

# How to write an R&D tax relief technical narrative

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# Introduction

Ask anyone active in the R&D tax relief sector and they'll tell you that one of the hardest aspects of preparing claims for R&D tax relief is writing technical narratives. This has become especially acute with the introduction of the Additional Information form in August 2023, which for the first time mandates the submission of technical information in support of an R&D tax relief claim. As part of this, claimants will be required to describe a minimum number of projects in detail.

Here at WhisperClaims, we have a lot of experience of writing project descriptions, as well as having seen many, many descriptions written by others.

With HMRC's new mandatory requirement for project descriptions on all submissions, we wanted to share our experiences to help others to write their best possible technical narratives.

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# Chapter 1

# Technical baseline

The baseline for any R&D project is often neglected when it comes to assessing projects for eligibility for R&D tax relief. However, getting a full understanding of the baseline is absolutely key to successfully articulating the eligibility of a project to HMRC—done correctly, all of the project description hangs off the technical baseline. Essentially, you can't have a technological advance without a baseline!

## What is a technical baseline?

Let's look at what HMRC means by the baseline and how they describe it, especially in the context of the Additional Information Form (AIF). In the AIF the first full section of the project description, coming immediately after the project title and area of science or technology, concerns the baseline. The full question asks:

***'What scientific or technological knowledge [that] existed at the start of the project did you plan to advance?'***

Strangely enough, unlike the other questions included in the AIF project section, this is not dealt with directly in [CIRD81900](#). In fact, the baseline is only mentioned once in the guidance, in [CIRD81960](#), which deals specifically with software claims.

Thankfully, however, this small amount of advice here can be universally applied. **CIRD81960 makes two points about the baseline:**

**Firstly, that it relates to:**

*"... the underlying technology in which an advance is made rather than the commercial output or outcome."*

**Secondly, that it relates to:**

*"...the gap in technological knowledge or capability which necessitated the commencement of the R&D project."*

From these breadcrumbs, we can conclude two things:

1. The baseline should focus on the underlying technology
2. HMRC are interested in why the R&D was needed in the first place i.e. why current technology wasn't sufficient to achieve the required outcome

### What do HMRC **not** want to see?

Now that we know what a technical baseline is, we can start to work out how to describe it.

However, before we get into that, it's important to take a moment to think about what HMRC don't want or need to see in the baseline section. Knowing that HMRC are concerned with only the underlying technology, a baseline should not include:

- Details of the commercial drivers of the project.
- Details of sector- or industry-specific gaps in functionality.
- Descriptions of the required commercial outcomes of the project, unless used to reinforce why the technical advance is needed.

For example, here's how **not to describe** the baseline of a software project:

*Company A embarked on a project to develop a software system that could integrate with several disparate accounting systems in order to produce robust reports, allowing Company A to increase market share and overtake its competitors. While this type of software is available for other professional services sectors, no similar product is available for accountants. The desired outcome would enable accountants to produce reports incorporating data from up to ten different software systems, a first for the accounting sector.*

## So, what's wrong here?

The baseline is completely focused on the commercial aspects of the project.

Saying that this technology exists in other sectors suggests the technology to achieve the outcome already exists.

*Company A embarked on a project to develop a software system that could integrate with several disparate accounting systems in order to produce robust reports, **allowing Company A to increase market share** and overtake its competitors. **While this type of software is available** for other professional services sectors, no similar product is available for accountants. The desired outcome would enable accountants to produce reports incorporating data from up to ten different software systems, **a first for the accounting sector.***

HMRC would potentially see this as taking something that already exists and producing a bespoke product, which would not be eligible.

There is no mention of the underlying technology or why it wouldn't be possible to achieve the outcome using existing knowledge in software science.

## What **do** HMRC want to see?

Fundamentally, and this applies to all of the other sections of a project description, HMRC wants to understand what is going on with the underlying science or technology to make the commercial outcome possible. What this means in the baseline is that you have to make it clear why existing technology wasn't suitable, or what scientific knowledge was missing to make this project tricky. Knowing this, a good baseline description contains the following:

- A description of the current state in the underlying area of science or technology;
- A statement about why current knowledge could not be re-applied in this situation;
- Brief description of the work that the company did to establish this.

