



WRITTEN BY

Uche Okoroha

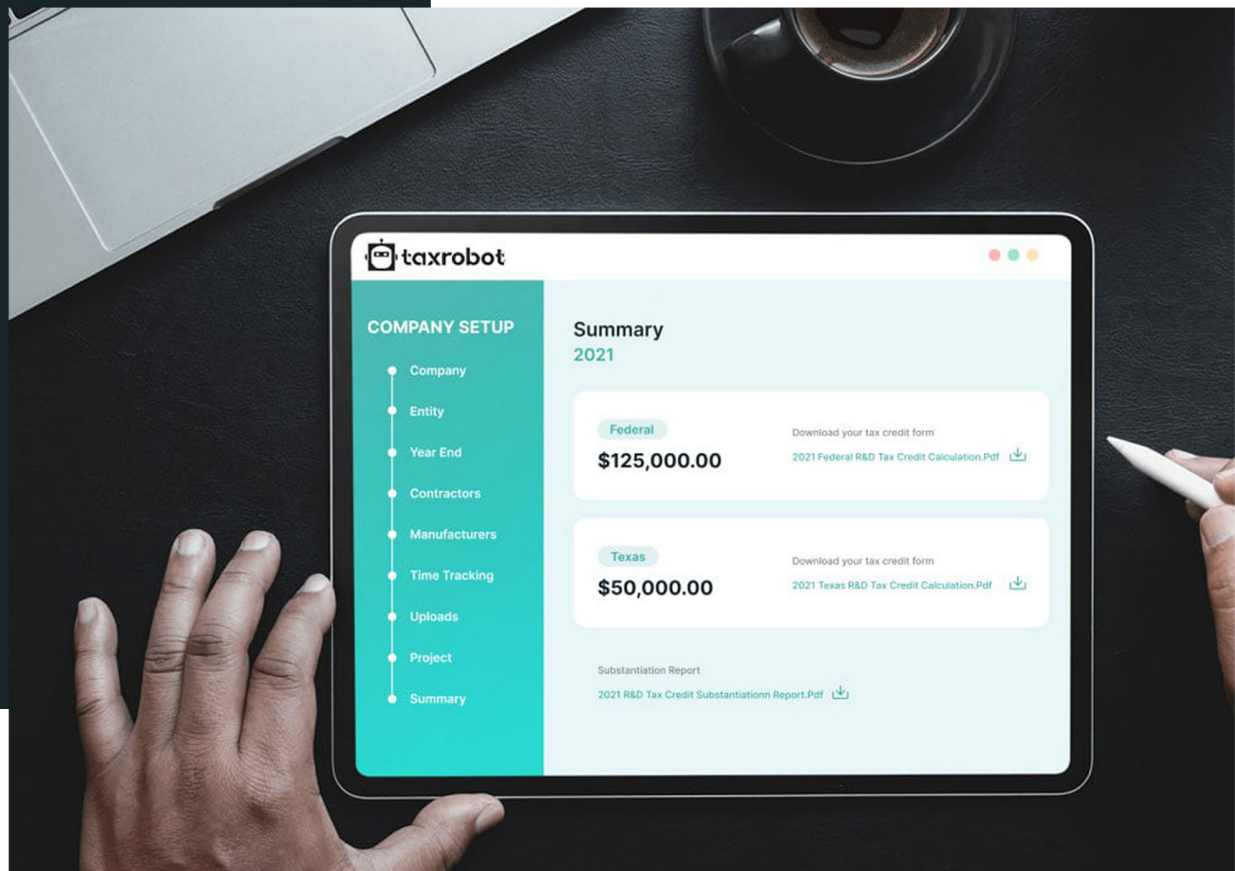
Chris Sioco

E-BOOK

**R&D Tax Credit
101**

The Ultimate Guide





What is the R&D Tax Credit and Why Should You Claim it?

The Credit for Increasing Research Activities (R&D Tax Credit) is one of the most powerful tax credits to exist in the history of the tax code. The Economic Recovery Tax Act of 1981 sponsored by U.S. Representative Jack Kemp and U.S. Senator William Roth created the R&D Tax Credit, and it became a permanent part of the tax code in 2015. Many companies that claim this tax credit receive back 8 to 15 cents for every dollar of R&D investment. That's an incredible incentive for your R&D efforts!



We all know that taxes are a significant drain on the growth of every business, so it's extremely important to maximize all the incentives and tax credits that are available for your business.

At this point, you may be telling yourself "Well, that sounds great, but my company doesn't do R&D so this can't possibly help me."

Actually, you might be doing R&D. According to the tax code, the definition of R&D is broader than you think – it's not just laboratory or experimental R&D.

