

Annexure B – Summary Comparison

	UK	DE	NZ	FR	PT	USA	IE	PL	CA	AU	ZA
Advance	Yes										
Science/technology or scientific or technological nature/field	Yes	Yes	Yes	Yes (scientific or technical)	Yes	Yes (technological – S4)		Yes (only scientific)	Yes		Not in definition
Creative		Yes		Yes				Yes			
Systematic		Yes	Yes	Yes		Yes (S3)	Yes	Yes	Yes	Yes	Yes
Experimentation						Yes (S3)	Yes		Yes (or analysis)	Yes	Yes
Innovative		Yes					Yes (or technical risk)				Yes (for some)
Uncertainty as to result	Yes (scientific or technological)	Yes	Yes (scientific or technological)			Yes (S2)				Yes (outcome cannot be known)	Yes
Reproducible		Yes									
Classification as basic, experimental or industrial R&D		Yes							Yes		
new knowledge, or new or improved processes, services, or goods;		Yes (expanding knowledge and developing new applications on the basis of existing knowledge)	Yes	Yes (increase stock of knowledge, and use of stock of knowledge to devise new applications)	Yes	Yes (discovering the application of which is intended to be useful in the development of a new or improved business component of the taxpayer – S1)	Yes (knowledge with commercial application)	Yes		Yes	Yes (only knowledge – then IP registrable)

Annexure B – Summary Comparison

United Kingdom (UK)

“Research and development” means activities that fall to be treated as research and development in accordance with generally accepted accounting practice.

R&D for tax purposes takes place when a project seeks to achieve an advance in science or technology.

The activities that directly contribute to achieving this advance in science or technology through the resolution of scientific or technological uncertainty are R&D. Certain qualifying indirect activities related to the project are also R&D. Activities other than qualifying indirect activities which do not directly contribute to the resolution of the project’s scientific or technological uncertainty are not R&D.

An advance in science or technology means an advance in overall knowledge or capability in a field of science or technology (not a company’s own state of knowledge or capability alone). This includes the adaptation of knowledge or capability from another field of science or technology in order to make such an advance where this adaptation was not readily deducible.

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 includes system uncertainty. Scientific or technological uncertainty will often arise from turning something that has already been established as scientifically feasible into a cost-effective, reliable and reproducible process, material, device, product or service.

Uncertainties that can readily be resolved by a competent professional working in the field are not scientific or technological uncertainties. Similarly, improvements, optimisations and fine-tuning which do not materially affect the underlying science or technology do not constitute work to resolve scientific or technological uncertainty.

Germany (DE)

Creative and systematic work aimed at expanding knowledge and developing new applications on the basis of existing knowledge. The activity must be innovative, creative, uncertain as to the final result, systematic and reproducible. Due to this broad definition, the main exclusion from eligibility is likely to be product development or adaptation and optimization of existing products.

Eligible R&D activities need to be classified either as basic research, industrial research or experimental development (as per the R&D definition in the EU general block exemption regulation).

There are three basic research categories:

- fundamental research (experimental or theoretical work aimed at gaining new knowledge)
- industrial research (research with a specific practical objective aimed at improving existing products, processes, or services)
- experimental development (research aimed at producing drafts, plans, and prototypes)

New Zealand (NZ)

R&D expenditure, for a person, means expenditure incurred by the person for goods and services to the extent to which the goods and services relate to research or development and the intellectual property and know-how resulting from the research or development vests in the person, solely or jointly

(1) *Core research and development activity—*

(a) means an activity that—

- (i) is conducted using a **systematic approach**; and
- (ii) has a **material purpose of creating new knowledge, or new or improved processes, services, or goods**; and
- (iii) has a **material purpose of resolving scientific or technological uncertainty**; but

(b) does not include an activity, if knowledge required to resolve the uncertainty, described in paragraph (a)(iii), is—

- (i) publicly available:

Annexure B – Summary Comparison

- (ii) deductible by a competent professional in the relevant scientific or technological field; and
- (c) does not include an activity to the extent to which it is performed outside New Zealand; and
- (d) does not include an activity to the extent to which it is described in schedule 21, part A.

France (FR)

For the purposes of the research tax credit regime, scientific or technical research operations are considered to be fundamental research activities, applied research activities and experimental development activities.

The definition of research operations eligible for the tax credit is based on the Frascati Manual (2002) [Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.]

Portugal (PT)

- Research expenses: those incurred by the IRC taxpayer with a view to acquiring new scientific or technical knowledge;
- Development expenses: those incurred by the IRC taxpayer through the exploitation of results of research work or other scientific or technical knowledge with a view to discovering or substantially improving raw materials, products, services or manufacturing processes.

USA (US)

In general The term “qualified research” means research— (A) with respect to which expenditures may be treated as expenses under section 174, (B) which is undertaken for the purpose of discovering information— (i) which is technological in nature, and (ii) the application of which is intended to be useful in the development of a new or improved business component of the taxpayer, and (C) substantially all of the activities of which constitute elements of a process of experimentation for a purpose described in paragraph (3). Such term does not include any activity described in paragraph (4).

