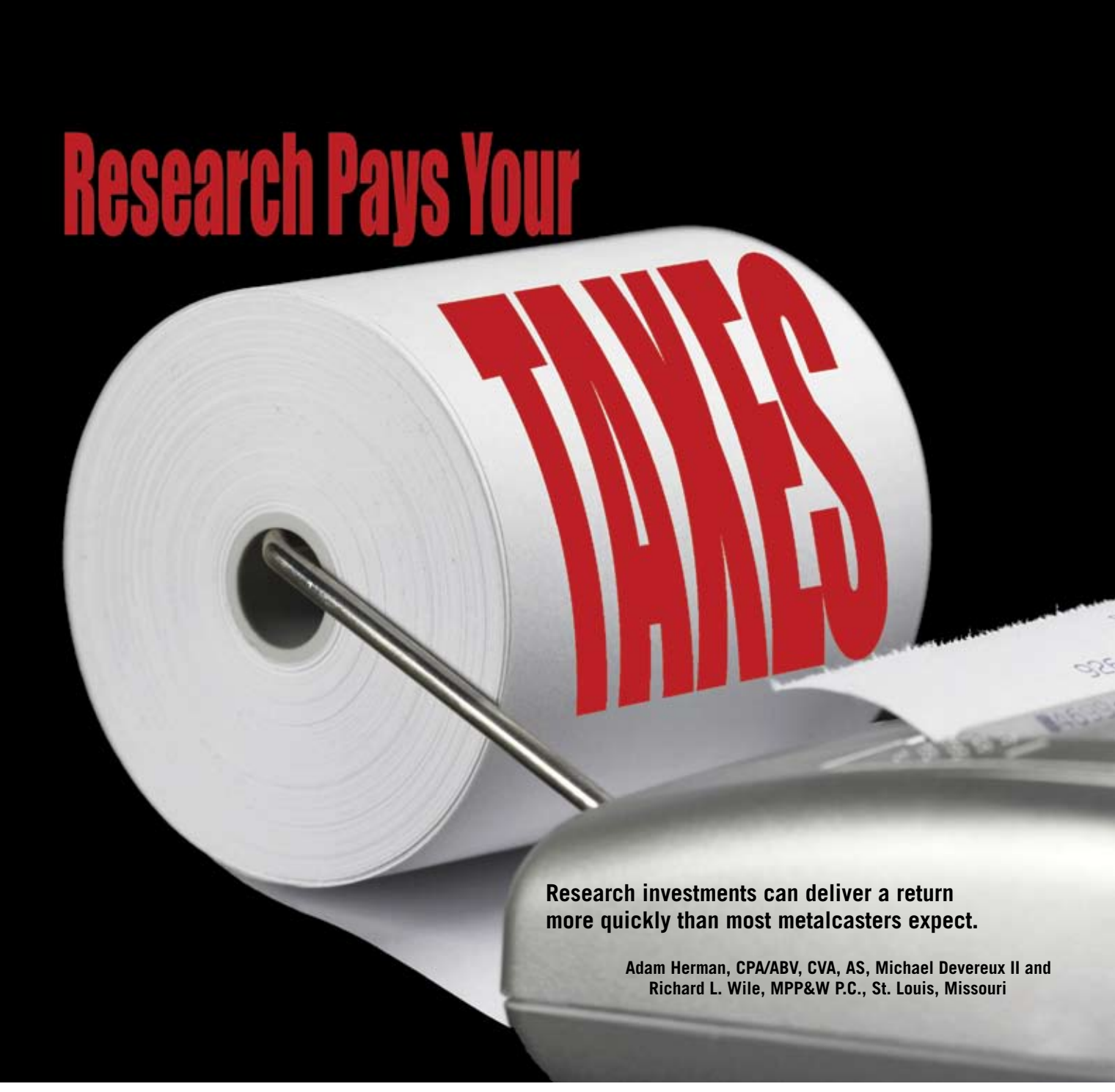
Research Pays Your TAXES



Research investments can deliver a return more quickly than most metalcasters expect.