No, you don't need lab beakers, test tubes, or expensive scientists and researchers to qualify for this credit.

This publication is designed to teach you whether your business qualifies for the R&D tax credit and distill the complex nuances of the tax code in an easy-to-understand format.



The Four-Part Test: The Definition of R&D

All activities that qualify for the R&D tax credit must meet the Four-Part Test. This test is laid out in the tax code, and all activities must meet the following criteria:

- 1. New or Improved Business Component;**
- 2. Elimination of Uncertainty;**
- 3. Process of Experimentation; and**
- 4. Technological in Nature.**

Don't let words like "Uncertainty" or "Experimentation" or "Technological" scare you away from believing you might be qualified for this benefit. As in most cases in the tax code, the dictionary definition of a word rarely ever matches its tax code definition. Let's break down each component of the Four-Part Test to better understand the meaning behind the vague criteria.



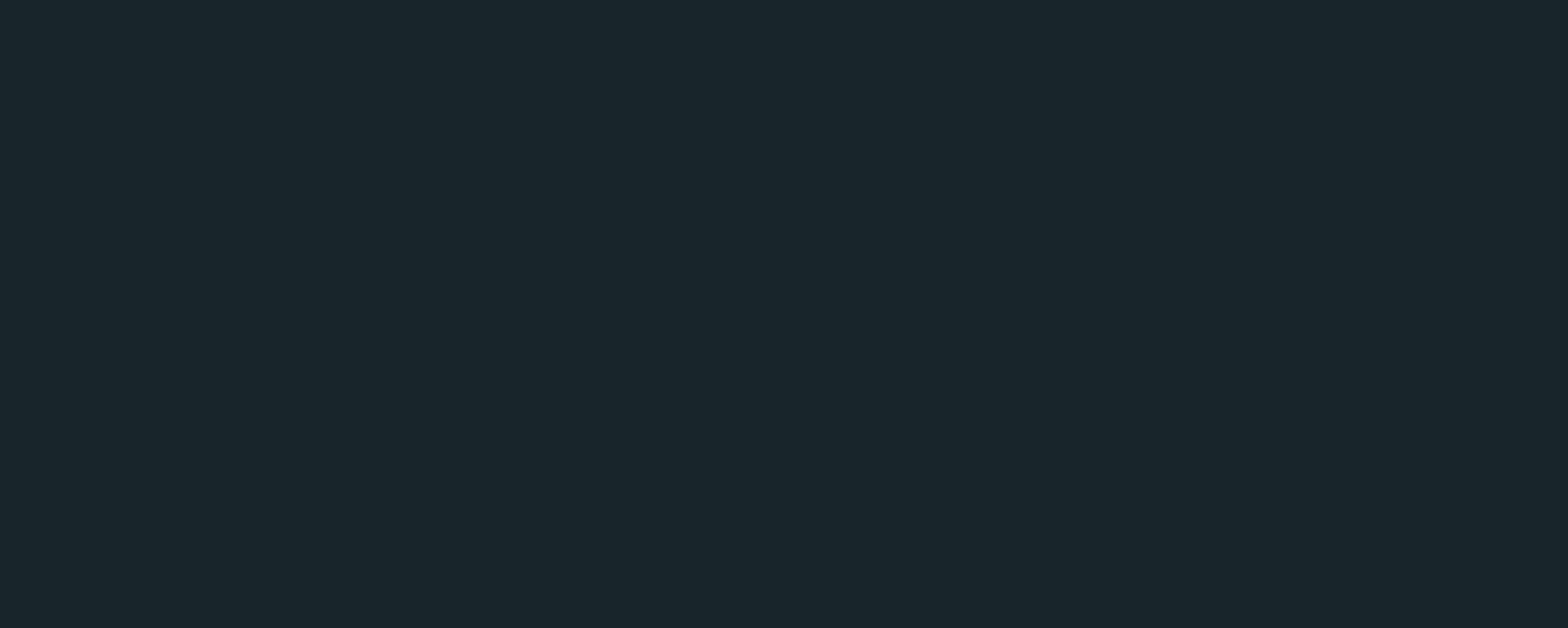
New or Improved Business Component

The term “Business Component” is so vague that you wouldn’t be able to determine the definition of it by using a dictionary. IRC 41(d)(2)(b) defines business component as any product, process, computer software, technique, formula, or invention that is held for sale, lease, or license, or used by the taxpayer in a trade or business of the taxpayer. Yes, what you are probably thinking is true. Almost anything a business makes or provides can be a business component.

In general, once the term “business component” is defined, this portion of the four-part test is relatively simple.

