Results Framework Document (RFD) in the context of Performance Monitoring and Evaluation System (PMES)
for
C-DAC

2013-14

Centre for Development of Advanced Computing (C-DAC)

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SECTION 1

Vision, Mission, Objectives and Functions of C-DAC

About C-DAC

C-DAC is positioned as a multi-disciplinary, core research and development (R&D) institution for the design, development and deployment of advanced IT products and technologies, particularly meeting the needs of scientific community, industry and society. It is an R&D society under the Department of Electronics and Information Technology (DeitY) of the Ministry of Communications and Information Technology (MoCIT). C-DAC has a strong knowledge base spread across the country at its ten R&D centres in Bengaluru, Chennai, New Delhi, Hyderabad, Kolkata, Mohali, Mumbai, Noida, Pune and Thiruvananthapuram with the Corporate Office at Pune.

Vision

Emerge as the premier R&D institution for the design, development and deployment of electronic and ICT technologies and applications, for socio-economic advancement.

Mission

- Expand the frontiers of Information and communication technologies.

- Evolve technology solutions –architectures, systems and standards for nationally important problems.

- Achieve rapid and effective spread of knowledge by overcoming language barriers through application of technologies.

- Share our experience and know-how to help build advanced competence in the field of Information Technology.

- Bring benefits of Information Technology to society.

- Utilize the Intellectual Property generated by converting it to business opportunity

Objectives

1. Enhance R&D capabilities in strategic and cutting edge ICTE technologies

2. Innovate, develop and deploy solutions

3. HR development in core competency areas

4. Repositioning C-DAC

Functions of C-DAC

In line with the above objectives, C-DAC is currently focusing on following areas:

Objective 1: Enhance R&D capabilities in strategic and cutting edge ICTE Technologies

1.1 High Performance Computing & Communications

- Includes Grid computing, Cloud Computing, High Performance Computing and their applications

1.2 Develop competencies in emerging areas

Objective 2: Innovate, develop and deploy solutions

2.1 Cyber Security

- Cyber Forensics, Intrusion Prevention and Detection, Network Security, Biometrics

2.2 Multilingual Computing

- Machine Aided Translation, Speech Recognition and Synthesis, Information Retrieval.

2.3 Professional Electronics

- Digital Broadband, Wireless Systems, Network Technologies
- Power Electronics, Real-Time Systems, Control systems
- Traffic Engineering
- Embedded Systems, VLSI/ ASIC Design
- Agri Electronics

2.4 Software Technologies

- Open source software, Accessibility, Geomatics, Ubiquitous Computing, E-learning, E-governance, Digital Preservation, Perception Engineering, Mobile Computing, Health Informatics and ICT for social development.

Objective 3: HR development in core competence areas

3.1 Design and conduct a number of specialized courses in areas of importance in line with the chosen areas of focus, for human resource development.

3.2 Contribute to enhance the employability of Electronics & IT graduates, through our finishing school programmes.

3.3 Training activities for Skill Development

Objective 4: Repositioning C-DAC

4.1 Review the current R&D and educational activities, chart out a road map with clearer focus and aligned with policies and directions of DeitY.

SECTION: 2
Inter se **Priorities among Key Objectives, Success indicators and Targets**
(1st April 2013 - 31st March 2014)

Objective	Weight	Actions	Success Indicator	Unit	Weight	Target/Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
Objective 1: Enhance R&D capabilities in strategic and cutting edge ICTE technologies	35	**Action 1 :** Enhance HPC systems and applications capabilities	HPC systems deployed/ upgraded	Nos	15	1	1	0	0	0
			HPC applications ported/developed on deployed/ upgraded systems	Nos	10	3	2	1	0	0
		Action 2 : Initiate/Execute projects in strategic and cutting edge areas	Number of Projects initiated	Nos	15	11	10	9	8	6
			Number of Projects completed on time in a year	Nos.	4	3	2	1	1	0
			Number of projects closed during the year	Nos.	6	6	5	4	3	2
		Action 3 : Generation of IPR and dissemination of research results	Research Papers / Publications	Nos	15	55	50	45	40	35

Objective	Weight	Actions	Success Indicator	Unit	Weight	Target/Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
			Number of Patents filed	Nos	10	7	6	4	3	2
		Action 4: Development of Cloud Computing Framework	Operationaliza-tion of Cloud Infrastructure	Nos	15	1	1	1	0	0
			Cloud Applications developed	Nos	10	5	4	3	2	1
Objective 2 : Innovate, develop and deploy solutions	25	**Action 1 :** Develop e-Security Solutions	Number of e-Security Solutions Developed	Nos	10	5	4	4	3	2
		Action 2 : Enable computing to reach Indian masses through development of tools and applications with Indian language and mobile support	Tools and Technologies developed	Nos	15	8	7	5	3	1

