



Physical Sciences

Indo-Dutch Joint Research Programme for ICT

2014

Call for Joint Proposals

In collaboration with: Department of Electronics & Information Technology, Ministry of
Communications & Information Technology, Government of India

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Netherlands Organisation for Scientific Research

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1 Introduction

1.1 Background

(For industrial partners an overview of this call is available at the website)

The Netherlands Organisation for Scientific Research (NWO) and the Department of Electronics and Information Technology (DeitY), India's Ministry of Communications and Information Technology, invite researchers in India and the Netherlands together with industrial partners to participate in the Indo-Dutch Joint Research Programme for ICT.

An agreement for "Collaborative R&D Projects in Pervasive Communications & Computing" was established by NWO and DeitY in 2013. The Agreement aims to promote closer co-operation and the exchange of information. In the context of this Agreement, NWO and DeitY have issued this Call for Joint Proposals on ICT Research aiming to support innovative research that brings together researchers from India and the Netherlands. At the same time it provides incentives for public private partnerships in ICT research. This Call for Joint Proposals on ICT Research focuses on the areas Big data, Internet of Things and Serious Gaming.

NWO and DeitY finance, facilitate and stimulate scientific research, which is 'curiosity-driven' and/or 'demand-inspired'. Demand-inspired research aims at innovation that is inspired by the strategic agendas of industry and societal organisations. This call links both scientific research and public and private needs.

The Call for Joint Proposals on ICT Research will catalyse excellence in science and technology. This unique and promising combination of the high potential of the Dutch and Indian research community, the strong focus on development of new ICT solutions and the excellent ICT knowledge base in both countries will lead to innovations in multiple economic sectors and create valuable new solutions, services, products or technologies with clear potential.

From Dutch perspective:

The Dutch government has appointed nine economic top sectors for growth in its current economic and innovation approach. These top sectors describe a number of themes, ranging from High Tech Systems and Materials to Creative Industry and Logistics. In order to bundle the need for research and innovation in ICT, the Dutch government has ordered the development of a research and innovation agenda for ICT, related to the nine top sectors. This resulted in the Roadmap ICT¹. This roadmap recognizes that fundamental and strategic ICT research is crucial for achieving the ambitions of all Dutch top sectors.

Next to the themes from the ICT Roadmap, Serious Gaming is an appealing area for Indo-Dutch research collaboration. The importance of gaming for economic growth is also underpinned by the Dutch government. 'Games' is one of the research themes on the agenda of the Dutch Creative Industries focus area, one of the nine top sectors.

¹ Roadmap ICT for the top sectors, 2012 (<http://www.ictonderzoek.net/binaries/content/assets/bestanden/ipn/roadmap-ict-for-the-top-sectors.pdf>)

From Indian perspective:

DeitY has been promoting research and development in the area of Convergence, Communication and Broadband Technology as one of its major activities. India is going to be seeing an explosion in Big Data Analytics and Internet of Things (IOT) as by 2020 there will be 30x connected devices to connected people.

The Government of India in its 12th plan period has laid emphasis on extensive creation of broadband infrastructure which offers the next major growth opportunity in ICT after tremendous success of mobile services in the country. IOT and Big Data along with Broadband-enabled Internet applications are being seen to have huge potential in contributing to all sectors of the economy and particularly in e-governance, e-health, e-learning, e-commerce and e-entertainment sectors. It is with this intent that DeitY is keen to foray into Research & Development and Applications & Services development in IOT & Big Data. Serious Gaming in India is being explored for developing virtual Intelligent interactive training and collaborative online laboratory systems.

1.2 Available budget

Total budget available for this competition: M€ 2, of which M€ 1 from NWO and M€ 1 from DeitY.

1.3 Validity of the call for proposals

This call for proposals is valid until the closing date **14 October 2014, 11:59 hours in the morning** (UTC +02:00).

2 Aim

The aim of the Indo-Dutch Joint Research Programme is to accelerate innovation in science and technology in India as well as in the Netherlands through:

1. **Strengthening interaction and scientific cooperation between the knowledge institutions in India and the Netherlands and industrial partners;**
2. **Promoting the development and deployment of innovative research techniques to be used in industry, jointly funded by NWO, DeitY and industry;**
3. **Fostering excellence in research projects and at the same time enhancing the research quality in India and the Netherlands. The research is precompetitive and can be of a more fundamental or a more applied nature, depending on the needs of the project partners.**

Industrial partners, e.g. ICT users and/or developers, are invited to collaborate with researchers in addressing the challenging key issues and formulating the research questions. The aim of this collaboration is working towards practical and innovative solutions. At the same time, the research questions can be driven by fundamental and/or applied scientific approach.

NWO and DeitY identified the following research topics where major technology trends will start to scale and shape business models, innovation and affect everyday life:

- Big Data
- Internet of Things
- Serious Gaming

For this call NWO and DeitY use the following descriptions for the selected themes:

Big Data

Big Data is all around us. Not just on the Internet but also in science, in industry, and in lifestyle by recording all interactions and sensor data, datasets are growing to unprecedented proportions². The challenge in Big Data is the unstructured data from multiple sources in multiple formats. To understand the phenomenon that is Big Data, it is often described using five V's: Volume, Velocity, Variety, Veracity and Value. To define Big data the following introduction on Big Data research can be reflected²: *"Big Data are characterized by a large volume (annually dozens to hundreds of petabytes, where one petabyte equals 10¹⁵ bytes), and/or a high velocity (with the real-time generation of thousands or millions of items per minute), and/or a huge variety ('unstructured data'). Big Data have the potential to fuel the economy and to reveal valuable information about ourselves, our local communities and our global society. The grand challenge in Big Data research is: How do we manage, explore and understand Big Data?"*

Internet of Things³

² The Scientific Answer to the Roadmap ICT for the Top Sectors, 2013
<http://www.ictonderzoek.net/binaries/content/assets/bestanden/ipn/scientific-answer-to-roadmap-ict.pdf>

³ Source DeitY: http://www.cisco.com/web/strategy/docs/education/education_internet.pdf