The key idea to remember is that the activities must be for a NEW or IMPROVED business component. For example, let’s imagine your business creates widgets to sell for the public. I use the term widget here just to describe almost any product on the market.





If your business undertakes activities to create a new widget for sale or seeks to improve upon an existing widget your business manufactures, then your activities will meet this portion of the four-part test. The business component here is a product.

If your business activities seek to create more of the exact same widget, then this would not qualify as a new or improved business component. It is the SAME business component – the original, unchanged product.

However, if your business activities are seeking to improve the PROCESS of manufacturing the exact same widget (by increasing yield or quality of the final product for example), then those activities would meet the new or improved business component test.

It's important to understand the subtle difference here in the argument of qualification. One argument relies upon a new or improved product and the other relies upon a new or improved process.

Even though most activities will pass the new or improved business component test, it does not guarantee the activity will pass the other parts of the four-part test.



Elimination of Uncertainty

Uncertainty exists if the information available to the taxpayer does not establish the capability or method for developing or improving the business component, or the appropriate design of the business component.


It's important to understand from this definition that uncertainty includes not knowing the METHOD for developing or improving a business component, or the appropriate DESIGN of the business component at the outset of the activities.

Basically, even if you know you are CAPABLE of creating a product or process, there can still be uncertainty.

This nuance is key to the qualification of many industries that aren't traditionally considered to be R&D, such as architecture or engineering firms.

For example, Let's evaluate an architect designing a building. The architect has designed many buildings in the past. She knows she is CAPABLE of designing a building. That's not her problem.

At the beginning of the project, our architect may not know the appropriate DESIGN of the building, and that is how she meets the Elimination of Uncertainty test.



Process of Experimentation

The third part of the four-part test might be the least understood portion of the R&D statute, and for good reason.

The term “experimentation” firmly evokes imagery of a laboratory where scientists are working hard to develop the latest pharmaceutical drug. This perception can’t be further from the truth.

A process of experimentation is a process designed to evaluate one or more alternatives to remove uncertainty. It must be undertaken to discover information relating to improved function, performance, reliability, or quality of the business component.

That’s it.

There’s nothing about actual “experiments” in the definition of process of experimentation.

The treasury regulations give suggestions as to what fits this definition, and they mention modeling, simulation, or systematic trial and error methodology.

Let’s revisit our architect example. It’s extremely common (if not universal) for architects to utilize computer aided design (CAD) models during the design process. The CAD model allows the architect to test their design for flaws or coordination issues. This is just one example of “modeling” during a design process.

A quick note on systematic trial and error methodology. The term systematic is utilized here to differentiate educated or informed attempts vs seemingly random and uninformed attempts to find a solution.

Technological in Nature

The final prong of the four-part test ensures that not just any business that has to evaluate alternatives or doesn't know the answer to its development activities can claim the R&D tax credit.

The "Technological in Nature" prong requires that the process of experimentation must rely upon the principles of the physical or biological sciences, engineering, or computer science.

Again, this definition is broad and can include a wide variety of industries. For example, biological sciences may not only apply to just pharmaceutical and medical companies, it could also be utilized in food science. Physical science includes subjects such as astronomy, physics, chemistry, or the earth sciences.

Engineering encompasses a very large swath of industries such as aeronautics, chemicals, structural engineering, and architecture. Almost any business that makes any sort of product may rely upon the principles of engineering during development to select the highest performing or quality materials to improve product longevity.

Your business doesn't have to be in silicon valley to utilize the principle of computer science. Any business that is developing a tech or software product may rely upon the principles of computer science to create a reliable and functional application for sale.





The Four-Part Test is Broad

As you can see, the definition of R&D according to the tax code is very broad and can encompass many different industries. This definition was written broadly intentionally so many businesses in different industries can reinvest in their growth and create new and innovative products.