Objective	Weight	Actions	Success Indicator	Unit	Weight	Target/Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
		Action 3 : Develop capabilities in professional electronics, VLSI and embedded systems	Number of proto types developed/ Technology demonstrated/ Number of Systems deployed	Nos	15	9	8	7	6	5
		Action 4 : Proliferate BOSS Linux deployment specific to education & research	BOSS Linux deployment	Nos	15	70000	65000	60000	50000	40000
		Action 5 : Build research prototypes in Software Technologies	Number of prototype systems developed	Nos	10	8	7	5	3	2
		Action 6 : Enhance research to reality translation	Number of Transfer of Technologies	Nos	10	5	4	3	2	1
		Action 7 : IEBR generation	Generation of External Budgetary Resources (EBR) and Internal Revenue	Rs. in Crores	25	269	242	215	188	161

Objective	Weight	Actions	Success Indicator	Unit	Weight	Target/Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
Objective 3: Human Resource Development in core competency areas	13	**Action 1 :** Conduct specialized courses and finishing school programmes	Students trained	Nos	55	6000	5500	5000	4500	3000
		Action 2: Conduct training activities for Skill Development	Persons trained	Nos.	10	15000	12000	10000	8000	6000
		Action 3: Enhance Intellectual Property Creation in India	Number of Ph.D.	Nos	25	4	3	2	1	0
		Action 4: Enhance capabilities in the area of e-Security	Number of International Certifications in the area of e-Security	Nos	10	3	2	2	2	1
Objective 4: Repositioning of C-DAC	16	**Action 1 :** Evolve a new structure for C-DAC	Percentage of completion of structure document	%	50	100	90	80	70	50
		Action 2: Implementation of the proposed	Percentage of implementation of proposed	%	50	80	60	50	40	30

Objective	Weight	Actions	Success Indicator	Unit	Weight	Target/Criteria Value				
						Excell ent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
		structure	structure							
Mandatory Success Indicators										
Efficient Functioning of the RFD System	3	Timely submission of Draft RFD (2013-14) for approval	On-Time Submission	Date	2	May 15, 2013	May 16, 2013	May 17, 2013	May 20, 2013	May 21, 2013
		Timely submission of Results for RFD (2012-13)	On-Time Submission	Date	1	May 1, 2013	May 2 2013	May 5, 2013	May 6, 2013	May 7, 2013
Administrative Reforms	4	Implement ISO 9001 as per the approved action plan	% Implementation	%	2	100	95	90	85	80
		Prepare an action plan for Innovation	On time submission	Date	2	July 30, 2013	Aug 10, 2013	Aug 20, 2013	Aug 30, 2013	Sept 10, 2013
Improving Internal Efficiency/ responsiveness/ service delivery of Ministry/ Department	4	Implementation of Sevottam	Independent Audit of Implementation of Citizen's Charter	%	2	100	95	90	85	80
			Independent Audit of implementation of public grievance redressal system	%	2	100	95	90	85	80

SECTION: 3
Trend Values of Success Indicators

Objective	Actions	Success Indicator	Unit	Actual Value for FY 11-12	Actual Value for FY 12-13	**Target Value for FY 13-14**	Projected Value for FY 14-15	Projected Value for FY 15-16
Objective 1: Enhance R&D capabilities in strategic and cutting edge ICTE technologies	**Action 1 :** Enhance HPC Systems and applications capabilities	HPC systems deployed/ upgraded	Nos	2	1	1	2	2
		HPC applications ported/developed on deployed/ upgraded systems	Nos	2	3	2	2	3
	Action 2 : Initiate/Execute projects in strategic areas and cutting edge areas	Number of Projects initiated	Nos	10	10	10	11	12
		Number of Projects completed on time in a year	Nos	NA	0	2	3	4
		Number of projects closed during the year	Nos.	NA	0	5	6	7

Objective	Actions	Success Indicator	Unit	Actual Value for FY 11-12	Actual Value for FY 12-13	**Target Value for FY 13-14**	Projected Value for FY 14-15	Projected Value for FY 15-16
	Action 3 : Generation of IPR and dissemination of research results	Research Papers / Publications	Nos	20	45	50	55	60
		Number of Patents filed	Nos	-	5	6	7	8
	Action 4: Development of Cloud Computing Framework	Operationaliza-tion of Cloud Infrastructure	Nos	0	0	1	1	1
		Cloud Applications developed	Nos	0	3	4	5	6
Objective 2 : Innovate, develop and deploy solutions	**Action 1 :** Develop e-Security Solutions	Number of e-Security Solutions Developed	Nos	2	4	4	5	6
	Action 2 : Enable computing to reach Indian masses through development of tools and applications with Indian language and mobile support	Tools and Technologies developed	Nos	4	7	7	8	9