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Didion Foundry, St. Peters, Mo., found a way to make its research dollars pay off immediately. Instead of going the traditional route—first searching for a more cost effective way of doing things, then implementing the new ideas to receive a return on its investment—the company went straight to the government.

By reporting improvement processes that qualified as research to the Internal Revenue Service (IRS), the company tapped into the research and experimentation (R&E) tax credit, also known as the research and development tax credit. Didion received cash up front just by doing what all good metalcasting facilities already do—improving their processes.

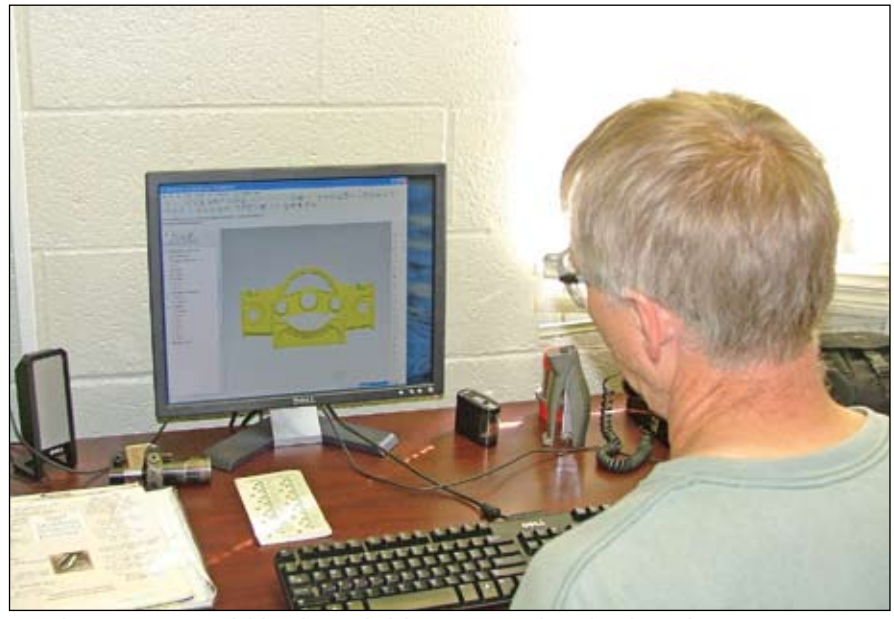
The company then used the proceeds from the tax credit to invest in metallurgical testing equipment, as well as new electrical systems in its furnaces. According to John Didion, the company's president, the R&E tax credit was a shot in the arm that allowed him to reinvest in his company. And it provided incentives for improving the systems and operational efficiencies of his metalcasting facility.

Now, because the R&E tax credit has been expanded to include a variety of new activities, metalcasters like Didion Foundry that invest in research can receive money back from the government before they've even seen a return on their research investment.

Metalcasters that look to develop or improve casting processes, design new or improved manufacturing capacity, such as melting facilities and molding lines, or develop new or improved techniques for the production of castings all are eligible for a refund from the IRS, as well as some state governments.

Refunds for Research

The R&E tax credit was created to increase the competitiveness of the American manufacturing industry and can be a valuable resource to our nation's metalcasters. It has been in existence since 1981, but recent regulations have relaxed the definition of qualified research activities and the associated recordkeeping requirements. Many companies that were not previously eligible may now take advantage of this federal tax credit. In 2003, the last year for which such statistics are available, a total of 4,924 companies filed the IRS form required to claim the R&E tax credit. Of these, 337 companies were in the fields of primary and fabricated metal manufacturing, which includes metalcasters.



Seemingly everyday activities like optimizing runner design with simulation software can qualify for inclusion in the research and experimentation tax credit if reported to the IRS and some state governments.

The R&E tax credit, available to all entities filing a federal tax return, is a wage-based credit available for the development or improvement of products, processes, techniques, formulas, inventions or software. In addition to qualified wages, companies may capture supply costs for prototypes, as well as 65% of any contracted labor used during the development process.