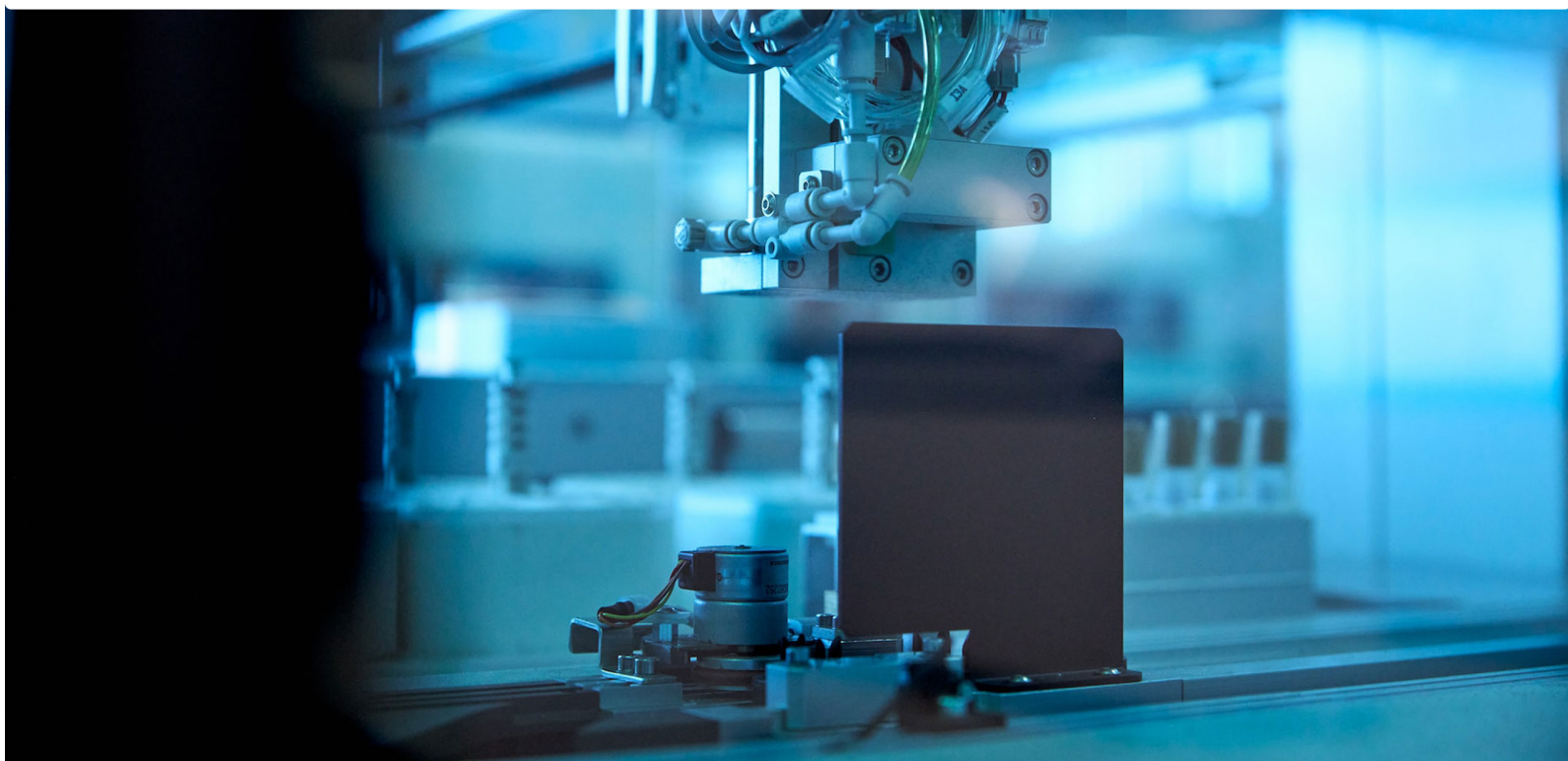
So now that you know what R&D is and what kind of business has activities that qualify, what expenses are eligible for this credit?

What Kinds of Expenses Qualify for R&D?

The four kinds of expenses that qualify for R&D include the following:

- 1. Wages;**
- 2. Contract;**
- 3. Supply; and**
- 4. Rental or lease costs for computers.**

While these expenses seem straightforward, there are several rules and exceptions that need to be understood to ensure you are complying.





Qualified Wage Expenses

You can include W-2 Box 1 wages paid to or incurred for an employee that is performing qualified R&D services.

However, you can only include the percentage of the wage towards R&D that is equal to the percentage of time they spent on qualified services (e.g. if an employee spent only 50% of their time performing R&D work, you can include 50% of their wage as qualified research expenses).

Additionally, there is an interesting caveat with qualified wages known as the “substantially all” rule. Basically, if 80% or more of an employee’s time is spent performing qualified services, you can claim 100% of that employee’s wage as qualified research expenses.

In addition to your employees that are actually performing the direct research work, employees who directly supervise qualified research and others who directly support qualified research.

Direct supervision means the first-line management of qualified research. The example given in the treasury regulations is a research scientist who may supervise lab experiments but does not actually perform these experiments.

Direct support can include a wide range of activities such as a secretary typing reports describing lab results, a clerk compiling research data, or a machinist making a part for a prototype. These examples indicate that there can be a wide range of activities that qualify as direct support.