Internet of Things (IOT) where devices compute and connect with data from embedded sensors can help with the shift to a more sustainable economy, from reducing food wastage to reducing energy consumption. The potential impact of the IOT is vast, reaching to every corner of technology, business and the consumer experience. The IOT has been emerging for decades, with origins in factory automation, machine to machine (M2M) interaction and embedded systems. Its impact will increase in the coming years as the costs of technology and connectivity continue to fall, and it becomes even more pervasive. In 2020, there will be up to 30 billion devices connected with unique IP addresses, most of which will be products. This total economic value add for the IOT will be US\$ 1.9 trillion in 2020, benefiting a wide range of industries, such as healthcare, retail, utilities and transportation. Intel believes that having 15 billion connected devices in the next few years is achievable. The IOT is just one piece of this concept — alongside the Internet of People (such as social networks or IM presence), the Internet of Places (such as Foursquare or any location that can broadcast information about itself), and the Internet of Information (for example, the World Wide Web, or systems that can share information through APIs or Web services). The relevance to this research theme can also be found under the Scientific Answer to the Roadmap ICT for the Top Sectors (2013):

Serious Gaming

Games play an increasingly important role in education, healthcare, safety, and other economic and societal sectors. Serious Gaming can be considered as a tool which allows users to practice, experiment, research, and learn in a safe and motivating environment.⁴ Serious Gaming has for example a huge potential in the health sector, in designing high tech inventions and smart solutions for mobility issues, or innovations for built environment and energy-saving architecture.⁵ The research innovation agenda of the Netherlands GATHER has elaborated on the theme as follows: *“Games play an increasingly important role in education, healthcare, safety, and other economic and societal sectors. Games allow users to practice, experiment, research, and learn in a safe and motivating environment. The demands for innovation have led to a research agenda for the years 2012-2016 of three themes. (1) Research on game worlds focuses on engaging virtual worlds and hybrid environments in which the real and virtual world are intertwined, and meaningful virtual characters. (2) Research on users and interaction focuses on natural and playful interaction, which engage the user and stimulate him/her to attain the goals of the game. (3) Research on transfer of gaming targeted towards game design principles and validation of effectiveness of games.”*

⁴ The research innovation agenda GATHER developed by network GAMES under CLICK//NL, 2012: http://www.clicknl.nl/games/wp-content/uploads/sites/3/2013/02/Knowledge-and-innovation-agenda-CLICK_GATHER.pdf

⁵ Summary Innovation contract top sector Creative Industry, NWO, 2013

3 Guidelines for applicants

3.1 Who can apply

Project proposals are expected to be prepared by a consortium of public and private partners. It is obligatory to have the following categories of participants in the consortium:

- academic researcher(s) in India;
- academic researcher(s) in the Netherlands;
- industrial partner(s)* in India and/or the Netherlands.

Each category may consist of more than one participant.

* NWO and DeitY consider an industrial partner to be: an enterprise engaged in an economic activity with the aid of labour and capital, and with a profit motive.

For each project there should be one Principal Investigator (PI) from the Indian university and one PI from the Dutch university. One of those PI's is to be designated as Project Leader, who submits the application on behalf of the consortium. The Project Leader will be responsible for meeting the terms and conditions of the grant, and for representing the project to the funding partners.

The PI in each country is responsible for the financial and administrative accountability following the national regulations of India and the Netherlands.

Researchers can only apply as Project Leader in one (1) project in this call. This means (a) a researcher can act as Project Leader for one proposal, and as co-PI for one or more other proposal(s) or (b) a researcher may act as co-PI for two or more different proposals or (c) a researcher may act as consortium partner for two or more different proposals.

Each PI from India should:

- be employed at an Indian Government academic / research institution.

Each PI from the Netherlands should:

- have the permanent position of professor, associate professor (UHD), assistant professor (UD) or a tenure track appointment⁶,
- be in a position to remain effectively involved, by having an appointment during the project, in the research to which the grant application refers for the duration of the period for which the grant is being requested.

Dutch PI's should be employed at a research institute recognized by NWO. The NWO Regulation on Granting (www.nwo.nl/regelingsubsidieverlening) article 1.1 states from which organizations a proposal to NWO can be submitted. In principle, these are the following Dutch institutions for academic education and research:

- Dutch universities;
- NWO and KNAW institutes;
- the Netherlands Cancer Institute;
- the Max Planck Institute for Psycholinguistics in Nijmegen

⁶ NWO defines a tenure track appointment as an appointment for experienced scientific researchers with prospects on a permanent contract and a professorship on the long term.

- the DUBBLE Beamline at the ESRF in Grenoble
- NCB Naturalis
- Advanced Research Centre for NanoLithography (ARCNL).

3.2 What can be applied for

3.2.1 Research grant

The grant can be used for funding of:

- Temporary personnel (PhD and postdoc) to be appointed for research during the project.⁷
- Temporary non-scientific personnel, e.g. a scientific programmer, to support the project technically.⁵
- Bench fee (only for the Dutch team). For each appointed researcher at a Dutch knowledge institute (with an appointment of 0.5 FTE for at least 12 months) funded by the NWO grant, a bench fee should be made available from the NWO grant. This bench fee, which amounts to € 5,000 per researcher is to cover expenses incurred for the defence ceremony and for attending conferences. The bench fee is intended for the person carrying out the project, but is made available to the Dutch PI. Although the person carrying out the project is entitled to use the bench fee, this should be done in consultation with the Dutch PI. Nonetheless, the bench fee may be used at the discretion of the PI/person carrying out the project.
- The secondment of an academic researcher to the industrial partner or in an existing lab or studio, who will perform demand-driven research.
- Material costs that are directly related to the project, such as the costs of knowledge transfer, valorisation, and any other new investments that might be necessary for the research.
- Travel expenses, as there is supposed to be substantial exchange and travel between India and the Netherlands, e.g. the costs of participating in the team meetings and conferences related to the Joint Programme (travel and accommodation).

Research grants can be requested under the following conditions:

- The maximum total funding requested from NWO/DeitY is € 500.000, of which 50% to be covered by NWO and 50% by DeitY. When a project is selected for funding, the Dutch team will receive funding from NWO and the Indian team will receive funding from DeitY.
- The minimum amount of total co-funding (cash and in-kind) should be 20% of the total funding requested from NWO/DeitY, with a minimum cash contribution of 10% of the total funding requested (see also paragraph on co-funding).
- The duration of the project is minimum 24 months and maximum 48 months.
- The project team includes the PI's from India and the Netherlands, the researchers as assigned and at least one senior supervisor representing the industrial partner(s).