Four part test:

1. Permitted Purpose (or Qualified Purpose/Business Component Test)

An activity intended to develop new or improved business component:

2. Elimination of Uncertainty

An activity intended to eliminate technical uncertainty concerning capability, optimal methodology, appropriate design, process or product improvement

3. Process of Experimentation

Implementation of a systemic approach to identify and evaluate different alternatives to achieve a desired result

4. Technological in Nature

Application of hard sciences principles, such as Engineering, Physics, Chemistry, Computer Sciences and Other disciplines

Ireland (IE)

“research and development activities” means systematic, investigative or experimental activities which

- (i) are carried on wholly or mainly in the State,
- (ii) involve innovation or technical risk, and
- (iii) are carried on for the purpose of—
 - (I) acquiring new knowledge with a view to that knowledge having a specific commercial application, or
 - (II) creating new or improved materials, products, devices, processes or services,

and other activities carried on wholly or mainly in the State for a purpose directly related to the carrying on of activities of the kind referred to in *paragraph (iii)*, but activities that are carried on by means of—

- (A) market research, market testing, market development, sales promotion or consumer surveys,
- (B) quality control,
- (C) the making of cosmetic modifications or stylistic changes to products, processes or production methods,

Annexure B – Summary Comparison

- (D) management studies or efficiency surveys, or
 - (E) research in social sciences, arts or humanities,
- shall not be research and development activities.

Poland (PL)

According to the Polish Income Tax Act research and development activity shall mean creative activity covering scientific research or development works, undertaken in a systematic manner with a view to increase the knowledge resources and make use of the knowledge resources to create new applications.

Canada (CA)

“scientific research and experimental development” means systematic investigation or search that is carried out in a field of science or technology by means of experiment or analysis and that is

- (a) basic research, namely, work undertaken for the advancement of scientific knowledge without a specific practical application in view,*
 - (b) applied research, namely, work undertaken for the advancement of scientific knowledge with a specific practical application in view, or*
 - (c) experimental development, namely, work undertaken for the purpose of achieving technological advancement for the purpose of creating new, or improving existing, materials, devices, products or processes, including incremental improvements thereto,*
- and, in applying this definition in respect of a taxpayer, includes*
- (d) work undertaken by or on behalf of the taxpayer with respect to engineering, design, operations research, mathematical analysis, computer programming, data collection, testing or psychological research, where the work is commensurate with the needs, and directly in support, of work described in paragraph (a), (b), or (c) that is undertaken in Canada by or on behalf of the taxpayer,*

but does not include work with respect to

- (e) market research or sales promotion,*
- (f) quality control or routine testing of materials, devices, products or processes,*
- (g) research in the social sciences or the humanities,*
- (h) prospecting, exploring or drilling for, or producing, minerals, petroleum or natural gas,*
- (i) the commercial production of a new or improved material, device or product or the commercial use of a new or improved process,*
- (j) style changes, or*
- (k) routine data collection;*

Australia (AU)

Core R&D activities are experimental activities:

- whose outcome cannot be known or determined in advance on the basis of current knowledge, information or experience, but can only be determined by applying a systematic progression of work that
 - is based on principles of established science; and
 - proceeds from hypothesis to experiment, observation and evaluation, and leads to logical conclusions
- that are conducted for the purpose of generating new knowledge (including about creating new knowledge or improved materials, products, devices, processes or services).

Annexure B – Summary Comparison

Software

New Zealand (NZ)

Type of software development	Policy intent
Internal software development undertaken for the purpose of internal administration	Ineligible for the tax credit
Other internal software development	Capped limit at \$25 million of eligible expenditure
External software development (software developed for the main purpose of sale, or as an integral part of goods that are sold)	Eligible for the tax credit and uncapped limit

USA (US)

A prior court case has been interpreted as denying taxpayers a research credit for the development of internal-use software. A new court decision did recognize that at least some of the research expenses associated with internal-use software could qualify for the credit. This new court decision established a higher technology threshold for the development of internal-use software than for other types of research.

The court ruled that research connected to the development of internal-use software must first meet the four general tests required of all qualified research expenditures.

The court further added the following three additional tests:

- (1) The software must be **innovative**. This test is met when the new software is expected to result in a reduction of cost, or improvement in speed that is substantial and economically significant. The court offered examples of internal-use software that will not meet this test. It identified software used in general and administrative functions such as payroll, bookkeeping, or personnel management or in providing noncomputer services such as accounting, consulting, or banking services as noninnovative software.
- (2) The software development must involve **significant economic risk**. The test is met when the taxpayer commits substantial resources to the development and there is a substantial uncertainty because of technical risk that such resources would be recovered within a reasonable period.
- (3) The software **is not commercially available** for use by the taxpayer. Fortunately, the court concluded that mere modification of commercially available software would pass this last test.

Australia (AU)

Excluded activity:

(h) developing, modifying or customising computer software for the dominant purpose of use by any of the following entities for their internal administration (including the internal administration of their business functions):

What is internal administration? Internal administration functions include:

- Business applications such as payroll and accounting, invoicing, ordering, quality control reports and information management
- Management information systems
- Enterprise resource planning