

Annotation of impact categories

CODEBOOK

Please read the codebook carefully. Familiarize yourself with the impact types, the explanation, definitions and examples before we start with the annotation training.

Goal of the Annotations

The goal of this annotation experiment is to identify and categorize text-based evidence of impact in scientific project reports - this means, any effect a research project has or can have on the own academic field, on the society, the environment etc.

We define impact as an effect of scientific activities within academia or beyond the academic field, e.g. on the scientific field, economy, society, culture, politics, law, technology or the environment.

In a report, impact may be represented by describing methods and routines implemented for a project, or by the impact that authors anticipated when writing their final reports (--> estimated impact is also considered as impact!). Impact could also be the maintenance or the avoidance of change.

The project reports come from four different domains: AI, linguistics, electromobility and musicology. The impact can be domain specific (affects the respective domain) or very general – e.g. affects the academic community, the society etc.)

Annotation Tool

We use the browser-based version of Inception as an annotation tool, so make sure you have a stable internet connection while annotating. Besides that, no installation is required. In Inception, we provide you with the texts that will be annotated as well as with the label set.

Labels

When annotating, you will be provided with passages that are likely to indicate impact. For those sentences that indicate impact, select the most appropriate **main- and subcategory**, as described below in the table. If two categories are equally suitable, you can choose more than one label (from both main- and subcategories)

If you are sure about the main category but none of the subcategories fit, choose the respective main category and as subcategory “**Other**”. Please insert a suggestion for an appropriate sublabel by typing it in the field “Label Suggestion”.

If you are sure that there is some impact, but none of the main categories fit, choose the main category “**Other (Main)**”. Please insert a suggestion for an appropriate label by typing it in the field “Label Suggestion”.

If a sentence does not express any impact (which might be the case!), choose the label “**No Impact**”. None of the other categories have to be annotated for this instance.

We annotate on the **sentence level**. Please mark the complete sentence when choosing a label. In case there are additional words that don't belong to the sentence (e.g. headlines at the beginning of an instance), don't mark these parts. For example: *Zielsetzung
Das Projekt verfolgt das Ziel....* → here don't mark the word *Zielsetzung*)

There are a couple of additional Labels that you can/should use:

Element priority: Is the sentence highly relevant for indicating impact, or medium, or only low?

- o Please annotate that label for every instance which you also labeled with one of the impact categories.

- o Choose the label “HIGH” for strong impact (such as *Das Produkt hat die Lebensqualität der Studienteilnehmer langfristig verbessert*), “MEDIUM” for “normal” impact (such as *Durch den Workshop konnten neue Kontakte etabliert werden*) and “LOW” for boundary cases (when there is only small impact or in case you are not sure)
- o Sometimes signal words such as “nachweisliche Auswirkung” etc. indicate a strong impact, but they are not necessary for choosing the label “HIGH”
- o The question if impact is anticipated or already proven plays no role for choosing the element priority (e.g. *Es ist davon auszugehen, dass das Produkt die Lebensqualität der Studienteilnehmer langfristig verbessern wird* would also be labelled as “HIGH”)

Snippet: It might be the case that the sentences were split incorrectly. If you find two (or more) annotation instances that actually form one sentence, assign the impact label only to the last one, and annotate the first (or more) instances with the label “**Snippet**”.

Comment: You don’t have to, but you can use this section for writing down your general thoughts, such as the overall challenges you encountered when annotating the data, if you are not sure about a category, if you have any questions, an observation etc.

Some more hints...

- Each sentence should be considered in isolation, i.e. in the sentence itself must contain concrete impact indicators. It is not enough if, in a large context, the sentence “confirms” the impact of previous sentences without itself containing impact indicators.
- If 2 or more sentences form a “unit”, i.e. they contain all indicators for the same category and they reinforce each other, they should still be annotated in isolation (that means, you label the two sentences separately with the same categories).
- Important: Do not discuss your work with other annotators or anyone outside this project.

Impact Categories

MAIN CATEGORY	Description and Subcategories	Examples
Societal Impact	occurs when a project influences societal groups or institutions like schools, local authorities, foundations, or clubs, refugees/migration, religious persecution, etc.	
	Education outside academia , e.g. new/improved learning and teaching methods for schools, learning efficiency, learning practical skills	[MUSIC] The temporal structure of the further training of the highschool teachers was assessed as positive, despite the difficulties mentioned with the compatibility with family and job, which speaks for the long further training time frame of MuBiKi.
	Culture , e.g. the organization of concerts, theaters, novels...	[MUSIC] At the end of the workshop, the participant gave a concert at the Altstadtfestival, where children could sign up for future classes.
	Physical health , e.g. fewer respiratory diseases, vaccination campaigns in emergency situations etc.	[AI] With the help of the trend recognition developed in the project on the basis of recorded processes and vital parameters, it should be possible in future to recognise possible dangers in the development of the course of the disease at an early stage and to initiate suitable measures in the care of the respective patient concerned.
	Life quality/Mental health , e.g. fewer depressions, work-life balance, smart home systems, personal growth etc.	[AI] the knowledge gained from this project was to contribute to better care for elderly people in need of help.
	Safety , e.g., road safety, users' safety, general safety, fewer accidents... <i>(but not IT security/data privacy; see below)</i>	[MOB] Another outcome of the project was the derivation of recommendations for safety standards for electric vehicles based on the results of user studies.
	Establishing/improving collaborations or networks (<u>outside academia</u>)	[MUSIC] One of the most interesting and important results is certainly the cooperation with teachers from highschools, which stands out against work-sharing forms of cooperation and enables an equal cooperation against the background of an expansion of professional scopes of action.
	Other	