Contract Research Expenses

Sometimes, your business may not have the expertise to perform specific tasks during R&D or product development.

Anytime you need to pay an outside company or individual to complete technical work for your R&D process, you can claim 65% of those expenses towards the R&D tax credit.

Clearly the government wants to provide a greater reward for hiring in-house employees to perform R&D work, because there is no 65% reduction for qualified wages.

For contract expenses to qualify, the following criteria must be met:

1. An agreement or contract is entered into before the performance of the research;
2. Your business needs to have a right to utilize the results of the contractor's work (the right to the work doesn't need to be exclusively yours); and
3. Your business needs to bear the expense even if the research is not successful.

This typically means that you must pay your contractor hourly or time and materials. Exceptions to this rule do exist.

If you prepaid any contractors, you can't claim those expenses until the work has actually been performed. For example, if you prepaid a contractor in 2020, but they performed the research in 2021, the payments are considered expenses for tax year 2021.

Also, contractor expenses for directly supporting or supervising R&D work qualify, just like for qualified wages.

Supply Research Expenses

Supplies are defined as any tangible property other than land, improvements to land, and property of a character subject to the allowance for depreciation in the hands of the taxpayer.

If you have to use raw materials to create a prototype of a new product, or you are consuming supplies while performing R&D, then these expenses can be claimed toward the R&D tax credit.

Even if you create a prototype that you end up selling for a profit, you can still claim the material expenses you incurred to build the prototype towards the R&D tax credit.

However, it's important to unpack the definition of supplies further to make sure that you don't overclaim expenses in this category, which is very common.

Improvements to land means any permanently affixed building or other permanently affixed structure.

If you construct a building, even if it is solely for the purpose of testing, product development, or other R&D initiatives, the cost to construct that building cannot be considered a supply research expense, because the building can be depreciated AND is an improvement to land.

Any equipment expenses, even if utilized in your R&D process, cannot be included if the useful life of the equipment is greater than one year. If the useful life of equipment is greater than one year, that makes it property subject to depreciation.

Any non-tangible expenses like license fees, leases, rental costs, entertainment, or travel cannot be included.

Supplies used for general and administrative purposes cannot be included either.



Rental or Lease Costs for Computers

Because the rules regarding the R&D tax credit were written back in the 1980s, rental or lease costs for computers have a completely different interpretation now.

Any expenses for technology leveraged from cloud service providers to perform qualified research like collaborative coding or software development can potentially qualify under this category.

Microsoft Azure or Amazon Web Services are good examples of cloud service providers that help in the conduct of qualified research.

It's common for businesses that are not developing software to have zero expenses in this category.



Qualified Research - Exclusions

After reading about the four-part test and learning what expenses can be included for the R&D tax credit, you might think this benefit can apply to a wide variety of situations.

And it can.

But, there are specific exclusions from R&D to prevent a few different types of activities from qualifying.



Research After Commercial Production

Commercial production is the point after which a business component is ready for commercial sale or use.

For example, preproduction planning for a finished business component, tooling-up for production, trial production runs, troubleshooting faults in production equipment or processes, accumulating data related to production, or debugging flaws in a business component are all considered to be activities after you achieve commercial production.

A simple way to think about this is if you are ready to start producing a large amount of your business component and there is little to no problem solving anymore because the business component has been largely developed, you may be at commercial production.

However, if you still need to undertake activities that meet the four-part test for the manufacturing process of a product you have already fully developed, then those activities may still be considered R&D.

Adaptation of Existing Business Components

If you have a finished business component, and you are making small tweaks or changes to meet a particular customer's requirements or needs that do not meet the four-part test, then this would be adaptation of an existing business component.

This exclusion doesn't apply just because a business component is intended for a particular customer.

Duplication of Existing Business Components

This exclusion applies if you are reproducing a business component from specs, plans, blueprints, etc.

However, if you are trying to create a business component that is similar to one developed by a competitor, then this exclusion would not apply. This is because you would presumably still have to undertake R&D activities to figure out how to create that business component.



Surveys, Studies, Research Relating to Management Functions, Etc.

Efficiency surveys, management functions, market research, routine data collection, or even quality control inspections are excluded from R&D.

You might be wondering why “quality control inspections” may not qualify. The whole point of quality control is to improve the performance or reliability of your product, right?

Quality control typically doesn’t qualify because it usually happens AFTER commercial production.

If you are mass manufacturing a product and decide to do testing, this is routine testing or quality control.

However, if you are still in the process of developing a product and testing to make sure it performs as specified, this type of testing would qualify for R&D because it is BEFORE commercial production.