As an example, here's the baseline for the same project described above, **but slanted towards the underlying technology**:

*Company A wished to develop a reporting package capable of incorporating data from disparate accounting software systems, automating a manual process. Currently, the majority of accounting software packages do not provide public APIs, meaning that integrating these packages with each other or third party software is challenging. Publicly available knowledge about how to achieve such integrations is limited, and did not provide solutions to challenges specific to accounting software, including how to enable the passing of data into third party packages without compromising security. Company A carried out an extensive review of this available information and attempted to develop prototype reporting software using existing methods and software components but was unable to achieve the required levels of performance and security.*

As you can see, this example is more focused on the technology, and clearly states why existing knowledge could not be used to achieve the required outcome. It only briefly touches on the commercial outcomes of the project, and makes it clear that the company has done their due diligence before embarking on the R&D project.



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# Chapter 2

# Technical advance

Once you've nailed down the baseline, it is much easier to articulate the advance being sought during the R&D project. As stated above, you can't have a technical advance without being sure of where you started from! This section of a project description is incredibly important—in fact, in enquiries, HMRC tends to focus most on the technical advances and uncertainties, as these are where the true R&D lies.

## What is a technical advance?

The technical advance comprises the second section of a project description in the AIF, with the full question being very straightforward:

***‘What advance in scientific or technological knowledge did you aim to achieve?’***

Unlike the technical baseline, HMRC's definition of a technical advance is comprehensive. [CIRD81900](#) states that:

*“An advance in science or technology means an advance in overall knowledge or capability in a field of science or technology”*

**and it may have:**

*“...tangible consequences (such as a new or more efficient cleaning product, or a process which generates less waste) or more intangible outcomes (new knowledge or cost improvements, for example).”*

HMRC also give **four examples** of the type of work they class as eligible, and it's important that you can show that the advance fits into one of these:

A

Work that seeks to **extend overall knowledge or capability** in a field of science or technology.

B

Work that seeks to **create** a process, material, device, product or service which incorporates or represents an increase in overall knowledge or capability in a field of science or technology.

C

Work that makes an appreciable **improvement** to an existing process, material, device, product or service through scientific or technological changes.

D

Work that uses science or technology to **duplicate** the effect of an existing process, material, device, product or service in a **new or appreciably improved** way

**The key thing to focus on here is that the advance must be linked to an area of science or technology.**

It's not enough, for example, to state that the company sought to develop a COVID-19 test that was 10x more specific than previous tests—from HMRC's point of view, this is a commercial advance which might be underpinned by an advance in technology, but they have no way of knowing. You need to bring out the underlying advance that made the commercial advance possible, for example: *'the company sought to develop appreciable improved blocking methods to enable a 10x increase in test specificity.'*

## What do HMRC **not** want to see?

As with the baseline, it's a good idea to think about the aspects of the project that HMRC does not want to hear about in the advance section.

Unsurprisingly, the things to avoid including in the technical advances section are very similar to the baseline section. Knowing that HMRC are concerned with only the underlying technology, a technical advance **should not include:**

- Details of the non-technical or commercial advances sought in the project;
- Details of company-, sector- or industry-specific advances made;
- Any information not specifically related to the advance

For example, here's how **not to describe** the advance sought in a software project:

*Company A sought to integrate disparate accounting software systems in a new and meaningful way, enabling the development of a cutting-edge software product for accountants. Integrating these systems represents an advance over manual processing of data and presents the data in a clear and easy-to-understand manner to users, aiding decision making and advisory services. Using the software for data analysis reduces processing time by a matter of days, and has enabled Company A to feedback into further software development projects concerned with using AI for decision making.*

## So, what's wrong here?

The advance isn't linked back to any area of science or technology.

It's very unclear what advance in an underlying area of science or technology is being sought

**Company A sought to integrate disparate accounting software systems** in a new and meaningful way, enabling the development of a cutting-edge software product for accountants. Integrating these systems represents an **advance over manual processing of data and presents the data in a clear and easy-to-understand manner** to users, aiding decision making and advisory services. Using the software for data analysis **reduces processing time** by a matter of days, and has enabled Company A to **feedback into further software development projects** concerned with using AI for decision making.