⁷ The personnel costs for the Dutch members will be funded in accordance with the most recent version of the *Agreement for Funding Scientific Research* (see <http://www.nwo.nl/financiering/hoewerkt-dat/Salaristabellen>).

- The temporary personnel should comprise of at least two researchers, in India as well as in the Netherlands, e.g. one postdoc in the Netherlands and four PhD's in India. Symmetry within the project composition between the Netherlands and India is envisaged, but not mandatory. The size of the project has to be determined within the team and has to reflect the team's ambitions.

Not eligible for funding:

- Costs for computers, standard software and other costs that belong to the standard facilities of research institutes,
- General costs for project management and coordination.

3.2.2 Co-funding

Co-funding, i.e. contributions by industrial partners should be in kind and in cash. The minimum amount of total co-funding (cash and/or in kind) is 20% of the total funding requested from NWO and DeitY, with a minimum cash contribution of 10% of the total funding requested.

In kind requirements

The (academic) partner(s) must contribute 'in kind' by providing man hours, materials, (use of) equipment, temporary hosting of the appointed researchers and access to facilities needed for the project. The industrial partner(s) may second one or more employees on a temporary or part-time basis in a research group, for example as PhD-student, under the supervision of a senior researcher.

A condition is that these in kind contributions are capitalised and that they are an integral component of the project plan.

In kind contribution will be considered as important as this strengthens the effectiveness of the consortium approach, the potential valorisation opportunities and the added value for science and technology in India and the Netherlands (as described under criteria 2, 3 and 4). The man hours of the senior supervisors of the industrial and academic partners are considered to be a compulsory in kind contribution.

In cash requirements

The industrial partner(s) must contribute in cash at least 10% of the total funding requested from NWO/DeitY. The amount must be justified in the budgets of the Full Proposal for research grant. The in cash contribution should fund in equal parts the project activities in India as well as the Netherlands.

3.2.3 Budget

Each national team, either Indian or Dutch, that is applying must submit a budget separately. Budgets should be prepared according to the table provided by NWO and DeitY.

Components of (sub)totals are to be included in the Summary Budget of the Full Proposal.

All contributions from the public and private partners, either 'in cash' or 'in kind', must be clear from the project description, the planning and the Summary Budget in the proposal.

Please note that if your project is selected for funding, you may be asked to provide additional funding documentation to clarify items in the budget. NWO/DeitY will invoice the private partners after the project agreement has been signed by all relevant parties in order to transfer the amount to NWO bank account. The cash co-funding will be divided 50-50 between NWO and DeitY respective grantee institutions

3.3 When can applications be submitted

Full Proposals for research grants (FP) must be received at the latest **14 October 2014, 11:59 hours in the morning** (UTC +02:00), and must be preceded by a Letter of Intent which should be received at the latest **23 September 2014, 11:59 hours in the morning** (UTC +02:00).

3.4 Preparing an application

Letter of Intent

A Letter of Intent is a mandatory step in the procedure. The Letter of Intent, submitted by the Project Leader, should contain in English the following information:

- envisaged project title
- abstract (max. 300 words)
- relevance to which research theme
- envisaged academic partners (name, title and contact details)
- envisaged industrial partners (name, title and contact details)

The Letter of Intent must be received by the Joint Programme secretariat by email indodutch@nwo.nl.

Full Proposal for research grant (FP)

All proposals must be drafted in English, in order to make them accessible to international reviewers. The proposal needs to stand on its own, and all references to internal literature should be avoided. Only references to open accessible literature are allowed. When a reference to a pre-print is unavoidable, a copy of the pre-print should be included in the application (see Annex 6.1), for access by the reviewers.

Letter of commitment

As part of the Full Proposal a Letter of Commitment should be added as attachment to the proposal.

Each participating industrial partner is expected to pledge their financial support in cash and 'in kind' contribution by writing a letter of commitment. The Letter of commitment must contain an explicit declaration about the financial contribution agreed upon. The following information should be declared in this letter:

- The amounts stated in the letter must agree with the amounts stated in the project budget.
- The letter should mention the contribution 'in cash'.
- The letter should be addressed to the Project Leader and written on cover letter of the participating industrial partner.
- The letter must be signed by (a) legal representative(s) from the industrial partner(s) who is authorized for signature.
- The letter should be added as attachment to the Project Proposal for research grant for submission.

A model of Letter of Commitment can be found on NWO and DeitY websites.

For preparing your application, the following steps should be followed:

- Download the application form from the electronic application system Iris or from the NWO and DeitY websites.
- Complete the application in the format described in Annex 6.1.
- Save the application form as a PDF file and upload it in Iris.
- Complete the other information asked in Iris and send in the application.

3.5 Specific conditions

- Partners in granted projects must sign a project agreement between the involved partners from academia, industry and NWO/DeitY before the project can start. NWO/DeitY will provide a model project agreement.
- NWO/DeitY have a regulation for Intellectual Property Rights (IPR) and knowledge transfer. If a researcher submits a proposal on behalf of an institution recognised by NWO/DeitY then the project partners must confirm that they have taken note of the IPR and knowledge transfer regulation as described in the Appendix IPR regulation (see Annex 6.2). NWO will act in conformity with the “Spelregels Intellectueel Eigendom” paragraph 3.2.1 “Onderzoeksmodellen fundamenteel”, published by the “Regiegroep spelregels” in the “Spelregels voor privaat-publieke samenwerking bij programmering en uitvoering van fundamenteel en toegepast onderzoek”⁸

Once selected for funding, grants will be distributed to each awardee according to respective national laws and each funder’s internal policies and procedures.

Applicable for NWO funding

- For proposals for a grant from NWO, the NWO Regulation on Granting (www.nwo.nl/regelingsubsidieverlening) applies as equally the Agreement for Funding Scientific Research ([NWO Akkoordbekostiging wetenschappelijk onderzoek](http://www.nwo.nl/akkoordbekostiging-wetenschappelijk-onderzoek)).
- NWO's Code of Conduct on Conflicts of Interest applies to all persons and NWO personnel involved in the assessment and decision-making procedure of this call (www.nwo.nl/code).