Furthermore, the changes to the regulations are retroactive, meaning companies may file amended returns to obtain refunds on previously paid income taxes. Companies may recapture taxes paid up to four years ago in some cases. In addition, more than 30 states offer a modified R&E tax credit.

Companies can benefit both by deducting research expenditures and claiming a credit. While the research expenditures represent a reduction of taxable income, the R&E tax credit is a dollar-for-dollar reduction of tax. Additionally, any fees paid to advisors for documenting the credit are deductible in the year in which they are paid. The

This Could Be You

The following is a fictional example of what a research and experimentation study might look like for a medium-sized metalcasting operation.

From 2003-2006, the following hypothetical qualified projects took place at ABC Metalcasting (ABC's owner had postponed the improvement of his operation for several years):

1. New melting system design and installation project.
2. Molding line upgrade, including new equipment and layout.
3. Cleaning room design with new equipment and layout.
4. Upgraded pollution controls, including a new baghouse in anticipation of MACT requirements.
5. Automated furnace charging system.
6. Furnace refractory lining improvement project.
7. Welding process improvement project.
8. Testing and experimentation for the production of a casting type never before produced by the metalcasting facility.
9. Implementation of a solidification simulation program used for testing various gating and risering system designs.
10. Testing conducted for new materials, such as refractory core and mold coatings, charge materials and deoxidizing compounds.
11. Experimentation and testing for the conversion to a new coldbox coremaking binder system.
12. Heat treatment process development and testing to obtain special customer-required mechanical properties and microstructures.

Several members of the ABC Metalcasting staff participated in these projects in various capacities. The owner was involved in the process development and improvement projects, working with his key personnel, including his plant engineer and metalcasting manager, on process and equipment design. Because the R&E credit is a wage-based credit, the time spent by the ABC staff working on these and other similar projects would be considered research time. The same analysis would apply to other ABC employees, including metalcasting and process engineers, metallurgists, plant engineers, CAD designers, etc.

The key points for the determination of eligibility for the credit are the focus on time spent on qualified research activities and the definition of these activities. For example, if ABC Metalcasting decided to replace a melting furnace by simply removing an existing furnace and setting an identical unit in its place, this would not be considered a qualified expenditure. However, if in order to improve their production process, ABC's maintenance and engineering department developed design criteria for a new furnace considering multiple variables such as capacity, location, lining type, power and frequency, this would be considered a qualified activity. The qualified research expenditures dedicated to this project could be included in the R&E credit calculation. Further, if ABC decided to engage a refractory consultant to assist with the research on refractory lining options for the furnace, a percentage of these costs would qualify, as would the cost of any supplies that were purchased for this project. ***MC***

R&E credit is calculated by comparing recent years' research activities to a base amount, with 20% of the increase in activities captured as the tax credit. Companies must first use the credit to offset the tax in the year that the credit is generated. However, if additional credit remains, the company may carry the credit back one previous tax year or forward to the next 20 years.