Internal Use Software

Developing software to use for your own company operations (i.e. financial management, human resources management, or other support services) or within the confines of your own business (not for sale) is generally excluded from R&D.

An important exception exists here for internal use software. Your internal use software will qualify for R&D if you can prove it meets the four-part test and the following three criteria:

- The activity must involve significant economic risk (you commit substantial resources to development and there is uncertainty whether your commitment will pay off);
- It must meet a high threshold of innovation (results in reduction of cost or improvement in speed or some other measurement); and
- No comparable third-party software is available for purchase.



Foreign Research

Any research activities conducted outside of the United States, Puerto Rico or U.S. territories does not qualify for the R&D credit.

If you have some activities performed in the United States, but other activity performed abroad, then you can still qualify the portion of the activities that were performed in the United States.

The physical work location of the employee performing the work is what matters.

Research in the Social

If the research is performed in the social sciences, such as economics, business management, behavioral sciences, arts, or humanities, then these research activities do not qualify.

This exclusion is relatively easy to apply and further reinforces that your research activities need to rely upon the hard sciences, not the social sciences.



Funded Research: What If I Get Paid for the Work I Do?

Funded research is the final exclusion listed in the tax code. However, it doesn't exactly mean what you think.

Just because you get paid for the work that your business performs that meets the four-part test doesn't mean that you can't qualify for the R&D tax credit.

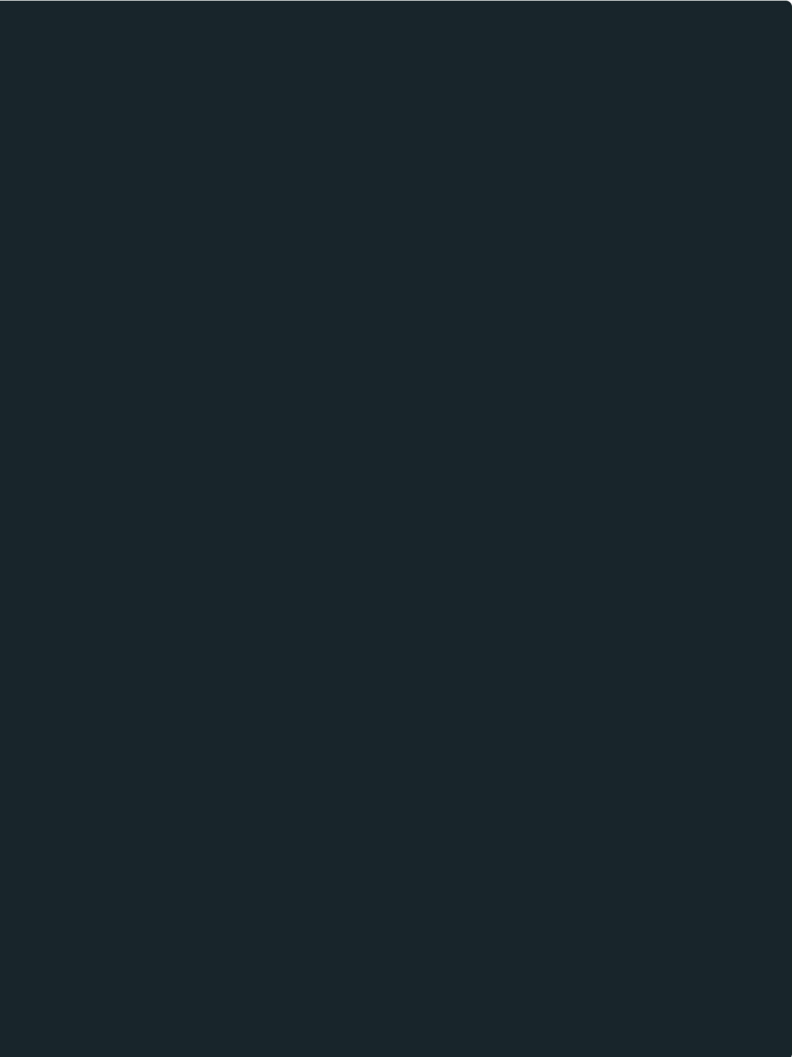
Plenty of architecture and engineering firms, for example, that get paid for design work still qualify for the R&D tax credit.

The devil is in the details with regards to HOW you are getting paid for the work your business performs.

How Do You Qualify If You Are Paid For Your Work?

In order for your work to not be considered “funded,” then two conditions must be met.

The first is that your payment is contingent on the success of the research. Specifically, your payment is for the product or result of your research, not your efforts. The government wants your research endeavors to be economically risky for your business.



The second is that you must retain substantial rights in the research.

