

प्रौद्योगिकी स्थानांतरण के लिए पसंद की अभिव्यक्ति

**EXPRESSION OF INTEREST for TRANSFER OF TECHNOLOGY**

ऑनलाइन सुक्रो क्रिस्टल इमेजिंग सिस्टम (ओएसिस)

**ONLINE SUCRO CRYSTAL IMAGING SYSTEM (OSIS)**



प्रगत संगणन विकास केंद्र  
(इलेक्ट्रॉनिकी और सूचना प्रौद्योगिकी मंत्रालय, -भारत सरकार)

तिरुवनंतपुरम, केरल 695033

द्वारा जारी ।

टेलीफोन: 0471 2727508 फैक्स: 0471 2723456 ईमेल: [tpc@cdac.in](mailto:tpc@cdac.in)

वेब साइट: [www.cdac.in](http://www.cdac.in)

Issued by

**CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING**

(The Premier R&D organization of the Ministry of Electronics and Information Technology (MeitY), Govt. of India)

Thiruvananthapuram, Kerala, 695033

Phone: 0471 2727508 Fax: 0471 2723456 Email: [tpc@cdac.in](mailto:tpc@cdac.in)

Website: [www.cdac.in](http://www.cdac.in)

## Table of Contents

SL No.	Section	Page No.
1	Introduction	3
2	Brief about C-DAC	3
3	Brief description about the technology to be transferred	3
4	Invitation for Expression of Interest	6
5	Who can Apply	7
6	How to Apply	7
7	TOT Agreement (How to Subscribe)	7
8	One time TOT license Subscription Validity & Renewal of TOT agreement	7
9	C-DAC Deliverables	8
10	Training for TOT Partners	8
11	Field implementation support	9
12	Direct implementation by C-DAC	9
13	Payment terms for One Time TOT subscription License and Software subscription License	9
14	Annexure-I (Part A & Part B) – (2 pages)	

## 1. Introduction

Centre for Development of Advanced Computing (C-DAC) invites “**Expression of Interest**” (EOI) from Indian companies for transfer of technology (ToT) from C-DAC and to subscribe, acquire licenses, market, sell and implement “**ONLINE SUCRO CRYSTAL IMAGING SYSTEM (OSIS)**” targeting sugar industry automation on non-exclusive basis.

Through this EOI, sealed financial H1 bid is invited on behalf of M/s Technology Promotion Centre, C-DAC, Thiruvananthapuram from reputed firms / companies registered in India, with relevant experience / insights in the manufacturing / marketing / implementation of products through Transfer of Technology (ToT) and Licensing.

This document details about the product, terms and conditions for companies to propose their Expression of Interest and how to enter into Transfer of Technology (ToT) agreement based on the terms given herein.

## 2. Brief about C-DAC

Centre for Development of Advanced Computing (C-DAC) is the premier R&D organization of the Ministry of Electronics and Information Technology (MeitY), Govt. of India for carrying out R&D in IT, Electronics and associated areas. It is a national Centre of Excellence, pioneering application-oriented research, design and development in Electronics and Information Technology.

The Centre has contributed significantly to the growth of the industry in general and the electronics sector in particular through the indigenous development of commercially viable systems and products, foreign technology absorption, adaptation and upgrades, consultancy and training and turnkey implementation of contract projects. The Centre has several firsts to its credits and is the recipient of prestigious national level awards for excellence in application- oriented R & D.

The Mission mode programmes of C-DAC include High performance computing, grid and cloud computing, Multilingual computing & Heritage Computing, Professional Electronics, VLSI and Embedded systems, Software technologies, Cyber Security & Cyber Forensics, Health Informatics, Intelligent Transportation Systems and others.

## 3. Brief description about the technology to be transferred

Online sucro crystal imaging system (OSIS) collects massecuite samples from the crystallization pan, measure crystal size and monitor crystal growth rate during the crystallization process in the sugar industry. Online sucro crystal imaging system performs the automated measurement of crystal size distribution parameters in the massecuite using classical image analysis techniques. The measurement of the crystal size distribution is a key requirement in optimizing the growth of sugar crystals in crystallization pans or for the quality control of the final product. The system collected massecuite samples and captured images at different process phases using an automated sample-collecting mechatronic system with a sample cartridge. Crystal Analysis Software is used to find the crystal boundaries from the images of massecuite and classify crystals as overlapping

and non-overlapping. The quality of sugar and optimal control of sugar crystal growth during the crystallization stage depends on the “coefficient of variability” of crystal size distribution. Crystal Analysis vision-logic is used for measuring crystal sizes distribution parameters like Average crystal size and Coefficient of Variation (CV).