Applicable for DeitY funding

Please check the funding guidelines under the following link:

- [http://deity.gov.in/sites/upload_files/dit/files/guidelines_final_vers3%20\(1\).pdf](http://deity.gov.in/sites/upload_files/dit/files/guidelines_final_vers3%20(1).pdf)

3.6 Submitting an application

An application can only be submitted to NWO and DeitY via the electronic application system IRIS. Applications that are not submitted via the above mentioned system will not be admitted to the selection procedure. The Project Leader is considered to be the main applicant and is obliged to submit his/her account.

If the main applicant does not have an IRIS account yet then this should be created at least one day before the submission. Only then possible registration problems may be solved in time. If the main applicant already has an account then he/she does not need to create a new account to submit a new application. For technical questions please contact the Iris helpdesk, see Section 5.1.2.

⁸ Spelregels voor privaat-publieke samenwerking bij programmering en uitvoering van fundamenteel en toegepast onderzoek
<http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2013/06/21/spelregels-voor-privaat-publieke-samenwerking-bij-programmering-en-uitvoering-van-fundamenteel-en-toegepast-onderzoek.html>

4 Assessment procedure

4.1 Procedure

The call requires a one stage assessment procedure, which is started by the submission by the Project Leader, either from India or the Netherlands, on behalf of the consortium. The submission includes the Full Proposal for research grant in English including the required Letter(s) of Commitment (section 3.4). The submission must be preceded by a Letter of Intent (LOI). The LOI will be only used to compose the assessment committee.

4.1.1. Admissibility check

Each Full Proposal for research grant submitted will be subjected to an admissibility check. Only proposals that satisfy the conditions of this Call are declared admissible and will be processed by NWO/DeitY. The admissibility check is done using the conditions stated in Chapter 3 of this Call for proposals and the relevance to the research themes (Chapter 2).

In the event that a proposal does not meet all these criteria, the Project Leader will be contacted by NWO and DeitY. The Project Leader will have a maximum of five working days to repair the Full Proposal for research grant. Unrepaired and/or major flaws may lead to a refusal to process the application.

Full proposal for research grant that meet the conditions of the admissibility check will be forwarded to the next stage of the assessment.

4.1.2. Assessment

Full proposal for research grant that meet the conditions of the admissibility check will be forwarded to external referees for the peer review. The referee reports will be forwarded anonymously to the applicants, who will be given the opportunity to respond to the referee reports in a rebuttal.

The assessment committee consists of researchers from relevant scientific disciplines and representatives from relevant public and/or private partners from India as well from the Netherlands.

Timeline 2014-2015

23 September	Submission Letter of Intent
14 October	Deadline submission of Full Proposal for research grant
October- November	Peer review stage
Mid December	Deadline submission rebuttal by applicants
Begin January	Assessment committee meeting Committee submits advice to the Board of NWO Physical Sciences and DeitY
February 2015	NWO and DeitY decide which projects receive funding
February	NWO/DeitY inform the applicants about the decision

The exact dates of the rebuttal stage will be communicated to the applicants after the submission deadline.

4.2 Criteria

Each proposal will be evaluated on 4 main criteria: scientific quality of the proposal (50%), International cooperation (15%), Quality of valorization (20%) and Quality of the consortium (15%).

Full Proposals for research grant that receive the NWO qualification 'very good' or 'excellent' will be eligible for funding respective to the position in the prioritisation and provided there is sufficient funding.

For the Full Proposal for research grant the following assessment criteria apply:

1. **Scientific quality of the proposed research**
 - a. Scientific approach and relevance to the research topic; including urgency for the scientific strengthening of ICT research
 - b. Originality and novelty: potential to make an important scientific breakthrough to the advancement of science or the state-of-the-art technology
 - c. Feasibility, e.g. clearly formulated goals and a feasible work plan with milestones including time schedule, role and tasks for consortium partners (researchers and industrial partners)
2. **International cooperation**
 - a. Added value of Indo-Dutch cooperation to the research project, including complementarity of the Dutch and Indian research teams, urgency and strategic importance
 - b. Degree of knowledge exchange between the Netherlands and India
3. **Quality of valorisation**
 - a. Economic and/or societal added value of the intended research results
 - b. Added value or benefits of science industry cooperation to the research project
 - c. Degree of embedding the results in academic as well as in user's environment within the industry
 - d. Interaction with knowledge users (before, during and after the project)
4. **Quality of the consortium**
 - a. Track record of the academic partners
 - b. Track record of the industrial partner(s) on the particular proposed research, e.g. existing projects, publications, etc.
 - c. Synergy and complementarity of the partnership
 - d. Engagement of industrial partner(s) in the proposed research, e.g. access to datasets, providing infrastructure, etc.

5 Contact details and other information

5.1 Contact

5.1.1 Specific questions

For specific questions about the call for proposals please contact:

NWO

Ms. Rosemarie van der Veen-Oei

Phone: +31 70 344 08 51

Email: indodutch@nwo.nl

DeitY

Ms. Tulika Pandey

Phone: +91 9810 67 09 81 (mobile)

Email: tulika@deity.gov.in

5.1.2 Technical questions about the IRIS electronic application system

For technical questions about the use of Iris please contact the Iris helpdesk. Read the manual first before asking the helpdesk for advice. The Iris helpdesk can be contacted from Monday to Friday between 11.00 and 17.00 CET on +31 900 696 4747. Unfortunately, not all foreign telecom companies support phoning to 0900 numbers. However, you can also submit your question by e-mail to iris@nwo.nl. An answer will be sent to you by e-mail within two working days.

6 Appendices

6.1 Application form

PROFORMA FOR SUBMITTING PROJECT PROPOSAL FOR SEEKING FINANCIAL SUPPORT FROM DEITY AND NWO

FACTSHEET

1. Title of Project, if relevant including Acronym
 - a) Organisation
 - b) Name
 - c) Address
 - d) Legal status (only applicable for Indian institute, please indicate if Government Department, Statutory, Corporate Body, Registered Society, Private Company with recognised R&D unit etc.)

