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REQUEST FOR INFORMATION (RFI)
FOR CAPABILITIES IN THE AREA OF QUANTUM COMPUTING & QUANTUM TECHNOLOGIES

TATA CONSULTANCY SERVICES LIMITED

About Tata Consultancy Services Limited

Tata Consultancy Services Limited (TCS) is an IT services, consulting and business solutions organization that has been partnering with many of the world's largest businesses in their transformation journeys for the last fifty years. TCS offers a consulting-led, cognitive powered, integrated portfolio of business, technology and engineering services and solutions. This is delivered through its unique Location Independent Agile delivery model, recognized as a benchmark of excellence in software development.

A part of the Tata group, India's largest multinational business group, TCS has over 500,000 of the world's best-trained consultants in 46 countries. The company generated consolidated revenues of US $22.2 billion for year ended March 31, 2021 and is listed on the BSE (formerly Bombay Stock Exchange) and the NSE (National Stock Exchange) in India. TCS' proactive stance on climate change and award winning work with communities across the world have earned it a place in leading sustainability indices such as the MSCI Global Sustainability Index and the FTSE4Good Emerging Index. For more information, visit us at **www.tcs.com**.

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Executive Summary:

Quantum Computing (QC) promises to deliver the power required to solve problems that are characterized by complexity that is either intractable or cannot be practically handled by even the most powerful supercomputers of today. Such problems are widespread across domains and include diverse usecases such as Portfolio Optimization, Vehicle Routing, Drug Discovery, Chemistry simulations etc. QC has the potential to impact and transform a wide range of industries, thus resulting in tremendous market opportunities.

Through this Request for Information (RFI), TCS would like to reach out to the academic, research , startup and technology company ecosystem to solicit information about their capabilities in the field of QC and other Quantum Technologies. While an indicative list of capabilities of interest to TCS is provided, the RFI is intended to be completely open to relevant capabilities beyond this list.

Key Features of this RFI:

- The format of the respsonse to be submitted is provided in Annexure 1. Any additional information to support your response may be provided as separate annexures along with your response
- The timelines related to this RFI are provided on pages 4 & 5
- The responses will be governed by terms & conditions specified in this RFI

The TCS Co-Innovation Network (COIN™) sources ideas and technology from our global extended ecosystem. It is a global eclectic network of Academic institutions, Startups, Venture Capitalists, Technology companies, Entrepreneurs, and most importantly, select Customers. COIN™ provides TCS a way of systematically driving value-based partnerships, keeping the risk-reward appetite of its business and partners in consideration.

We look forward to receiving your responses to this RFI and encourage you to leverage the opportunity of being a part of TCS's quantum computing network and possibly a TCS Co-Innovation Network (TCS COIN) partner. If you are an existing TCS COIN Partner, we would also encourage you to participate in this RFI.

1. Purpose of this RFI

The purpose of this RFI is to help TCS arrive at a comprehensive understanding of the Quantum Computing ecosystem, as the first step towards establishing mutually beneficial partnerships – especially those that are strategic and long-term in nature. The RFI may also result in opportunities to participate in specific project-based engagements for TCS and/or its customers. The table below is a non-exhaustive list showing the nature of possible engagements:

Respondent Type	Nature of possible engagements
Academic & Research Institutes	• Internship opportunities for students • Advisory opportunities for staff • Research & project funding by TCS • Collaborative research & projects with TCS • Sabbatical opportunities for staff • Collaboration in designing and delivering training programs • Setting up of Testbeds & Labs and working on the same • Becoming a TCS COIN partner
Startups	• Becoming a TCS COIN partner • Opportunity to position their products, platforms, solutions and services to TCS and/or its customers • Participating in Testbeds & Lab setups at TCS, its academic & research partners, and/or as a part of a consortium
Incubators & Accelerators	• Opportunity to position the work of their startups to TCS and/or its customers • Participation of TCS experts in demo-days • Participation of TCS experts as Mentors and Advisors • Possibile funding of select startups from TCS

Participation in this RFI does not guarantee any kind of engagement with TCS. TCS reserves the right to decide on its choice of partners and to ask for additional information from specific respondents on a selective basis.

2. Background

Quantum Computing (QC) promises to deliver the power required to solve problems that are characterized by complexity that is either intractable or cannot be practically handled by even the most powerful supercomputers of today. Such problems are widespread across domains and include diverse use cases such as Portfolio Optimization, Vehicle Routing, Drug Discovery, Chemistry simulations etc. QC has the potential to impact and transform a wide range of industries, thus resulting in tremendous market opportunities.

TCS has been investing in research in Quantum Computing over the past few years, building significant knowledge & intellectual property in the process. We believe that Quantum Computing is now entering the mainstream and it is the right time for TCS to work along with its customers and the ecosystem to invest in incubating this new form of computing. We firmly believe that a strong ecosystem of academic & research partners, startups, and technology companies would be critical for successful incubation of Quantum Computing and hence it is in TCS' interest to ensure a strong and thriving Quantum Computing ecosystem.