It contains irrelevant information about other projects.

It's focussed on the functional outputs of the R&D rather than any advances made in software science.

## What **do** HMRC want to see?

As we stated above, HMRC want to understand what is going on with the underlying science or technology to make the commercial outcome possible.

What this means in the advance is that you have to make it clear what area of science or technology is being advanced, and what appreciable advance is being sought, either tangible or intangible. Knowing this, a good advance description contains the following:

- A clear statement about what area of science or technology is being advanced;
- A description of what knowledge the company is attempting to gain through the R&D;
- Details of the underlying technologies being used to make the advance.

As an example, here's the advance for the same project described above, **but slanted towards the underlying technology**:

*During this project, working in the area of software science, Company A sought to generate appreciable knowledge about the integration of software packages X and Y with a third-party application. This advance included generating new methods for ensuring security during data transfer whilst remaining performant. This work was done using XX programming languages and represents novel advancements in the abilities of this language in integrating software packages. At the end of the project, Company A had successfully integrated software package X with its proprietary system, and was continuing to work on the integration of software package Y.*

As you can see, this example is more focused on the technology, and clearly states what area of science is being advanced, and what those advances were. It doesn't include any details of the functional outcomes or applications of the work, and contains enough technical details to be robust without blinding HMRC with science. It should also be easy for HMRC to see that this is 'work that makes an appreciable improvement to an existing process, material, device, product or service through scientific or technological changes.'

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# Chapter 3

# Technological uncertainties

Technological uncertainties are definitely the hardest part of an R&D claim to both understand and successfully articulate to HMRC. Alongside the technical advances, the technological uncertainties tend to be where HMRC focus most of the attention during enquiries, so it is key to make sure that you clearly articulate the challenges of the project.

## What is a technological uncertainty?

The technological uncertainty is the third section of a project description in the AIF, and the question, deceptively simply, is:

***‘What scientific or technological uncertainties did you face?’***

Like the technical advance, HMRC provides a very comprehensive definition of what they mean by technological uncertainty. [CIRD81900](#) states that:

*“Scientific or technological uncertainty exists when knowledge of whether something is scientifically possible or technologically feasible, or how to achieve it in practice, is **not readily available or deducible** by a competent professional working in the field.”*

This means, simply, that for a project to be eligible for R&D tax relief there must have been a point where the competent professionals were uncertain that the advance could be achieved. **For extra clarity, HMRC also state that:**

*“Uncertainties that can be **readily resolved** by a competent professional working in the field are not scientific or technological uncertainties.”*

This is HMRC’s attempt to make it clear that if a competent professional can easily see the steps to make to achieve the advance, then there is no uncertainty and the project doesn’t qualify.



The key things to focus on here are that the uncertainties must be:

1. Linked to the advance
2. Technical in nature
3. Non-readily deducible to someone with training and experience in the relevant area of science or technology
4. Related to the underlying changes being made in science to technology.

### What do HMRC **not** want to see?

Before jumping to describe the uncertainties, it's a good idea to think about the aspects of the project that HMRC do not want to hear about in this section. The theme of what to avoid is similar to the baseline and advance sections. Knowing HMRC are concerned with only the underlying technology, technological uncertainties **should not include**:

- Details of the non-technical, logistical or commercial uncertainties in the project.
- Unspecific statements about how the project had uncertainty because no-one had done it before.
- Any information not specifically related to the uncertainties.
- Aspects of the project that were unknown rather than uncertain.

Here's how **not to describe** technological uncertainties in a software project:

*Company A sought to integrate disparate accounting software systems in a new and meaningful way. During this project the company encountered several technological uncertainties. Although software integrations existed, no-one had ever integrated these specific accounting software systems. In addition, the COVID-19 crisis created a shortage of qualified software developers, causing Company A to be uncertain that it could recruit competent professionals to the project. Finally, although the makers of these disparate software systems provided technical information about how they might be integrated, it was unknown whether this information would be accessible to Company A's developers in time for the development project.*

## So, what's wrong here?

None of the uncertainties are related to the technical aspects of the project.

