Call for Joint Proposals

Call Fiche
3rd call
Cooperative R&D Projects
between Austria, FFG and China, CAS

The Austrian-Chinese Cooperative Research and Development (R&D) Projects (CRDP) are jointly supported with funding from the Austrian research program ICT of the Future, managed by the Austrian Research Promotion Agency (FFG) on behalf of the Austrian Federal Ministry of Transport, Innovation and Technology and the International Cooperation with Chinese Academy of Sciences (CAS).

Deadline for submission via FFG eCall and to CAS:

CAS:
20 July 2017, **18:00** China Standard Time (C.S.T.)

FFG eCall:
20 July 2017, **11:00** Central European Time (C.E.T.)

Table of contents

1 Aim of the funding measure

The aim of this third call for Austrian-Chinese Cooperative R&D Projects (CRDP) is to support the jointly identified research topics Intelligent Data Analytics and selected research topics with mutual interests and scientific excellence based on the existing cooperation agreement between the Austrian Research Promotion Agency (FFG) and the Chinese Academy of Sciences (CAS). It is purposed that this call will foster the connections between Austria and China and improve the visibility of the successful collaboration between the two parties. Furthermore it is expected that the Austrian-Chinese call for Joint Proposals will lead to further bilateral or multilateral cooperations at various levels.

The Austrian-Chinese joint Cooperative R&D Projects funded in the framework of this call are intended to intensify scientific and applied research cooperations between Austrian and Chinese research organisations and companies in order to set new impulses for excellent research between the two countries.
The special focus of the projects lies in the expected scientific and applied research achievements, know-how transfer, as well as in the promotion of excellent young scientists, post-docs and PhD students in the framework of the Cooperative R&D Projects. The participation of female scientists is particularly welcome.

2 Subject of funding

A multitude of different trends – e.g. the growth of mobile computing, social networks, and low-cost cameras – are catalysts for rapidly growing amounts of user-generated data. At the same time, more and more data is generated and exchanged between machines through machine-to-machine communication (M2M), e.g. in networks of surveillance cameras and other sensors and systems. There is a massive tendency towards linking of all this different heterogeneous systems. Added value is only generated if the used information provides better services, higher productivity, higher efficiency, additional functionality and the overall system works reliable and secure. Intelligent sensors, data analytics- and interpretation-procedures as well as simulation-, prognosis-, diagnosis- and optimisation-procedures play an important role. Here the focus is not only on miniaturisation and new physical measuring principles, but mostly on increasing intelligence of the analysis, interpretation as well as on prediction and automated decision finding techniques. For example, social network of industries, smart homes, intelligent transport systems, intelligent ticketing, indoor and outdoor tracking, route optimisation, localisation and environment monitoring are application fields which are enabled by the above mentioned trends.

In special consideration of the above mentioned trends and potentials and in order to take advantage, technological developments are necessary. In this call, projects can be funded that contribute to the solutions of the following research challenges:

1. **Intelligent Data Management and Analytics and/or**
2. **Selection of research topics**

1. Intelligent Data Management and Analytics

- **Intelligent data management** establishes the connection from raw data to information and knowledge.
- **Research on data search**, information retrieval and data analysis and integration improves ways to process and analyse data in any format (e.g. images, video, audio, speech). Some challenges in this area are:
    - aggregation and fusion of data
    - novel methods for dealing with real-time data
    - data complexity
    - Pseudonymization and anonymization must be considered where relevant.
    - Image/video caption
    - Deep learning for video/image analysis
- **Semantic processing** adds structure to data in order to facilitate understanding and dealing with structured data in multi-faceted ways. This extension of data with semantic information leads to content-level exploration and to automatic processing. Special aims are:
    - de-duplication of data by eliminating redundant data, and to use context information.
    - knowledge-extraction and -abstraction in order to automate knowledge processes
    - Semantic link discovery and semantic link network model
    - Natural language processing as a key component of semantic data analysis
    - Authentication of multimedia data by background knowledge mining.
- **Cognitive systems** model human understanding and human intellect end explore paradigms for cognitive technical systems. Relevant for the call are:
    - contributions to applied cognitive science, e.g. for measuring, modelling and accommodating user attention in end user systems
    - algorithms for prediction from data (Machine Learning, Reasoning, decision support) and recommender systems and engines are highly relevant, as well as
    - video based attention recognition for improving knowledge transfer processes.
- **Knowledge Service** for data-intensive scientific exploration means to solve the challenging problem of transforming data into knowledge and providing precise knowledge services for data-intensive scientific exploration. This concerns structuring and interpreting big academic and scientific data (scientific publications, empirical data from investigations, LabData, textbooks, bibliographies etc).
- **Algorithmic efficiency** refers to developing efficient algorithms that are able to process larger amounts of data in a shorter time, it can be enhanced through the use of the following techniques, e.g.:

- Parallel algorithms
- Graphics Processing Units (GPUs)
- Manycore parallel computing
- On-demand use of shared virtualized computing resources that require new ways of fast offloading, running and executing data analytics tasks in a predictable, cost-effective and low overheads fashion.