3. **Structure**

(I)   The RFI includes the following sections:
      (A) Schedule 1 (Capabilities of Interest to TCS)
      (B) Annexure 1 (RFI Response Format)

(II)   Key Dates and Details

Event	Dates
Queries/Clarifications based on the requirements floated in the RFI	**14th January 2022** Queries or clarifications regarding the RFI must be sent to: Name: Mr. Sridhar CV Email: sridhar.cv@tcs.com
TCS response to the questions and clarifications requested.	**21st January 2022** Mr. Sridhar CV will respond to all queries
Submission of the Response (PDF Document)	**31st January 2022**
Method to Submit Response	Responses (duly completed) must be submitted in electronic form (in PDF format) to: Name: Aaditi Lele E-mail: aaditi.lele@investindia.org.in **NOTE:** *The size of the email should not exceed 10 MB, due to mail server limitations. Separate emails (in parts) within the size limit can be sent if needed.*
Presentations & Discussions (By invite only)	**In the months of February & March 2022** An email will be sent to select respondents of immediate interest to TCS, to invite them for further presentations and discussions as required. A thank you email will be sent to all Respondents, indicating non-selection or possibility of engagement at a future date
Selection and execution of specific agreements (Optional)	**March 2022 onwards** The response to RFIs and further presentations and discussions may result in specific MoUs/ agreements being signed with specific Respondents

In case of any change in the schedule, the respondents will be informed.

4. Eligibility Criteria

"Respondents" can be an Academic Institute or University, a Research Institute, a Startup, or a legal entity duly incorporated or registered in India or elsewhere as per applicable statutory provisions (*Incorporation/ Registration certificate required*).

5. Scope

As this is an open-ended RFI, Respondents may share not only their current capabilities, but also share their vision and roadmap (to the extent it is non-confidential, unrestrictive and sharable without a Non Disclosure Agreement), any suggestions on possible collaboration models with TCS etc.

6. Shortlisting Criteria

Participation in this RFI does not guarantee any kind of engagement with TCS. TCS reserves the right to decide on its choice of partners and to ask for additional information from specific respondents on a selective basis. Shortlisting/selection of Respondents for specific engagement(s) will be largely driven by TCS strategy and plans in the Quantum Computing area, and alignment with its needs at specific points in time. Responses to the RFI will continue to be used on an on-going basis, and opportunities for collaboration could open up at various points in time.

7. Terms & Conditions

Respondents agree to the following Terms & Conditions:

(a) Respondents are expected to examine all terms, requirements, procedures and information contained in this RFI and accordingly furnish all necessary and relevant documents/information to TCS

(b) It is suggested that the Respondent excludes any material from the Response which it deems to be confidential.

(c) Respondent shall obtain all permissions, authorizations, approvals and consents, licenses and registrations, which may be required under the laws and rules/regulations applicable to it from time to time, necessary to allow it to participate in this RFI. If the Respondent provides / submits/ discloses any third party content/material or intellectual property as part of its submission, the Respondent shall ensure that the same is used under a valid and enforceable license from relevant third parties and who have given their consent to use of such third party content in accordance with these RFI terms.

(d) TCS may accept or decline Responses to this RFI at its sole discretion. TCS may determine the correctness, quality, validity and appropriateness of the submission in its sole discretion. Respondent agrees that no liability or obligation shall accrue on TCS for exercise of such discretion. At any point of time during or post selection, if TCS becomes aware that rights of any third party are violated, or submission made by a Respondent is wholly or in part untrue and / or the response submitted by the Respondent is incomplete, TCS reserves the right to disqualify the Respondent without any liability or obligation to the Respondent.

(e) TCS reserves the right, at its sole discretion, to extend, shorten, discontinue, prematurely withdraw, change, alter, modify, cancel or terminate the RFI or any part thereof or these terms including the eligibility criteria, shortlisting criteria/ process at any time it deems fit and proper without prior notice, during its validity or as may be required in view of business exigencies and/or changes by regulatory authority and/or statutory changes and the same shall be binding on the Respondents. Respondent agrees that no claims or representations shall be entertained in this regard, including without limitation, inability to provide advance intimation.

(f) Respondents should submit responses in the format provided in **Annexure 1** to this RFI. Responses (including all documentation/information) must be provided in English.

(g) Respondents will be shortlisted in accordance with section 6 (Shortlisting Criteria) of this RFI.

(h) Responses received after the 'Submission of Response' date shall be considered rejected.

(i) Respondents shall be solely responsible for any cost and/or risks associated with preparation and submission of their responses.

(j) Respondents shall ensure that their participation in relation to this RFI do not violate any of their obligations under any third party contract and shall be under obligation to disclose promptly to TCS any actual or potential situation of conflict of interest that may have adverse effect on performance of this RFI or any subsequent agreement it signs with TCS in relation to this RFI.

(k) The Respondents shall observe highest ethical standards and shall avoid indulging in any unethical practices including but not limited to corrupt practices, fraudulent practices or illegal practices.