The uncertainties are not related to the underlying technical advance.

*Company A sought to integrate disparate accounting software systems in a new and meaningful way. During this project the company encountered several technological uncertainties. Although software integrations existed, **no-one had ever integrated these specific accounting software systems.** In addition, the COVID-19 crisis created a shortage of qualified software developers, causing Company A to be **uncertain that it could recruit competent professionals to the project.** Finally, although the makers of these disparate software systems provided technical information about how they might be integrated, **it was unknown whether this information would be accessible to Company A's developers in time** for the development project.*

Some of the uncertainties are too high level and unspecific.

Some of the uncertainties are more unknown than uncertain.

**Tip:** A quick note on unknowns vs. uncertainties: this distinction is one HMRC will often mention in enquiries. Essentially, in this context, something is **unknown** if a competent professional doesn't immediately know the answer but can easily map out the steps to take to gain the knowledge. An **uncertainty**, on the other hand, is where a competent professional isn't sure that it's even possible to gain the knowledge, and iterative trialling and experimentation is needed.

## What **do** HMRC want to see?

As with all parts of the technical narrative, HMRC wants to understand what is going on with the underlying science or technology to make the commercial outcome possible.

What this means in the technical uncertainties is that you must make it clear what aspects of the project caused the competent professionals to stop, scratch their heads and go back to the drawing board. Given this, a good description of the uncertainties contains::

- A statement about the advance being sought in the project.
- A brief statement about each uncertainty.
- An explanation of any complicating factors, especially where the uncertainties might seem trivial

As an example, here's the uncertainties for the same project described above, **but slanted towards the underlying technology:**

*Company A sought to integrate disparate accounting software systems in a new and meaningful way. During this project the company encountered several technological uncertainties. Initial research determined that XX programming language had not been previously used for this kind of integration and information on how the integrations might be achieved was non-existent. In addition, the developers encountered uncertainties surrounding how to ensure that database calls were secure without compromising performance. A reaction speed of 0.1ms was required to enable the required functionality but existing knowledge suggested that 1ms was the fastest time possible using the designated security protocols.*

As you can see, this example is more focussed on the technological limitations and gaps in existing knowledge that created the uncertainty in this project. It doesn't contain any unknowns or extraneous information, and has enough technical details for HMRC to understand the uncertainties without overcomplicating or trivialising the work done. It should be easy for HMRC to see from this that scientific or technological uncertainty existed in this project.

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# Chapter 4

# Technical resolutions

Compared to everything discussed so far, the technical resolutions section is by far the most straightforward part of the narrative to write. This isn't an area that HMRC have traditionally been particularly focused on, and it relates back directly to the uncertainties section.

## What is a technical resolution?

The technical resolutions is the fourth and final section of a project description in the AIF, and the question, straightforwardly, is:

***‘How did the project seek to overcome these uncertainties?’***

Unlike the technical advance and technological uncertainties, HMRC does not provide a definition of a technical resolution in [CIRD81900](#). However, we can piece together what HMRC are looking for from several different sections.

### **First, the description of when R&D ends states that:**

*“R&D ends when knowledge is codified in a form usable by a competent professional working in the field, or when a prototype or pilot plant with all the functional characteristics of the final process, material, device, product or service is produced.”*

### **Moving to the AIF guidance, you are asked to:**

*“Provide more details about the direct R&D activities that try to resolve the scientific or technological uncertainties, as well as qualifying indirect activities.”*

From this we can see that HMRC are looking for a description of the process the claimant company went through to resolve the uncertainties and make the advance.

The key things to focus on here are that the resolutions must be:

1. Linked to the uncertainties
2. Technical in nature
3. Related to the underlying changes being made in science to technology.