2. Selection of research topics

- **Cyber-Physical Systems**, which are defined as systems of physical objects and corresponding virtual objects that communicate via omnipresent information networks. In this context the following interconnections could be addressed:
  - Efficient execution/modelling/simulation of Cyber Physical Systems
  - Software-design-methods of Cyber Physical Systems
  - Dependable Cyber Physical Systems and natural language processing and machine learning
- **Wearable Computing**
- **Deep Learning and Optimal Control in Mobile Clouds**
- **Ubiquitous security**: Innovative, scalable approaches are required on all levels to prevent misuse of these systems, starting with hardware- and network-architecture, covering reliable and secure communication protocols, fault-tolerant operating systems, up to distributed applications and proactive malware detection.
- **Quantum Cryptography**
- **Interoperability** refers to seamless ICT-solutions that are necessary for components communication and interconnection. Relevant for the call are:
  - Near Field communication and intelligent ticketing
  - methods for improving interoperability in 5G systems (e.g. handover)
  - smart grid devices and services
- **Multi Agent Based Simulation**
- **Testing and assessing internet networks**, wireless networks and Software defined networking
- **Block chain and electronic contracts**
- **Fundamental Theory and Key Technologies of** Intelligent Transportation Systems **(ITS)** with Big Data

- In general, this call shall bring together research capacities from **one or more CAS research groups and one or more Austrian company** thus creating excellence with international standing and attractiveness to researchers in a key area of research. The **Austrian consortium can involve also research organisations** in addition to the obligatory Austrian company partner.

- Researchers of both countries should contribute equally to the competence of the partnership. In the partnership researchers of the participating institutions work on a defined research project which is divided into coordinated work packages designed to reach a common research goal. The Joint Proposal provides sufficient level of

skill, equipment and manpower capabilities necessary to work on the defined research project.

- The joint project shall be managed jointly by an Austrian and a CAS Applicant (A-AT, A-CAS). These two leading scientists shall be announced as the spokespersons (individual national coordinator) responsible for the joint external representation of the project.

- The results of the research shall be shared by the participating Austrian and Chinese researchers. All Austrian and Chinese partners involved in the project have to conclude a consortium agreement on issues such as intellectual property rights, liability and confidentiality. This consortium agreement has to be provided to FFG via eCall and to the headquarters of CAS before the respective national funding contract is signed.

3 Scope of funding

- FFG is prepared to provide each selected Cooperative R&D Project with financial support for a maximum of 3 years.
  The total call budget for the Austrian project partners is 1 Million EURO (equivalent to around 7,25 Million CNY). Funding applied for an individual project has to lie between 100.000.- EURO and 1 Million EURO (equivalent to around 7,25 Million CNY) for Austrian partners within the joint project.
  The budget provided by FFG can only be used to cover costs linked to the implementation of the project parts executed by the Austrian project partners. Rules for funding of the Austrian project partners are laid down in the respective call documents[1].

- CAS is prepared to provide each selected Cooperative R&D Project with an annual support, for a total of 3 years.
  Each selected project can apply for CAS funding with up to 300,000 CNY (equivalent to around 41,000 EURO) per year for a total of 3 years. This part of CAS budget is from the CAS international cooperation fund and cannot be spent for personnel costs but just for one or more of the following cost categories:
  1. to cover travel cost for Chinese project partners;
  2. to purchase consumables necessary for the performance of the CRDP;
  3. to cover the other spending in accordance with the CAS.

- A minimum of 10% and a maximum of 80% of the eligible total project costs have to be carried by research organisations (no matter if Austrian and/or Chinese research organisations). Companies share is a minimum of 20% and a maximum of 90%.

- Individual enterprises account for a maximum of 70% of the eligible project costs with shares of affiliated companies counting as one enterprise.

[1] The call documents include the call fiche, national call announcements, Austrian-Chinese Joint Proposal template and further national submission documents.

- The Austrian and Chinese research organisations must have the right to publish the results of their work that has been conducted in the course of the project.

4 Conditions for funding

- For each CRDP a joint proposal in English language has to be submitted to FFG and the Headquarters of CAS. The proposal must indicate all Austrian and all Chinese project partners and clearly lay down the division of work between the partners as laid down in the call documents. The submitted versions of the Joint Proposal have to be identical. Non identical versions are not eligible.

- The Austrian project partners have to submit an Austrian Annex and a cost plan in addition to the Joint Proposal via FFG eCall in due time.

- The Chinese project partners should also prepare and submit in parallel an additional CAS application form in Chinese language to the CAS headquarters (see also below, “Submission of applications”).