Salient features of the OSIS system are

- Simple design and rugged construction, suitable for the pan floor environment
- Direct mounting on the pan wall by welding a flange for OSIS.
- Body and mounting flange in stainless steel
- Smart camera with microscope optics
- Local controlled automatic flushing valve for cleaning of viewing glass field, using hot water / steam
- Provides real-time information essential to prevent the formation of agglomerates and false grains
- Crystals observed from 5-micron size and throughout the strike
- Processed crystal image and other parameters shown on a local TFT display
- The observed crystal size is converted into Analog signal format.

The snapshot of the product is shown in Fig.1:



Fig. 1. OSIS- Online sucro crystal imaging system

## Brief Specification

<b>Displayed parameters</b>	
Crystal Image	Picture
Average Crystal Size	Numerical display in microns
Crystal Size distribution	Chart
Operation status	Labelled LED
<b>Functions</b>	
Operation mode	Auto Switch
Crystal Analysis	Computer Vision and Machine learning algorithm
Operating on UI	Touch panel
<b>Smart Camera</b>	
iVIS Smart	C-DAC
Sensor type	CMOS
<b>Lens Module</b>	
Lens mount	C-Mount
Pixel Size	0.5 $\mu\text{m}$
Type of lens	50mm F2.8 Manual Iris C-Mount Lens
<b>Imaging</b>	
Sampling Rate	5 FPS
Resolution	1920*1080
Focal Length	90 mm
Tool Suite	IVDT (for programming only)
<b>Control Valves</b>	
Electrical Actuator Operated 2 Way Ball Valve	
IVIS IO expander module	C-DAC
<b>External interface</b>	
Ethernet	TCP/UDP
IO Channels	2 Nos., Analog Output (4 – 20mA)
Display	TFT touch display, Analog indicator
<b>External Features</b>	
Unit Size (L x W x H)	42 x 88 x 100cm
Net Weight (kgs)	80
Degree of protection	IP-55
Case material	SS
Power supply voltage	230V AC
Current consumption	5A
Indicator lamps	Yes

### **Operating conditions**

Temperature range	0 to 65°C
Pressure range	-1 to 1 bar
Humidity range	40 – 70% RH

## **4. Invitation for Expression of Interest**

- 4.1. C-DAC invites “Expression of Interest” (EOI) in the format given in Annexure-1 (Part A & Part B). Companies can become TOT partner of C-DAC based on the information furnished in Annexure – I, subject to the assessment by the C-DAC.
- 4.2. Expression of Interest (EOI) also seeks from interested industry vendors to offer the best price for onetime TOT licensee subscription cost for all the listed items.
- 4.3. The minimum base price for the TOT of OSIS has been finalised by the TOT Committee (constituted by the Competent Authority) as per the terms of reference finalised by C-DAC. The vendor offering the highest price in a category shall be designated as H1 price. If the value of H1 price is more than the minimum base price finalised by C-DAC, then H1 bid shall be considered as the final price under that category. If the value of H1 bid is less than the minimum base price finalised by C-DAC, then the base price finalised by C-DAC shall be considered as the final price under that category.
- 4.4. This invitation of EOI will be open till **23/06/2023**. No companies can offer the price for this product in this EOI invitation after the EOI closure date. The financial bids received till the last date of EOI shall only be evaluated to arrive at the final cost of TOT license.
- 4.5. If there are no respondents to the EOI, the base cost already finalised by the TOT Committee shall be fixed as the license cost for the TOT.
- 4.6. Interested companies may submit the expression of interest (see section 5.0 and section 6.0)
- 4.7. The EOI bids received from the vendors shall be evaluated to discover the best H1 bid.
- 4.8. After the evaluation, the cost finalised by C-DAC for the TOT will be informed to all the bidders who have participated in the EOI.
- 4.9. The draft ToT agreement will be shared with the eligible company. If the company agree to the terms and conditions of the agreement, the agreement can be signed after payment of the onetime TOT license fee as stipulated in the payment terms for that product. The company then become eligible for procurement of licenses for the prescribed period from C-DAC.
- 4.10. Participation in this EOI does not guarantee any association with C-DAC, unless the agreement is signed.
- 4.11. The technology is offered on non-exclusive basis.
- 4.12. The submission of the EOI shall include all such documents that are specified herein to prove the authenticity of their offer and any claim made therein. All cost and expenses associated with submission of EOI shall be borne by the bidder while submitting the EOI and C-DAC shall have no liability, in any manner in this regard, or if it decides to terminate the process of short listing for any reason whatsoever.
- 4.13. C-DAC reserves the right of rejecting any offer without assigning reasons.

4.14. There is neither a business guarantee nor any commitment for funding support from C-DAC to the selected TOT partner.

## 5. Who can Apply

Any Indian Company including MSMEs or Start Ups and existing ToT partners of C-DAC willing to acquire licenses, market, sell and implement the “OSIS” product can apply.