### What do HMRC **not** want to see?

Before thinking about how to describe the resolutions it's a good idea to think about the aspects of the project that HMRC does not want to hear about in this section. The theme of what to avoid is similar to the previous sections. Knowing that HMRC are concerned with only the underlying technology, technical resolutions **should not include**:

- Details of the non-technical work done to achieve the project aims
- Any more than a very brief summary of the commercial or functional outcomes of the project
- Any information not specifically related to resolving the uncertainties

Here's how **not to describe** technological resolutions in a software project:

*Company A resolved several technological uncertainties during this project. The company carried out an extensive search of available software packages, trialling several to determine whether they provided the required functionality before developing bespoke integrations and algorithms for data analysis. As a result of this the company has produced an industry leading software product for the accounting sector, increasing its market share by 50% and profits by 35%. This success has caused the company to expand its work in accounting software integrations and it aims to produce a second generation of the software in the next two years.*

## So, what's wrong here?

There is information about non-technical work done during the project.

There's very little information about the technical aspects of the resolutions.

*Company A resolved several technological uncertainties during this project. The company carried out an extensive **search of available software packages, trialling several** to determine whether they provided the required functionality before **developing bespoke integrations and algorithms for data analysis.** As a result of this the company has produced an industry leading software product for the accounting sector, **increasing its market share by 50% and profits by 35%.** This success has caused the company to expand its work in accounting software integrations and it aims to produce a second generation of the software in the next two years.*

None of the resolutions relate to the previously described uncertainties.

It contains information on the commercial outcomes of the project.

## What do HMRC want to see?

As with all parts of the technical narrative, HMRC wants to understand what is going on with the underlying science or technology to make the commercial outcome possible.

What this means in the technical resolutions is that you have to demonstrate that the company carried out a rational set of trials and experiments in order to generate the knowledge required to resolve the uncertainties, focussing on the technical aspects of this process. Given this, a good description of the resolutions contains:

- A brief description of the process used to carry out the R&D.
- An explanation of why this wasn't straightforward.
- A statement about which of the uncertainties were resolved or not, and for the latter, why they could not be resolved

As an example, here's the resolutions for the same project described above, **but slanted towards the underlying technology:**

*Company carried out an iterative series of trials, developing components in XX programming language and testing those against the agreed success criteria. After each trial the developers analysed the results and agreed the design of the next software integration. Initial prototypes were unable to deliver the necessary reaction speed in combination with robust security protocols, requiring several components to be re-engineered, extending the previously documented abilities of the language. At the end of the claim period, Company A had successfully integrated software package A, but integration of software package B was ongoing due to unexpected challenges related to negative interactions between the security components and the software package.*

As you can see, this example is more focussed on the technical resolutions and activities carried out to achieve the advance. It doesn't contain any information about the commercial outcomes of the project and makes it clear that the company carried out the work to a plan or method.



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# Chapter 5

## How WhisperClaims can help

The technical narrative is perhaps the trickiest section of an R&D tax claim, but it's also important to establish your clients' overall eligibility for the scheme: assessing their status as a business, their share structure, access to grants and a whole host of other areas that go into creating a valid claim.

**HMRC guidance stretches over 500 pages—a lot to think about! That's where WhisperClaims' unique combination of technology and expert support come into play.**

Established in 2018, WhisperClaims is the leading supplier of SaaS software for the production of R&D tax claims to accountants in the UK. Our software has already been used by accountancy firms to produce thousands of claims, with a total eligible expenditure of over £500m as of June 2023. From Top100 firms down to sole practitioners, our customers use our app and support to increase efficiency, improve margins and keep ahead of legislative changes to maintain compliance.

- 1. Fully automated software**  
Gain structure to screen clients and prepare claims that are robust and consistent.
- 2. Learning tools**  
Training, guides and webinars, plus access to a community of your peers.
- 3. Advice-line support**  
Hands-on help from R&D tax experts at any stage in the claims process.

## Want a closer look?

**The best way to get to grips with WhisperClaims is to try it out for yourself.**

We'll give you 30 days to explore and test all the features and benefits of our software, with no subscription to pay—you can also work on and download your first claim for free! [Book your demo today to kick start your trial.](#)

Demo link: [whisperclaims.co.uk/demo](https://whisperclaims.co.uk/demo)