2. Chief Principal Investigator
 - a) Name
 - b) Designation (professor/Associate Professor/Assistant Professor/other:....)
 - c) End of contract
 - d) Department
 - e) Address
 - f) Email
 - g) Phone/Fax

3. Nature of Project (Check one)
 - a) Research, Development & Engineering (R,D & E) leading to production capability
 - b) Application oriented Research, Design and Development (R,D&D) having production potential
 - c) Basic R&D

4. Duration of Project (in months)

5. Please provide a public summary in Dutch and English (for copy/paste purpose):
 - a) The title of the project
 - b) Of the PI: title(s), initials, first name in brackets, surname, m/f, university and department
 - c) A text summarizing the essence of the project in easily accessible language (about 50 words)
If a grant is awarded, DeitY/NWO may use this summary for publicity purposes.

6. Relevance themes, please indicate to which of the following themes this proposed research relates.
 - Big Data
 - Internet of Things
 - Serious Gaming

7. Scientific summary (maximum 250 words) targeting experts in the relevant research field.

8. Keywords (max. 6 keywords)

9. Main field of research (Compulsory)

For all applications it is compulsory to fill out one or more research fields that correspond to the subject of your research proposal. You can only refer to the descriptions and codes from the NWO research field list. Please find the list via: <http://www.nwo.nl/financiering/nwo-disciplinecodes>.

10. Objective of the Project (max. 3 lines)

11. Funds requested from DeitY, which should be approx. 50% of total project budget (=F)

Head	Years				Rs.in lakhs	
	1 st	2 nd	3 rd	4 th	Total	
Capital Equipment FE Comp.					Rs.	
Consumable stores FE Comp.					Rs.	
Duty on import (If any)					Rs.	
Travel & Training FE Comp.					Rs.	
Contingencies					Rs.	
Overheads, if any					Rs.	
Grand Total (FE Comp.)					Rs.	
Grand Total					Rs.	
FE Component					Rs.	Equivalent to €
In cash contribution (=A) (at least half of 10% of requested funding)					Rs.	€
DeitY Contribution (= B) (<i>minus in cash contribution</i>)					Rs.	€

Signature of Chief Investigator
Designation
Date

Signature of Head of the Institution/Organisation
Designation
Date

12. Additional Information Required (applicable for section 11)

- a) Wherever applicable, Under S.No.11, share of the industry, collaborating agency, any other assistance and DeitY's support required in the total cost of the Project may be provided under various budget heads.
- b) Brief history of the electronics company including products being made, capacities, related collaborators, achievements, capabilities etc. may be provided (including recent annual reports and company brochure)
- c) Please indicate recent major achievements of in-house R&D Unit of the electronics company in development of new products/processes, technology export, patent taken etc. and whether in-house R&D unit of the firm is recognised by DSIR.
- d) Any other information in support of the proposal.

13. Funds requested from NWO, which should be approx. 50% of total project budget (=F)

Personnel	Fte	Duration	Expenses(in k€)
		...yr	
		...yr	
Non-scientific staff		...yr	
		...yr	
		...yr	
Non staff costs			
TOTAL			
Grand total 'in cash' expenses			
In cash contribution (= C) (at least half of 10% of requested funding)			
NWO contribution (= D) (<i>minus in cash contribution</i>)			

14. Additional Information Required (applicable for section 13).

- a) Specification of items concerning non staff costs, if relevant.
- b) Please motivate and specify the necessity for the highly specific equipment that is solely applicable in the context of the research proposal.

15. Summary budget from both Indian and Dutch team

- Please give the budget for the project in k€. The maximum duration of the project is 48 months.
- Please refer to section 3.2.2 of the Call for proposals Indo-Dutch Joint Research Programme for ICT regarding contribution in cash and in kind from the consortium partners.
- Please specify the in-kind contribution of the industrial partners (fte, number of hours, number of researchers, period)

Contribution 'in kind' capitalized in k€			
Personnel (in NL or IND)	Fte	Duration	Total (in k€)
		...yr	
		...yr	
		...yr	
Total 'in kind' contribution (= E) (at least 10% of requested funding)			

Summary budget	(in k€)
'In kind' contribution consortium (E)	
'In cash' contribution consortium (A+C)	
Requested funding from NWO (D)	
Requested funding from DeitY (B)	
Total project expenses (=F)	

DETAILS OF THE PROPOSAL

PART I : BACKGROUND INFORMATION

1. Title of Project

2. Contact details of *all* applicants

Please provide the name of the Chief Investigator who also acts as the contact person and is the intended Project Leader. You can copy the lines in the table for your own purposes.

Principal Investigator - PI (<i>from Dutch academia</i>)			
Name, first name, title(s)			male / female
Date of birth		Date of PhD	
Position	professor / associate professor (UHD) / assistant professor (UD) / other:		
End contract			
University			
Department		Section	
Postal Address		Zip/city	
Tel / Fax		Email	
Principal Investigator - PI (<i>from Indian academia</i>)			
Name, first name, title(s)			male / female
Date of birth		Date of PhD	
Position	professor / associate professor (UHD) / assistant professor (UD) / other:		
End contract			
University			
Department		Section	
Postal Address		Zip/city	
Tel / Fax		Email	
Representative (<i>affiliated to industrial partner</i>)			
Name, first name, title(s)			male / female
Date of birth		Date of PhD	
Position	professor / associate professor (UHD) / assistant professor (UD) / other:		
End contract			
Company			
Department		Section	
Postal Address		Zip/city	
Tel / Fax		Email	
Co-applicant (<i>affiliated to industrial partner or from academia</i>) (<i>copy/paste as many times as needed</i>)			
Name, first name, title(s)			male / female
Date of birth		Date of PhD	
Position	professor / associate professor (UHD) / assistant professor (UD) / other:		
End contract			
University/Company/Ins			

titute			
Department		Section	
Postal Address		Zip/city	
Tel / Fax		Email	

3. Track record of consortium partners - **no more than half an A4 page**

Please provide a short description of the consortium partners in the particular research fields. Individual CVs should not be attached, but you may include links to personal websites or a brief description (no more than half an A4 page) of the track record of the consortium. The Assessment committee will be asked to assess the competence of the research team (see also Section 4.2, 'Criteria'.)

4. Letter of commitment from each participating industrial partner

Please indicate for each industrial partner in this project consortium if their letter of commitment is enclosed as separate pdf file to this proposal (*compulsory*). A model of the letter of commitment can be found on the website of NWO under this programme.