Political and legislative impact	refers to using the project results in political or legislative contexts	
	Political regulations and deregulations	[MUSIC] The results of the last subproject show the need to establish more government-funded training centers for music teachers.
	Development of/contributions to laws/legal rules, adaptations of existing laws/legal rules	[MUSIC] The conditions for a partial further development of components as well as their exploitation are defined in a joint license agreement.
	Other	
Ethical impact	refers to ethical impact, e.g. equality, awareness, charity	
	Establishing awareness/perception/attitudes , e.g. health consciousness, climate awareness	[MOB] The new Hambach forestry activists base their protests on the results of the climate protection study in order to draw attention to the deforestation by the RWE Group.
	Improving justice and equality , including immigration and gender equality/ women participation	[LING] We demonstrate the influence of migration on the development of individual and social values as central aspects of adolescent identity.
	Data policy/protection and privacy , open access (<i>but not IT security; see below</i>)	[MOB] The data is already recorded anonymously in the mobile network, so that at no time can it be traced back to the telephone number or the user of a mobile phone.
	Other	
Economic impact	refers to the use of research results for economic developments	
	Development of business models/other economic strategies	[AI] The advantage of these solutions is that duplicate or parallel developments can be avoided and the development results and economies of scale of the large providers can be used without having to develop and sell proprietary hardware.
	Income impact (<i>beyond academia</i>)	[MUSIC] In the context of services, the aim is to use developed individual components in the processing of metadata for monetary value.
	Employee satisfaction/service quality	[AI] The optimization of the module led to a greater satisfaction among the test users.
	Optimizing processes , e.g. reducing	[AI] Risk modeling is now required to determine the damage potential of

	(development) costs, improving supply chains, market/product regulations etc.	the threats so that qualified decisions can be made about the use of the IT security budget.
	Other	
Environmental/ecological impact	refers to changes of ecological or environmental aspects	
	Environmental/Climate protection/Protection of species, including recycling/renewable goods/renewable energy	[MOB] The use of electromobility is an important success factor in achieving independence from fossil primary energy sources and can also be used for the dynamic intermediate storage of regeneratively based energy peaks.
	Sustainability of products, methods etc.	[MOB] The R&D project enables for the first time a practical and economical recovery and storage of potential and kinetic energy (recuperation), e.g. for the emission-free and quiet operation of commercial vehicles and large vehicles in conurbations and city centers.
	Other	
Technical impact	refers to technologies that are used outside of the original project	
	Technical/software prototype development	[MUSIC] With the "Annotation Tool" software, an equally effective and flexible tool for detailed manual music description has been created.
	Model/algorithm development	[LING] We can offer an effective, robust algorithm for extracting career-specific information from English- and German-language texts.
	Improving IT security	[AI] The object and goal of the "IUNO" research project is to provide security concepts and methods that meet the special requirements of IT security with regard to operation, scalability, robustness and cost-effectiveness in Industrie 4.0 processes.
	Other	
Academic impact	refers to impact within academia - within or beyond the own field/institution	
	Income impact for research institutions, including money for hiring new team members	[KI] In a successful follow-up application, a position for a project administrator could be established.
	New research methods	[LING] We suggest a new, semi-automated research method for a

		contrastive comparison of German and English grammars.
	New/improved learning and teaching methods inside academia (e.g. new master programs, staff training, establishing leaderships skills inside academia etc.)	[LING] It can be stated that the didactic concept developed for the intervention study proves to be effective in helping students develop their pragmatic competencies, skills and abilities to use socially constructed and traditional patterns of action.
	Publication of research results , e.g. in journals/conferences	[MUSIC] The MuBiKi project and the results of the evaluation were presented in print media and at several conferences.
	Organization of academic events , e.g. workshops, conferences	[MUSIC] The workshops for master students of the musical instrument making craft in the Upper Vogtland manufacturing region was a great success.
	Establishing/improving collaborations/networks inside academia	[LING] A model was also developed in the Siegen sub-project of the collaborative project in exchange with the collaborative partner, which focuses on the process perspective and institutionally situates academic writing.
	Other	