

The Centre for Development of Advanced Computing

The Centre for Development of Advanced Computing (C-DAC) is a national initiative to mobilize its indigenous human and technical resources in a bid to attain technological competency in the evolving arena of Information Technology and proliferate its inherent benefits towards the advancement of its citizens as well as society. Towards this drive, C-DAC has been actively involved in the design, development and deployment of electronics and advanced Information Technology (IT) products and solutions since its establishment in March 1988 by the Government of India as a Scientific Society of the Ministry of Communications and Information Technology (formerly the Department of Electronics).

In a decade and a half since its inception, C-DAC has established its brand image as a premier R & D institution of national and international repute working in advanced areas of electronics and information technology and developing and deploying IT products and solutions for diverse economic sectors. The technologies that C-DAC has dealt with are High Performance Computing (HPC), Natural Language Processing (NLP), Artificial Intelligence (AI), e-Learning, Multilingual-Multimedia Computing, Geomatics, Cyber Security, Real Time Systems and Software, Data Warehousing, Data Mining, Digital /Broadband Wireless Networks, Scientific Modeling & Visualization. The key sectors addressed by C-DAC are Finance, Healthcare, Power, Steel, Defence, Telecom, Agriculture, Industrial Controls, Broadcasting, Education and e-Governance.

Pioneers of the OpenFrame Architecture and acknowledged globally for its PARAM series of Supercomputers, C-DAC has applied its High Performance Computing and Communication (HPCC) expertise to the fields of Computational Atmospheric Sciences, Computational Fluid Dynamics, Computational Structural Mechanics, Seismic Data Processing, Bioinformatics, Quantum Chemistry, Ab-initio Molecular Dynamics, Imaging, Financial Modeling and Decision Support Systems. These applications on PARAM supercomputers are powered by C-DAC's interconnect switch PARAMNet providing high speeds and low latencies and its HPCC software suite, designed to provide Flexible, Parallel and Distributed Software environment for Linux and Unix Clusters.

C-DAC's relentless R&D effort in the HPCC area has led to the setting up of the National PARAM Supercomputing Facility (NPSF) at Pune, and C-DAC's Terascale Supercomputing Facility (CTSF) at Bangalore, which houses the PARAM Padma, with a peak computing power of One Teraflop.

C-DAC's Language Technology mission has helped to create a framework for the co-existence of all the living languages of the world, with diverse scripts, on standard computers. In this initiative, C-DAC evolved the Graphics and Intelligence based Script

Technology (GIST) to proliferate the benefits of Information Technology to the vast and diversified multilingual population of India.

C-DAC has continuously developed and provided a number of advanced products for the use of computers in Indian languages as well as foreign languages for hundreds of thousands of users.

A wide range of products have been developed for office automation, word processing, publishing, e-mail, internet application, web content creation like the GIST Card with PCI interface, LEAP Office 2000, iLEAP, ISM 2000, LISM, Urdu NASHIR, iPlugin, GIST SDK, LEAP Mail, OCR (Chitrangan), LEKHIKA, Parallel Corpora, Hindi Dictionary (VISHWA KOSH), OCR in Hindi, Indix (LINUX localized in Hindi), Multilingual Internet Chat/Search Engine, Sanskrit Authoring Tool (DESIKA), Text-to-Speech (prototype), Teleprompter, Move CG, MANAS, Shaili, Dnyaneshwari and so on.

As the era of a digital economy evolves, the concept of e-Governance assumes greater significance. Recognizing the importance of e-Governance and capitalizing on our skills and technologies developed over the years, C-DAC has taken major initiatives by developing systems for Land Management and GIS based Planning, Telephone Revenue billing, Computerization of Municipal Corporations, Election Commission, Stamps and Registration, PWD, Seed Corporation, State Legislative Assembly, Hospital Information Systems, Electronic Commerce and other similar systems to address specific needs of government departments and organizations.

C-DAC established the Advanced Computing Training School (ACTS) in order to build and mobilize high quality and skilled manpower in the extremely fast moving sector of ICT. Through the ACTS, C-DAC offers a variety of specialized courses covering crucial domains of the IT industry. These include VLSI, Embedded System Design, Enterprise System Management, Bioinformatics, Geomatics, Digital Multimedia, Business Computing and Computer Software Development. Specific Masters training courses in Computer Science, Information Technology, Electronic Product Design are also offered by C-DAC.

C-DAC has made a foray into the area of new education methodology with e-Vidyapeeth, an in-house 'Learning Management System' and e-Learning infrastructure product, with the objective of transforming the Internet into a powerful environment for teaching and learning.

C-DAC as an institute of fundamental R&D, in its new unified framework seeks to strengthen its brand equity and create a higher value for its activities in contributing to the economy and society at large. The key focus areas of R&D at its Centres of Excellence have been identified to lead the initiatives in the areas of High Performance Computing, Bioinformatics, Cyber Security, Embedded Systems, Real-Time Systems and Software,



Geomatics, Multilingual and Multimedia Computing, Digital / Broadband Wireless Networks, Open Source Software and ICT for Healthcare, Agriculture and Education.

As C-DAC strives to reinvent itself every few years to stay in tune with the expectations of its stakeholders and technology, it is a C-DAC reborn and strengthened that shall now define the terms of success both for itself and the nation. The opportunities have been identified, and C-DAC stands firm on its commitment to deliver.