This means that you need to have the right to use the results of the research without paying for the results. Also, the rights to use the research doesn't need to be exclusive.

This means that if you and your client both have the right to use the results of your research, then that means you have substantial rights.



So How Does This Definition Work in Reality?

In general, fixed price contracts are considered to have economic risk. This is because fixed price contracts are inherently risky to your business. Specifically, you must remedy any failed work at your own expense.

For all other contract types, the specific terms of each contract under which your business performs work needs to be analyzed to see if it meets the aforementioned definition of funded research.


For example, payment procedures, quality and performance standards, termination clauses, and warranty and default provisions are all taken into consideration.

The key is that you need to be paid a fee contingent on the success of the research given all of the terms and conditions in the contract.

Outside of fixed price contracts, if you can conclude from the terms and conditions that your business will be paid regardless of the success of the research, your work is considered funded and will not qualify.

Regarding substantial rights, if you have terms and conditions that restrict your ability to use any technical knowledge, give up any patents or discoveries you make during the course of your work, or have to pay for the right to use the results of your research, you may not have substantial rights.

Incidental benefits from your work such as increased knowledge or experience do not constitute a substantial right to your research.



Substantiating Documentation

When it comes to keeping records to substantiate your R&D tax credit claim, there is no one size fits all prescription.

A good mix of qualitative (design models, test logs, etc.) and quantitative (accounting and financial records) documents are a good place to begin.

However, it's widely accepted now that maintaining contemporaneous documentation is a key strategy to substantiating your R&D tax credit claim.

Contemporaneous simply means that the documentation is created at the time the activity takes place.



Quantitative documentation is helpful to calculate the amount of expenses that are eligible for the R&D tax credit once you determine which activities qualify.

The below chart lists examples of quantitative documentation that is helpful for substantiating different types of expenses.

<i>Quantitative Documentation Examples</i>			
Wages	Supplies	Contractors	Computer Rental or Lease Qualified Documentation
<ul style="list-style-type: none"> • Employee W-2s • Payroll registers • Time tracking data • Time questionnaires • Interview notes for oral testimony • Job descriptions • Department / Cost Center descriptions • Meeting minutes 	<ul style="list-style-type: none"> • Chart of accounts • General ledger • Purchase orders • Invoices 	<ul style="list-style-type: none"> • Chart of accounts • General ledger • Third-party contracts • Purchase orders • Invoices • Form 1099 (for individual contractors) 	<ul style="list-style-type: none"> • Chart of accounts • General ledger • Third-party contracts • Purchase orders • Invoices • Form 1099 (for individual contractors)

Qualitative documentation is generally concerned with substantiating the four-part test.

It's generally rare that a business keeps documentation on hand specifically for the R&D tax credit.

This means you often must rely upon estimates and various documents, interviews, questionnaires, and other evidence.

The following are examples of qualitative documentation that you can utilize to support your R&D tax credit claim:

- Patents or patent applications;
- Complete project lists identifying current and ongoing R&D projects claimed;
- Annual R&D or technology proposal plans;
- Research project authorization requests (e.g. Authorization For Expenditures, "AFEs");
- Internal (e.g. emails, calendar appointments) and/or external (e.g. R&D contract agreements) correspondence on R&D activities;
- Design requirements, functional specifications, modeling simulation documentation;
- Testing scripts or testing logs (e.g. JIRA records);
- Modifications reports or error logs;
- Technical reports or plans;
- Laboratory experimentation reports; or
- Material consumption/usage worksheets.

Treasury Regulation

Examples of R&D and Exclusions



Facts	Conclusion
<p>X, a tire manufacturer, develops a new material to use in its tires.</p> <p>X conducts research to determine the changes that will be necessary for X to modify its existing manufacturing processes to manufacture the new tire.</p> <p>X determines that the new tire material retains heat for a longer period of time than the materials X currently uses for tires, and, as a result, the new tire material adheres to the manufacturing equipment during tread cooling.</p> <p>X evaluates several alternatives for processing the treads at cooler temperatures to address this problem, including a new type of belt for its manufacturing equipment to be used in tread cooling.</p> <p>Such a belt is not commercially available.</p> <p>Because X is uncertain of the belt design, X develops and conducts sophisticated engineering tests on several alternative designs for a new type of belt to be used in tread cooling until X successfully achieves a design that meets X's requirements.</p> <p>X then manufactures a set of belts for its production equipment, installs the belts, and tests the belts to make sure they were manufactured correctly.</p>	<p>X's research with respect to the design of the new belts to be used in its manufacturing of the new tire may be qualified research.</p> <p>However, X's expenses to implement the new belts, including the costs to manufacture, install, and test the belts were incurred after the belts met the taxpayer's functional and economic requirements and are excluded as research after commercial production.</p>
<p>For several years, X has manufactured and sold a particular kind of widget. X initiates a new research project to develop a new or improved widget.</p>	<p>X's activities to develop a new or improved widget is qualified research.</p>
<p>X, a computer software development firm, owns all substantial rights in a general ledger accounting software core program that X markets and licenses to customers. X incurs expenditures in adapting the core software program to the requirements of C, one of X's customers.</p>	<p>Because X's activities represent activities to adapt an existing software program to a particular customer's requirement or need, X's activities are considered an adaptation of an existing business component and are excluded from the definition of qualified research.</p>