Industrial partner(s)	Letter of commitment has been enclosed?
	Yes/no

5. Other Commitments of the Chief Investigator and Co-Investigators (including lectures, research projects responsibilities etc.) Indicate the percentage of time the Chief Investigator and Co-Investigator would devote to the project.

6. Details on each of the ongoing/completed projects with the Chief Investigator/Co- Investigator/R&D Team

- a) Project Title
- b) Funding Agency (or Internal funding)
- c) Brief Project Summary
- d) Technical Status vis-a-vis objectives
- e) Financial Status (Total Project outlay, expenditure to date)
- f) Duration and year of initiation
- g) Expected date of completion

7. Brief summary of other project proposals (submitted by any of the Investigators) awaiting consideration of DeitY and other funding agencies like DST, DRDO, DSIR, MHRD, ICICI, IDBI etc.

8. Infrastructure and other facilities available at the institute for undertaking this project.

- a) List of major equipment along with model numbers, specifications etc.
- b) Existing manpower and other personnel with names available for the project on fulltime basis

9. Expensive Equipment/facilities available elsewhere which could be made use of for the project.

10. Details of collaborating agencies (As this would vary from project to project, necessary details may be given as appropriate)

11. Additional information, if any.

PART II: RESEARCH PROPOSAL (max. 8 pages in total for sections 1-4)**1. Description of the proposed research**

See also the evaluation criteria in Section 4.2 of the Call for proposals Indo-Dutch Joint Research Programme for ICT for more details. The description must clarify the character, approach and capitalize the valorisation of the research proposal. It should illustrate why this project is of top quality.

- a) Please elaborate on the scientific approach and relevance, innovative aspects (e.g. novelty), feasibility
- b) Need, forecast and urgency for the technology proposed to be developed with justification such as importance of know-how, import substitution role, pay off w.r.t. purchase of know-how or development of technology competitiveness, technology exports, international alliances possibilities etc.

2. Expected outcome in physical terms (as applicable)

- a) Specifications of subsystem/system (as applicable)
- b) Nature of documents for technology transfer
- c) Manpower trained
 - Level of training
 - Nos. (industry/outside R&D/Internal)

3. Description of the proposed work plan

Please indicate roughly how the entire research project is to be phased in timelines, in periods during the project with deliverables and milestones. More specifically, you should indicate which activities are likely to be carried out and by whom. Indicate roughly which tasks will be undertaken by which members of the research team. The project duration should not exceed four years.

- a) Year-wise break-up of physical achievements with specific intermediate milestones (in terms of aims and objectives) and deliverables (specify the milestones and deliverables – description, due date and responsible person – throughout the duration of the project)
- b) Collaboration of the consortium (describe in which manner will be cooperated between the academic and industrial groups, added value of international collaboration). Please elaborate on the following aspects:
 - Synergy and complementarity of the partnership
 - Engagement of industrial partner(s) in the proposed research, e.g. access to datasets, providing infrastructure, etc.

4. Valorisation

In this section, please describe:

- Likely End User(s)
- Economic and/or societal added value of the intended research results
- Added value or benefits of science industry cooperation to the research project
- Degree of embedding the results in academic as well as in user's environment within the industry
- Interaction with knowledge users (before, during and after the project)
- Specific manner in which know-how generated here is envisaged to be translated into production, details regarding:
 - the end product (with specifications to be attained etc.)
 - availability of pilot production facility in the organizationName of production agencies willing to productionise/use and market surveys if any made by them regarding demand for the product. If any, alternative production/user agencies

5. Existing projects:

- a) Details of work already done by present investigators/R&D team in this or other areas
 - Successfully completed on schedule
 - Currently in progress
 - Abandoned
 - Industry interaction/know-how transferred

- b) Summary of similar work being done elsewhere in the country

6. Risk Management

- a) Specific problems, hold-ups and difficulties foreseen in the implementation of the project.
- b) If the answer is not Nil to previous question (a), how does Chief Investigator propose to overcome them?
- c) Detailed PERT/BAR Chart (Separate Sheet)
- d) Details of possible alternative arrangements if the Chief Investigator leaves institution or is unable for any other reason to continue on this project.

7. List the personnel already working in the organisation who would be transferred to work full time on this project.

8. Literature references

Please refer to 'open' literature only.

9. Agency with which link up is (Details may be given as applicable) established/proposed

10. Other grant applications

Has any additional grant(s) for this project or a similar research topic been requested currently either from NOW/DeitY or from any other institution? If so, please describe below

PART III - FINANCIAL DETAILS only applicable for Indian team**Table - 1 Yearly Break-up**

Budget requirements for the Year (Please provide separate breakup for each year of the project duration)

S.No.	Head	Local expenses	Foreign Exchange (FE)	Duty	Total	Part of 6 to be borne by participating/ other expenses	Amount payable by DeitY
1.	2.	3.	4.	5.	6.	7.	8.
1.	Capital equipment						
2.	Consumable stores						
3.	Manpower						
4.	Travel/ Training						
5.	Contingencies other expenditure debitable to this project						
6.	Overhead, if any						
					Total: Rs.	Others: Rs.	DeitY.Rs.

*Total cost of the project and contribution to be made by the organisation/other organisation should be shown separately.

Table II: Subsystem wise Break-up

S.No.	Item description (including test equipment, components, materials etc.)	Local	FE	Duty	Freight	Total
1	2	3	4	5	6	7

Table-III Manpower Details

S. No.	Designation of post	Monthly salary	Ist Year		2 nd Year		Total
			No.of Posts	Total Expenditure	No.of posts	Total Expenditure	
1	2	3	4		5		6

1. Scientific/Technical
2. Grade lower than (1)
3. Skilled workers
4. Unskilled workers

Total:

Statements by the Chief Investigator

I have completed this form truthfully

Name:

Place:

Date:

Please submit the application to DeitY/NWO in electronic form (pdf format is required!) using the Iris system, which can be accessed via the Iris website (www.iris.nwo.nl). The application must be submitted from the account of the main applicant. For any technical questions regarding submission, please contact the IRIS helpdesk (iris@nwo.nl).