## 6. How to Apply

Interested companies may send expression of interest by filling the template as per Annexure – 1 along with supporting documents to

**Head, Technology Promotion Centre**

Centre for Development of Advanced Computing (C-DAC)

Vellayambalam, Thiruvananthapuram, Kerala, India, 695033

Phone: 0471 2727508 Fax: 0471 2723456

Email: [tpc@cdac.in](mailto:tpc@cdac.in) Website: [www.cdac.in](http://www.cdac.in)

## 7. TOT Agreement (How to Subscribe)

- 7.1. The TOT partner is selected based on the expression of interest submitted by interested companies.
- 7.2. If selected, the company shall pay onetime TOT license subscription fee and sign the TOT agreement to become TOT partner of C-DAC. One time TOT license subscription fee finalised by C-DAC shall be informed to all the bidders who have participated in the EOI.
- 7.3. C-DAC shall sign the technology transfer agreement with the company on receiving the onetime TOT license subscription fee as stipulated in the payment terms.
- 7.4. The license will be granted on Non-Exclusive basis.
- 7.5. No TOT partner will be allowed to quote for any projects based on the above charges unless he enters into an agreement with C-DAC and pays the one time TOT license subscription fees. The subscription fees are non-refundable. In case any party offer /quotes the rates without an agreement with C-DAC, C-DAC will not honour the rates/ will not give the ToT to such party.

## 8. One time TOT license Subscription Validity & Renewal of TOT agreement

- 8.1. Payment of one time TOT license fee grants the partner, subscription validity for a period of **3 years** from the date of signing of the agreement
- 8.2. For continued support beyond 3 years the partner shall be required to renew the ToT agreement by paying the **subscription charges of Rs. 2.00 Lakhs plus applicable taxes** before the expiry of valid subscription, which will be valid for a further extended period of two years.
- 8.3. If the renewal is initiated after the stipulated period, a fresh TOT agreement need to be signed by the company based on the EOI conditions prevailing at that time.

- 8.4. After five years (from the date of signing the ToT agreement) a new TOT agreement is to be signed by the company based on the EOI conditions prevailing at that time.
- 8.5. The partner should have a valid TOT subscription license for providing any technical support on the TOT deliverables made by C-DAC.
- 8.6. Any customisation requirements of the TOT partner shall be entertained by C-DAC only if a valid TOT subscription exists. Such customisations shall be undertaken by C-DAC at cost basis on mutually agreed terms and conditions.

## **9. C-DAC Deliverables**

- 9.1. On payment of one-time license fee and signing of ToT agreement, the following list of items shall be provided by C-DAC to the TOT partner for production, product marketing support and PoC demonstration.
  1. Technical manual
  2. Installation manual
  3. Mechanical Drawings
  4. Sourcing Details
  5. Assembly Details
  6. Bill of Materials
  7. Binary Files
  8. Wiring Diagram
  9. Test plan & Procedures
  10. Training

## **10. Training for TOT Partners**

- 10.1. C-DAC shall arrange one day product level introductory training to the ToT partner at C-DAC, Thiruvananthapuram Centre (C-DAC(T)) after signing of TOT agreement.
- 10.2. Upon 100% payment of one time TOT subscription license fee detailed production level training and on application development of OSIS shall be provided up to three working days.
- 10.3. The training will be conducted at C-DAC(T) premises.
- 10.4. The travel and boarding and lodging expenses of the trainee(s) during the period of training shall be borne by the ToT partner.
- 10.5. For training requested outside C-DAC(T) premises air travel, boarding and lodging charges of C-DAC(T) officials shall be borne by the ToT partner. C-DAC shall also charge manpower as per C-DAC rules prevailing at the time of training for outstation training. Nomination of the C-DAC trainers and period of stay for outstation training will be decided by C-DAC on mutual consultation, depending on the type of training requested.
- 10.6. Additional training may also be given by C-DAC either at the premises of C-DAC (T) or at the location identified by the ToT partner on payment basis at mutually agreed terms and conditions.



## **11. Field implementation support**

- 11.1. C-DAC(T) shall provide support to the ToT partner for installation and configuration of OSIS during the license period on case-to-case basis upon mutually agreed terms and conditions.
- 11.2. If any onsite support is requested by the ToT partner, C-DAC(T) shall support on mutually agreed terms and conditions.
- 11.3. For onsite support outside C-DAC premises travel, boarding and lodging charges of C-DAC (T) officials shall be borne by the ToT partner. C-DAC shall also charge manpower as per C-DAC rules prevailing at the time of support request for outstation support. Size of the C-DAC team and period of stay for outstation support shall be decided by C-DAC(T) on mutual consultation, depending on the type of support requested.