- The joint proposals must meet the following goals and criteria:

The goals of this call are to:

1. Strengthen the innovation potential of national real assets in ICT by improving the industry´s access to research competences at universities and research organisations

2. Build up research competences in at least one of the relevant topics in the thematic area of intelligent data analytics or one of the selected research challenges stated in section 2 of this document

3. Increase European and international collaborations and networks and foster cooperation to solve interdisciplinary challenges in research

The criteria of this call are:

Table 1 Funding criteria

Quality of the project	Points	Threshold
	30	18
1.1. How well are the state of the art (level of knowledge/technology) and/or the commercially available products and services described and how plausible is the assessment?		
1.2. What is the level of innovation beyond the state of the art and/or existing products and services and how high is the associated risk?		
1.3. What is the quality of planning based on the following criteria? ○ Transparent structure of work packages ○ Transparent presentation of costs ○ Transparent description of work packages according to the scope of work ○ Adequate relationship between costs and work plan ○ Adequate scope of project management ○ Provisions for risk management ○ Realistic implementation of plan (duration, deadlines, milestones, results) ○ Clarity and coherence of cooperative relationships ○ Efficient distribution of tasks among the consortium partners		
1.4. If the project relates to people[2]: To what extent have gender-specific topics been taken into account in project planning? ○ Quality of the analysis of gender-specific topics ○ Integration in the methodical approach of the project		
Suitability of the applicant / project partners	**20**	**12**
2.1. Does the consortium have the scientific, technical, economic and management skills required to achieve the project goals?		
2.2. To what extent do the consortium partners have the required qualifications and resources to ensure successful implementation of the cooperative project?		
2.3. Is the composition of the project team gender-balanced?		

[2] If (groups of) persons are the research object or persons will be affected by the research results, this must be reflected in the research design.

Benefit and exploitation	30	18
3.1. What is the benefit for those applying the project results and the exploitation potential? Different dimensions are relevant depending on the project category: a. Knowledge increase in the relevant scientific-technical target group (IR) b. Planned communication of benefits to the relevant target group has been documented in a transparent manner (IR, ED) c. Benefits, advantages or USPs have been described quantitatively and qualitatively and are plausible (IR, ED) d. Users, markets and market segments have been specified and substantiated by turnover figures (ED) e. Turnover potential of the innovation or added value of market growth in relation to the planned project costs (ED) f. Resources required to bring the results to the market (ED)		
3.2. What is the impact or strategic significance of the project results for the organisations involved? For example by: a. increasing R&D capacities on a long-term basis b. securing or extending their R&D position c. expanding existing R&D activities to include new fields of application d. development of R&D platforms e. opening up new business fields etc.		
3.3. How complete and transparent is the exploitation strategy based on the following criteria? a. Quality of exploitation and dissemination strategy for the scientific results b. Quality of exploitation strategy for the economically relevant results c. If persons are concerned: gender-fair exploitation of economic potential d. Adequate protection strategy or strategy for ensuring a competitive edge e. Exploitation skills – either in house or via existing contacts and collaborations in relation to i. dissemination and exploitation of project results (IR) ii. marketing to the planned users (ED)		
Relevance to the Call	**20**	**12**
4.1. To what extent does the project address the call topics?		
4.2. To what extent does the project contribute to achieving the goals of the call?		
4.3. To what extent does the funding influence the project positively in one or more of the following dimensions? a. Implementation: the funding enables the project to be implemented in the first place b. Acceleration: the funding accelerates implementation c. Scope: the funding increases the scope of the project d. Range: the funding makes the project more ambitious through: i. a more radical innovation approach ii. higher risk iii. new or extended collaborations iv. long-term strategic orientation		

- A consortium agreement between all involved Austrian and Chinese partners has to be provided to FFG via eCall and to the headquarters of CAS before the respective national funding contract is signed.

- Funding contracts will be concluded between the FFG and Austrian project partners for the Austrian side and by CAS and the Chinese Institutions for the Chinese side.

5 Submission of Joint Proposal applications

- **Application in Austria at FFG:**
  Joint Proposal Template - Austrian-Chinese Cooperative R&D Projects must be submitted electronically via FFG eCall (https://eCall.ffg.at)

  Deadline: 20 July 2017, 11:00 Central European Time (C.E.T.)

- **Application in China at CAS:**
  Joint Proposal Template - Austrian-Chinese Cooperative R&D Project must be submitted electronically via CAS ARP system (http://www.bic.cas.cn/tzgg/)

  Deadline: 20 July 2017, 18:00 China Standard Time(C.S.T.)

- The Joint Proposal must be **written in English language**.

- In addition applications must **fulfill all the respective national and/or general formal conditions** for funding in order to be admitted to the evaluation procedure (amendments are not possible).

- The final decision of the selected proposals will be announced not later than October 2017.

6 Contact Information

Austria – FFG:

FFG website related to the call:
https://www.ffg.at/en/ict-china

eCall submission of application: https://ecall.ffg.at

FFG contact persons:
Mag. Anita Hipfinger, Programm Manager
E: anita.hipfinger@ffg.at, T: +43 (0) 57755-5025

Mag. Doris Vierbauch, Programm Manager
E: doris.vierbauch@ffg.at, T: +43 (0) 57755-5024

China – CAS:

CAS website related to the call: http://www.bic.cas.cn/tzgg

CAS contact person:
Ms. Haihua GONG, Bureau of International Cooperation
E: hhgong@cashq.ac.cn,Tel: 86-10-6859-7396