Facts	Conclusion
<p>X manufactures and sells rail cars.</p> <p>Because rail cars have numerous specifications related to performance, reliability and quality, rail car designs are subject to extensive, complex testing in the scientific or laboratory sense.</p> <p>B orders passenger rail cars from X. B's rail car requirements differ from those of X's other existing customers only in that B wants fewer seats in its passenger cars and a higher quality seating material and carpet that are commercially available.</p> <p>X manufactures rail cars meeting B's requirements.</p>	<p>X's activities to manufacture rail cars for B are not qualified research.</p> <p>The rail car sold to B was not a new business component, but merely an adaptation of an existing business component that did not require a process of experimentation.</p> <p>Thus, X's activities to manufacture rail cars for B are excluded from the definition of qualified research because X's activities represent activities to adapt an existing business component to a particular customer's requirement or need.</p>
<p>X, a manufacturer, undertakes to create a manufacturing process for a new valve design.</p> <p>X determines that it requires a specialized type of robotic equipment to use in the manufacturing process for its new valves.</p> <p>Such robotic equipment is not commercially available, and X, therefore, purchases the existing robotic equipment for the purpose of modifying it to meet its needs.</p> <p>X's engineers identify uncertainty that is technological in nature concerning how to modify the existing robotic equipment to meet its needs.</p> <p>X's engineers develop several alternative designs, and conduct experiments using modeling and simulation in modifying the robotic equipment and conduct extensive scientific and laboratory testing of design alternatives.</p> <p>As a result of this process, X's engineers develop a design for the robotic equipment that meets X's needs. X constructs and installs the modified robotic equipment on its manufacturing process.</p>	<p>X's research activities to determine how to modify X's robotic equipment for its manufacturing process are qualified research and not an adaptation of an existing business component, provided that X's research activities meet the four part test.</p>

Facts	Conclusion
<p>An existing gasoline additive is manufactured by Y using three ingredients, A, B, and C.</p> <p>X seeks to develop and manufacture its own gasoline additive that appears and functions in a manner similar to Y's additive.</p> <p>To develop its own additive, X first inspects the composition of Y's additive, and uses knowledge gained from the inspection to reproduce A and B in the laboratory.</p> <p>Any differences between ingredients A and B that are used in Y's additive and those reproduced by X are insignificant and are not material to the viability, effectiveness, or cost of A and B.</p> <p>X desires to use with A and B an ingredient that has a materially lower cost than ingredient C.</p> <p>Accordingly, X engages in a process of experimentation to develop, analyze and test potential alternative formulations of the additive.</p>	<p>X's activities in analyzing and reproducing ingredients A and B involve duplication of existing business components and are excluded from the definition of qualified research.</p> <p>X's experimentation activities to develop potential alternative formulations of the additive do not involve duplication of an existing business component and are considered qualified research.</p>
<p>X, a manufacturing corporation, undertakes to restructure its manufacturing organization.</p> <p>X organizes a team to design an organizational structure that will improve X's business operations.</p> <p>The team includes X's employees as well as outside management consultants.</p> <p>The team studies current operations, interviews X's employees, and studies the structure of other manufacturing facilities to determine appropriate modifications to X's current business operations.</p> <p>The team develops a recommendation of proposed modifications which it presents to X's management.</p> <p>X's management approves the team's recommendation and begins to implement the proposed modifications.</p>	<p>X's activities in developing and implementing the new management structure are excluded from the definition of qualified research because the activities relate to management functions or techniques including management organization plans and management-based changes in production processes.</p>

Facts	Conclusion
<p>X, an insurance company, develops a new life insurance product. In the course of developing the product, X engages in research with respect to the effect of pricing and tax consequences on demand for the product, the expected volatility of interest rates, and the expected mortality rates (based on published data and prior insurance claims).</p>	<p>X's activities related to the new product represent research in the social sciences (including economics and business management) and are thus excluded from the definition of qualified research.</p>