## **12. Direct implementation by C-DAC**

- 12.1. C-DAC reserves the right to implement OSIS solution directly at sites where C-DAC is awarded orders for implementation directly by the end user.
- 12.2. If C-DAC is implementing OSIS directly, then the cost at which C-DAC will be offering the solution to the end user will be 140% of the product cost finalised by C-DAC as part of ToT.

## **13. Payment terms for One Time TOT subscription License and Software subscription License**

- a) Indian Companies including MSME shall pay the one-time TOT fee in two instalments. First instalment of 60% plus applicable taxes shall be paid upon signing the agreement and balance 40% plus applicable taxes should be paid at the time of the handover of TOT deliverables
- b) Start-up companies shall pay the one-time TOT fee in three instalments. First instalment of 30% plus applicable taxes shall be paid on signing the agreement. Second instalment of 30% plus applicable taxes shall be paid at the time of handing over of all hardware manufacturing documents and the balance 40% plus applicable taxes should be paid at the time of handing over of all remaining TOT deliverables including software for operationalizing the hardware resource. The payment of 3rd instalment shall be completed within 12 months period of payment of first instalment.
- c) The product activation license key shall be procured by the company from C-DAC for each unit manufactured and sold to the client on payment of royalty charges.

**For any queries please contact:**

Section Head (Technology Promotion Centre)

Vellayambalam, C-DAC, Thiruvananthapuram

Contact: 0471 2727508, 0471 2723333 (extn: 220/450),

email: [tpc@cdac.in](mailto:tpc@cdac.in)

## Annexure –I (Part-A)

### Company Profile of the bidder

A.	Company Profile
1.	Name of the Organization: Website:
2.	Name of the Contact Person: Address: Mobile: Landline: Fax: E-Mail:
3.	Year of Incorporation:
4.	Type of Organization a. Public Sector/ Limited/Private Limited/ Partnership/Proprietary/ Society/ Anyother b. Whether 'Foreign Equity Participation (Please give name of foreign equity participant and percentage thereof) c. Names of Directors of the Board/ Proprietors d. Name and address of NRI(s), if any
5.	Category of the firm: Large/Medium/Small scale unit / Others
6.	Address of the Registered Office: (Include Certificate of Registration)
7.	Number of Offices with addresses (Excluding Registered Office): India, ..... Abroad:.....
8.	Certificate of registration as a manufacturing unit
9.	Permanent Account Number
10.	GST Reg. No.
11.	ISO or any equivalent Certification

**Annexure – I ( Part B)****Technical Collaborations of the bidder**

<b>B.</b>	<b>ESSENTIAL REQUIREMENTS</b>
1.	The organization must be a reputed firm/company/SME/startup/R&D company incorporated in India
2.	The turnover is to be supported by financial statements of accounts/ Annual reports duly certified by a Chartered accountant/ Balance sheets of last 3 years/ Income tax returns for the last 3 years period.
3.	Company profile, giving details of current activities and management/ personnel structure including evidence of incorporation. The company should be registered and ISO or equivalent certified.
4.	Details of absorption of technology for a product/knowhow that has been taken up on production scale in the past may also be given
5.	The manpower strength (Technical: Mechanical, Electrical, Electronics, Software & Non-Technical etc.) at various levels to be furnished Technical: a. B.E./ B.TECH/PhD b. DIPLOMA c. SKILLED TECHNICIANS d. UNSKILLED
6.	The list of machine tools /equipment/software/facilities available related with work to be furnished.
7.	The in-house technological expertise available to be furnished
8.	The list of equipment available for inspection and quality control to be furnished.
9.	The industry should have adequate space for undertaking this work. Available space - Covered & Open and location details to be furnished.
10.	List of products/technologies worked with as regular activity in last three years. Give the list of products/technologies with general specifications and the customers.
11.	List of PSUs/Govt. customers – with contact details (Address, Telephone no., Contact Person)
12.	The details of sales, marketing and maintenance network to be furnished
13.	The list of technical collaborators for various ongoing products may be furnished
14.	The bidder shall provide details of the sub-vendors in case they propose to employ for Part-work.
<b>C.</b>	<b>Expression of Interest: Spell out the extent of interest and envisaged market potential</b>

I hereby declare that the above information is true to the best of my knowledge.

Signature with Name & Seal:

Place:

Date:

**Annexure-III Financial Bid Format**  
(To be submitted in sealed envelope / by mail)

**Price bid for One Time TOT License Subscription cost & Royalty Fee**

		<b>Category -I</b>	
<b>Sl. No.</b>	<b>Product</b>	<b>One Time ToT Fee (Rs.)</b>	<b>Royalty Fee (Rs.)</b>
<b>1</b>	<b>Online sucro Crystal Imaging System</b>		