(l) For the purpose of this RFI, we may collect or obtain your personal information and use of such personal information shall be governed in accordance with our privacy policy which is available at https://www.tcs.com/privacy-policy (the "Privacy Policy"). You agree and consent that we may use personal information that you provide or make available to us in accordance with the Privacy Policy. Personal information you provide to us shall not be retained for longer than it is required for the purposes for which the information may lawfully be used or is otherwise required under any law for the time being in force.

Schedule 1

The Schedule 1 is used to provide a representative list of the nature of capabilities that would be of interest to TCS:

Focus Areas	• Quantum Optimization • Quantum ML • Quantum Chemistry • Quantum Security & Communication etc.
Domains/Verticals of Interest	• Banking, Finance & Insurance • Life Sciences & Healthcare • Supply Chain & Logistics • Travel & Transportation • Engineering & Manufacturing • Communication etc.
Technology Capabilities	• Products (including Hardware) • Platforms • Solutions • Services • Testbed setups and maintenance
Research Capabilities	• Areas of Interest for collaborative research • Testbeds available
Human Resource Capabilities	• Interns at all levels (Graduates, Post Graduates & PhDs) in areas of relevance • New Graduates & Experienced Professionals in areas of relevance • Contractual Appointments including Post-Docs and Apprentices • Advisory Capabilities (Academic, Research and Business) • Designing and delivering training programs • • Working on TCS-sponsored projects • Sabbaticals
Market/Customer Reach	• Current customers and partners

Kindly note this list is only indicative and not exhaustive and can be used for reference purposes by the Respondents while drafting their capability responses.

Annexure 1
Response Format

<... To be filled by respondent to RFI>

This section of this RFI defines the format of responses requested from all Bidders.

1. Applicant Details

Name of Institute/ University/ Startup/ Legal Entity			
Incorporation/ Registration details		Place of incorporation/registration	
		Year of incorporation/registration	
		Incorporation/Registration No.	
Key Contact Person			
Designation			
Organization / Official Email Id			
Phone Number			
Office Address			
Optional: Details of any other key members of the organization (Name, Designation, organization email id, phone)			

2. Response Details

<... Kindly note that the Respondents can supplement points (In addition to the format given below) to ensure that their responses correctly and completely represent their current and planned capabilities ...>

a. Overview of the Organization - Short description (not exceeding 1 page) covering History, Objectives & Goals, Focus Areas etc.

b. Your capability profile/areas of interest as per the format below:

c. <u>KEY FOCUS AREAS</u>

Capability/Area of Interest	Yes/No	Any comments to elaborate your response (including readiness level etc.)
Quantum Optimization		

Quantum ML		
Quantum Security & Communication		
Quantum Chemistry		

d. Any other comments/details/suggestions with respect to focus areas:

_____

<u>DOMAINS/VERTICALS OF INTEREST</u>

Capability/Area of Interest	Yes/No	Any comments to elaborate your response (including readiness level etc.)
Banking, Finance & Insurance		
Life Sciences & Healthcare		
Supply Chain & Logistics		
Travel & Transportation		
Engineering & Manufacturing		
Communication		

Any other comments/details/suggestions with respect to domains/verticals:

_____

<u>TECHNOLOGY</u>

Capability/Area of Interest	Yes/No	Any comments to elaborate your response (including readiness level etc.)
Products (including Hardware)		
Platforms		
Solutions		
Services		
Testbed setups and maintenance		

Any other offerings or suggestions related to Technical capabilities that you may want to propose:

_____

RESEARCH

Capability/Area of Interest	Yes/No	Any comments to elaborate your response (including readiness level etc.)
Relevant Research areas of Interest	NA	
Sabbaticals for TCSers at your Institute		
Sabbaticals for your Researchers at TCS		
Availability of Testbeds		

Any other offerings or suggestions related to Research capabilities that you may want to propose:

_____

HUMAN RESOURCES

Capability/Area of Interest	Yes/No	Any comments to elaborate your response (including readiness level etc.)
Interns at any level (Graduates, Post Graduates & PhDs) in areas of relevance		
New Graduates & Experienced Professionals in areas of relevance		
Contractual Appointments including Post-Docs and Apprentices		
Advisory Capabilities & expertise		
Designing and delivering training programs		
Working on TCS-sponsored projects		
Sabbaticals for TCSers at your Institute/University		
Sabbaticals for your staff at TCS		

Any other offerings or suggestions related to Human Resource capabilities that you may want to propose: _____

MARKET/CUSTOMER REACH

List of Customers/Collaborators that you are currently engaged with	Additional details/comments about the engagement

Any other comments/details/suggestions with respect to market/customer reach:

_____

e. Any other details covering 1 or more of the following (Optional)

    a. Any points not covered above

    b. Your interest in collaborating with TCS/How can TCS help you in achieving your objectives

    c. Why should TCS be interested in collaborating with you/How can you help TCS

f. Team Credentials (Optional)

    • A summary of Senior/Key Persons followed by their Biographical Sketches