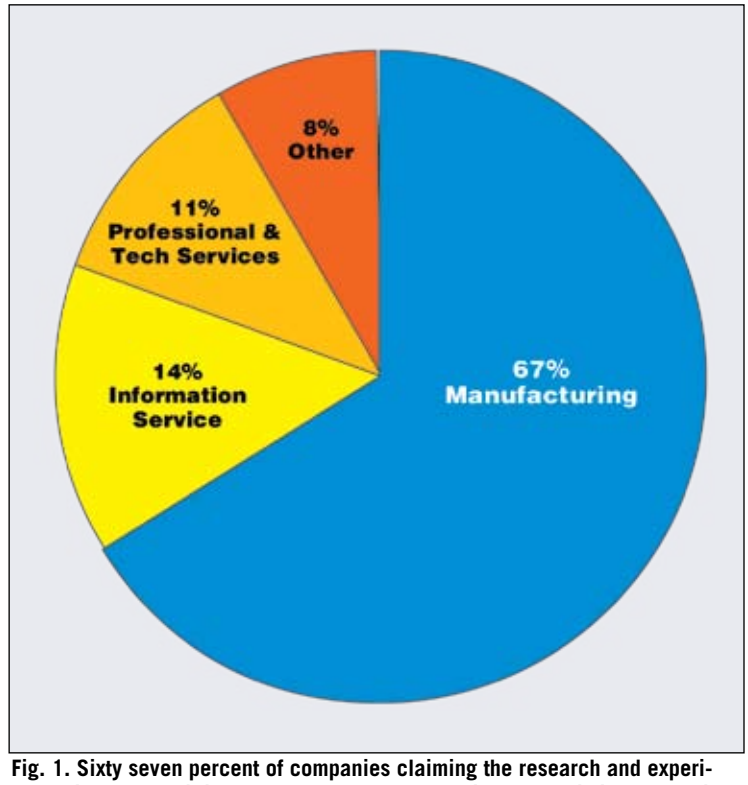


Fig. 1. Sixty seven percent of companies claiming the research and experimentation tax credit in 2003 (the last year for which the statistics are available) were manufacturers. About 7% were primary metal manufacturers.

Do You Qualify?

Research activities must satisfy four basic requirements to qualify for the R&E tax credit:

1. Qualified research activities are defined as the development or improvement of a business component, which is defined as a product, process, technique, formula, invention or software. From an industry perspective, metalcasting facilities continually develop and improve processes used in the production of castings. This can include gating and risering design and molding and melting techniques.
2. The research must be technological in nature. The process of experimentation used to discover the information must fundamentally rely on the physical or biological sciences, engineering or computer sciences. Furthermore, companies may use existing technologies and rely on existing principles to satisfy this requirement. Metalcasters rely heavily on the principles of physical science, as well as metallurgical and mechanical engineering, to develop or improve their products or processes.
3. The research must be intended to eliminate uncertainty concerning the development or improvement of a business component. Uncertainty exists if the capability or method for developing the business component is unknown, or if the appropriate design of the business component is unknown. Metalcasters constantly are searching for more efficient and effective ways to design or produce castings. Many specifications and alternatives must be considered in the casting process—adhering to tight tolerances, meeting special microstructure requirements, experimenting with different alloy types and achieving specified mechanical properties—all of which are uncertain at the outset of the part design and manufacturing process.
4. The company must utilize a process of experimentation to eliminate the uncertainty associated with the function, performance, reliability or quality of a business component. Metalcasters typically engage in a process of experimentation when developing or improving their products or processes. For instance, they may engage in systematic trial and error in determining gate locations or runner sizes, produce casting prototypes or utilize solidification simulation software to model the casting process, all of which satisfy the process of experimentation criteria.

Research Party

Most companies claiming the R&E tax credit are in the field of manufacturing, with professional and technical services making up the majority of the remainder (Fig. 1).

A sample of projects (Table 1) indicates that companies as small as a tool and die shop with $4 million in annual sales can obtain meaningful boosts to company cash flow through the use of the R&E tax credit.

Although the R&E tax credit has been in existence since 1981, it has expired 13 times since its inception. The latest renewal is due to expire at the end of 2007, although a bill was introduced in the House of Representatives in May proposing to make the R&E credit permanent. ***MC***

Table 1. Examples of R&E Credits Realized by Manufacturing Companies

Type of Company	Annual Sales	Size of R&E Credit
Aluminum Diecaster	$22 million	$108,000
Gray and Ductile Iron Foundry	$10 million	$162,000
Machine Tool Shop	$25 million	$230,000
Machine Tool Shop	$8 million	$75,000
Plastic Injection Molder	$20 million	$382,000
Tool and Die Shop	$4 million	$250,000
Boat Manufacturer	$110 million	$650,000
Scale Manufacturer	$40 million	$360,000
Survey Instrument Manufacturer	$30 million	$288,000

For More Information

*Log onto **www.irs.gov** for tax forms and other online tools for preparing your taxes.*

About the Authors

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