Attachment: Endorsement by the Head of the Institution

1. I have read the terms & conditions (including special terms & conditions for co-financing) governing the grant-in-aid and I agree to abide by them.
2. I certify that I have no objection to the submission of this research proposal for consideration by the Ministry of Communications and Information Technology and the Netherlands Organisation for Scientific Research.
3. In case the project is approved, I undertake to make available facilities to carry it out, to arrange for the submission of periodic progress reports, utilization certificates and other information that may be required by the Ministry of Communications and Information Technology and the Netherlands Organisation for Scientific Research. In general to ensure that the conditions attached to the award of such grant are fulfilled by my institution/organisation.
4. I certify that in case present chief investigator is not available for any reason to continue work on this project, the following persons will be available to carry it throughout to completion:

Sl.No.	Name	Designation
1.		
2.		
5. I certify that the facilities mentioned in the body of this report are available at my institution.
6. I certify that I shall ensure that accounts will be kept of the funds received and spent and made available on demand, as specified and required by the Ministry of Communications and Information Technology.
7. I certify that I am the competent authority, the virtue of the administrative and financial powers vested in me by to undertake the above stated commitments on behalf of my institution.

Signature of the
Head of the Institution
Designation
Date:

6.2 IPR and Knowledge transfer

- *General*

When submitting a project proposal within the scope of this Call for Proposals, the project parties shall confirm that they have taken note of the IP and knowledge transfer arrangement described in this document. Before a granted project commences, the project parties will enter into a Project Agreement with NWO and DeitY regarding IP and knowledge transfer, as well as regarding other matters such as finance, progress reviews and confidentiality (*vide* the Project Agreement model that will be available on the site in due course). The framework for all IPR emanating out of the projects will be governed by the DeitY NWO agreement dated September 17, 2013.

The conclusion of a Project Agreement between NWO/DeitY and the project parties is one of the conditions to which the grant of a subsidy for the relevant project is subject.

- *Background Information*

The parties participating together in a research project shall provide NWO and DeitY with a written statement of the background knowledge they wish to make available for use in a project before the project commences. NWO/DeitY will include the statements obtained from the parties in an annex to the Project Agreement to be concluded. During the project, additional background knowledge may be contributed in an analogous manner.

Any contributed background knowledge remains the property of the contributing party (hereinafter: the Provider) and may be used by the receiving party or parties solely for the purposes of the project within the context of the objectives of the research. Upon written request, the Provider shall make the necessary background knowledge available to the requesting party at no cost by means of a non-transferable, non-exclusive licence for the duration of the project. In this respect, the Provider shall in good faith provide the receiving party/parties with all relevant information on the background knowledge in question, including a statement that the knowledge is free of third-party claims, or, if such claims exist, what restrictions apply to the use of the knowledge and any further exploitation of such knowledge.

- *Foreground Knowledge -- Results*

Initially, the Results within a research project accrue to NWO and DeitY. In this process, NWO/DeitY act as intermediaries and does not aim for a patent portfolio itself. If an invention is made within a project, the participating project parties shall have the first right of refusal to (cause to) protect this invention in their name and at their expense and subsequently obtain a patent on said invention in consideration of fair market compensation to NWO and DeitY. The guideline for the maximum amount of compensation is formed by the project costs or sub-project costs incurred that led to the invention in question, minus the relative private contribution to said costs. The parties shall negotiate with NWO and DeitY about the definitive amount of compensation and the stages, if any, of payment, and reach agreement on these issues within four months after the negotiations commenced, after which a patent application can be filed. SME parties may obtain a discount on the compensation payable by setting off the costs for obtaining IP against the compensation to be agreed. The compensation will be routed, via NWO and DeitY, to the project party concerned where the invention was made for further research for the purposes of the subject/program.

If multiple project parties are interested in (causing) the protection of the same invention and obtaining a patent, they will mutually agree, if possible even before the project commences, which party or parties will be the ultimate proprietor(s). If no agreement is reached in this respect, NWO and DeitY will decide with regard to the right to patent the invention after separate consultation with the project parties involved.

- *Publication of Results*

The project parties shall not publish or otherwise disclose results, other than with the other project parties' consent. The parties involved shall respond in writing within 4 weeks after the request for

publication. If the parties have not responded in writing within this period, this may be considered consent. Within two months after the publication request, the parties may require changes in order to protect their interests with regard to the patentability of the results, however without jeopardising the scientific integrity of the publishing party. If the results give rise to a specific possibility for a patent application, the publication may be suspended for no more than nine months after the request for publication in order to give the opportunity to protect the results.

6.3 Arrangement for in-kind contributions by consortium partners

Definitions

1. Private parties

Private parties are defined as businesses. NWO and DeitY understand a business to be: an organisational association unit or person focussed on sustained participation in the economic system with the aid of labour and capital and with a profit motive.

2. Public and semi-public parties

Public and semi-public partners are defined as knowledge or other institutions that are not one of the knowledge institutions recognised by NWO and DeitY (such as universities of applied sciences, heritage institutions, municipalities, intermediary organisations or foundations) and which do not belong to the category private parties.

Provisions

1. Possibility of participation in research projects by private and/or public and semi-public parties with in kind and in cash contributions

Private parties and public or semi-public parties can participate in this Joint Programme by means of a financial contribution to the program budget or project budget which NWO/DeitY allocates to research groups of knowledge institutes to carry out an approved research proposal.

Private parties can participate in the Joint Programme with a partial in-kind contribution under the following conditions:

- a. The total private contribution to a research project in the Joint Programme should be at least 20% of the total requested funding from NWO and DeitY, and a maximum of 100% of the funding requested;
- b. The cash contribution by private and/or public semi-public parties should at least be 10% of the total requested funding from NWO and DeitY;
- c. in-kind support / efforts must:
 - be essential to the project;
 - be included in the approved budget of the research costs of the project application in which the private party participates (see provision 3 for permitted in-kind contributions) and must fall within one of the cost categories referred to under 3 a through c.

2. Commitment

If a private party, public party or semi-public party participates in the research project with a partial in-kind support as described above, this party will commit itself to NWO/DeitY for the in-kind support as well as the financial (in cash) support as described in the proposal. NWO will invoice the promised financial (cash) contribution in semi-annual instalments.

3. Permitted in kind contributions

The following costs, directly attributable to the research project and incurred by the private party, public party or semi-public party, may be contributed by private party, public party or semi-public party as in-kind contributions (see also provision 1):

- a. Hours worked within the scope of the project:
 - wage costs, it being understood that these are based on an hourly wage, calculated on the basis of the annual wage at full employment according to the column *income for income tax* of the wage statement, plus the surcharges for social contributions payable by law or under individual contract or collective bargaining agreement, and based on 1.650 productive hours per year. This amount may be increased with a surcharge for other general costs, subject to a maximum of 50% of the wage costs referred to above. The ensuing hourly rate to be attributed to the project, including said 50% surcharge for general costs, is capped the tariff

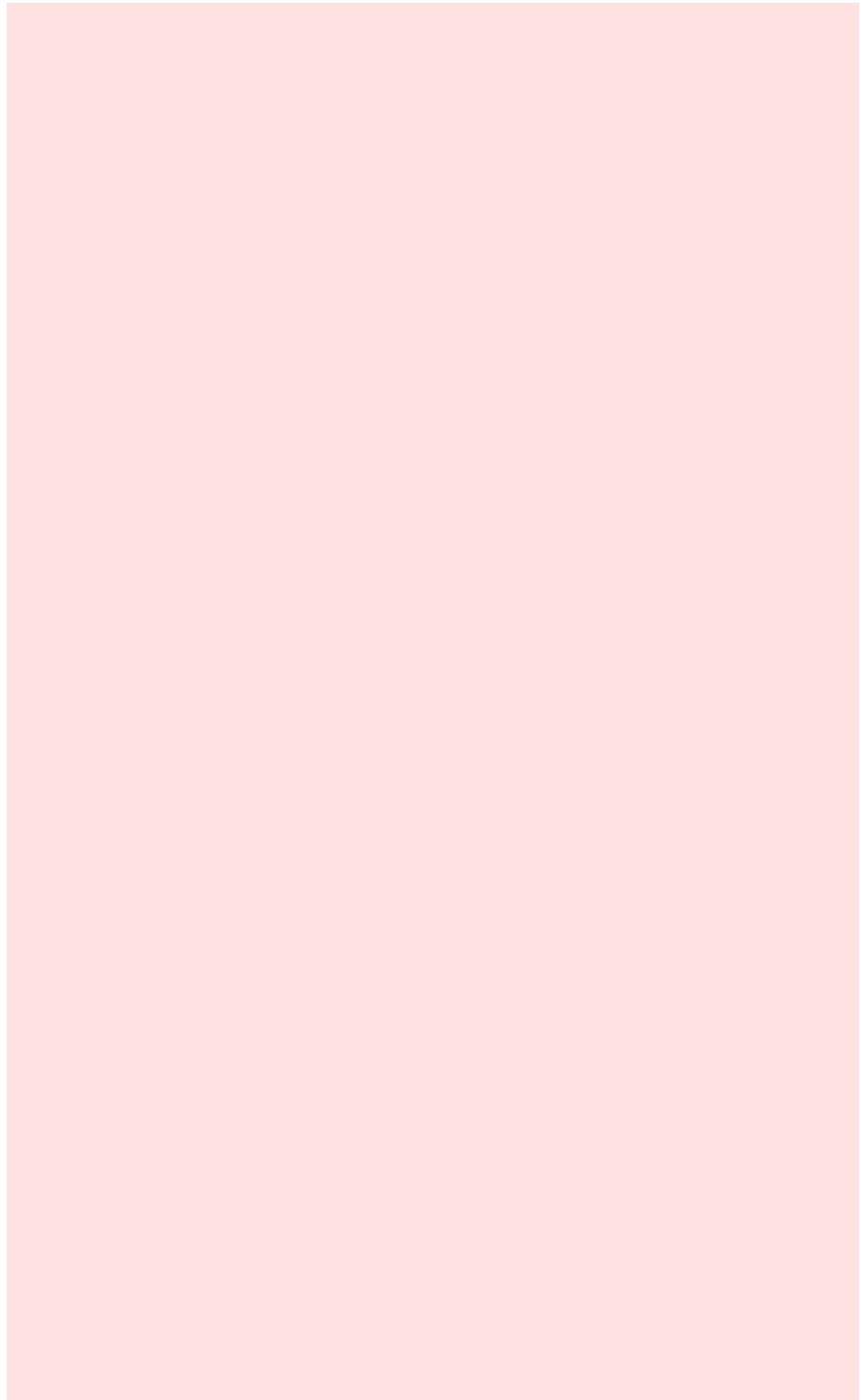
as mentioned in paragraph 3.2 in the call for proposals. Contribution of costs for supervision or for project management is possible in the event of active participation of the intended supervisor or project manager in the research project (cf. under 1c of this annexe).

- b. Costs of material and resources to be used, based on the original purchase prices, distinguishing between products owned by the co-funder (list price) and products from other companies, bought by the co-funder (purchase price).
- c. Use of equipment and machines
 - Costs associated with the purchase and use of machines and equipment, it being understood that these are based on the depreciation costs to be attributed to the project, calculated on the basis of the original purchase prices and a depreciation period of at least five years; costs of consumables and maintenance during the period of use.
 - Costs of purchase and use of machines and equipment that were not purchased solely for the project will only be considered project contributions pro rata based on the foregoing if there is a time log for each machine or for the equipment that conclusively establishes the operating hours.
 - In-kind contributions in the form of a discount on the regular purchase price in economic transactions (list price) of machines and equipment. The discount must be at least 25% of the list price. The costs charged to the project's equipment budget will then amount to the list price less said discount. When there is no list price a discount is not accepted.

4. Accounting of in kind contributions

Private parties, public parties and semi-public parties must render account of their in-kind contributions to NWO and DeitY by means of a statement of the contributed costs, to be provided to NWO and DeitY within three months after the end of the research project to which the in-kind contribution was made. The application for approval of the in-kind contribution must be submitted simultaneously with the application for approval of the subsidy amount by the university partner(s), accompanied by a collective final report. If the in-kind contribution for which account must be rendered exceeds € 125,000, an auditor's report must be submitted; in other cases, a written statement by the holder of a power of attorney stating that the contributed in-kind efforts can actually be attributed to the project will suffice.

If the private party, public party or semi-public party that committed itself to a research project with an in-kind contribution, ultimately fails to make such in-kind contribution in full or in part, or cannot render account of the same, NWO on behalf of DeitY will invoice this private party for such part or the full in-kind contribution, so that the total contribution as undertaken is honoured.



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