Objective	Actions	Success Indicator	Unit	Actual Value for FY 11-12	Actual Value for FY 12-13	**Target Value for FY 13-14**	Projected Value for FY 14-15	Projected Value for FY 15-16
	Action 3 : Develop capabilities in professional electronics, VLSI and embedded systems	Number of proto types developed/ Technology demonstrated/ Number of Systems deployed	Nos	4	6	8	9	10
	Action 4 : Proliferate BOSS Linux deployment specific to education & research	BOSS Linux deployment	Nos	50000	65000	65000	70000	75000
	Action 5 : Build research prototypes in Software Technologies	Number of prototype systems developed	Nos	6	6	7	8	10
	Action 6: Enhance research to reality translation	Number of Transfer of Technologies	Nos	1	3	4	5	6
	Action 7 : IEBR generation	Generation of External Budgetary Resources (EBR) and Internal	Rs. in Cror es	243	205	242	254	270

Objective	Actions	Success Indicator	Unit	Actual Value for FY 11-12	Actual Value for FY 12-13	**Target Value for FY 13-14**	Projected Value for FY 14-15	Projected Value for FY 15-16
		Revenue						
Objective 3: Human Resource Development in core competency areas	**Action 1 :** Conduct specialized courses and finishing school programmes	Students trained	Nos	5000	5000	5500	6000	6500
	Action 2: Conduct training activities for Skill Development	Persons Trained	Nos.	NA	11185	12000	13500	15000
	Action 3: Enhance Intellectual Property Creation in India	Number of Ph.D.	Nos	3	2	3	3	3
	Action 4: Enhance capabilities in the area of e-Security	Number of International Certifications in the area of e-Security	Nos	-	-	2	3	4
Objective 4: Repositioning of C-DAC	**Action 1 :** Evolve a new structure for C-DAC	Percentage of completion of structure document	%	-	-	90	10	-

Objective	Actions	Success Indicator	Unit	Actual Value for FY 11-12	Actual Value for FY 12-13	**Target Value for FY 13-14**	Projected Value for FY 14-15	Projected Value for FY 15-16
	Action 2: Implementation of the proposed structure	Percentage of implementation of proposed structure	%	-	-	60	40	-

SECTION: 4

Description and Definition of Success Indicators and Proposed Measurement Methodology

Success Indicator (Ref: objective number, action number)	Description and Definition	Measurement Methodology
1.1.1 HPC systems deployed/upgraded	To cater to the needs of the user community, HPC systems incorporating latest technologies available from time to time, need to be made available. This can be achieved by building new systems or upgrading existing systems.	Number of systems deployed (new or upgraded)
1.1.2 HPC applications ported/developed on deployed/ upgraded systems	A major component of HPC challenge is in building important and useful applications to run on HPC systems. Therefore, number of applications e.g. atmospheric science, Computational Fluid Dynamics (CFD), etc. developed/ported on new/upgraded HPC setup provides a measure of our leadership in this area.	Applications/packages that have been made available on new/upgraded HPC systems
1.2.1 No. of projects initiated	Number of project ideas envisaged and converted to full proposal is an indication of our ability to harness our ICT competence for strategic areas.	Number of projects initiated in C-DAC during the year.
1.2.2 Number of Projects completed on time in a year	Number of projects competed on time brings out effective planning and execution.	Number of projects completed on time in a year

Success Indicator (Ref: objective number, action number)	Description and Definition	Measurement Methodology
1.2.3 Number of projects closed during the year	Number of projects closed during the year brings out the commitment from C-DAC in achieving the targets.	Number of projects closed during the year
1.3.1 Research Papers/Publications	Research Papers and publications are considered as proofs of innovation and research	Number of Research Papers published.
1.3.2 Number of Patents filed	Number of Patents filed during the year	Number of Patents filed during the year
1.4.1 Operationalization of Cloud Infrastructure	Cloud infrastructure enables hardware and software resources to be shared and made available to a user on-demand basis. Users are relieved of the burden of creating, maintaining and owning such infrastructure.	Number of cloud infrastructure operationalised.
1.4.2 Cloud Applications developed	Cloud-enabled applications enable sharing and use of hardware and software resources on-demand basis.	Number of cloud-enabled applications
2.1 Number of e-Security solutions developed	e-Security solutions help in making ICT products and solutions trusted and help in dealing with cyber crimes.	Number of e-Security solutions developed
2.2 Tools and Technologies developed	Tools and technologies developed in the area of machine translation, speech synthesis / recognition, transliteration, Indian language search, etc enable computing to reach Indian masses.	Number of tools and technologies developed..
2.3 Number of proto types developed/ Technology demonstrated/ Number of Systems deployed	Number of proto types developed/ Technology demonstrated/ Number of Systems deployed in the area of Power	Number of proto types developed/Technology demonstrated/ Number of Systems deployed

Success Indicator (Ref: objective number, action number)	Description and Definition	Measurement Methodology
	Electronics, Communications and Control System, Intelligent Transportation Systems and Strategic Electronics	
2.4 BOSS Linux deployment	Under initiatives of Open Source Software Deployment of Bharat Operating System Software (BOSS)	Number of installations/deployments
2.5 No. of prototypes systems developed	System prototype demonstrates the practical feasibility of an idea and paves the way for future commercial and large scale exploitation.	Number of prototype systems developed.
2.6 Number of Transfer of Technologies	ToTs signed with an industry partner	Number of ToTs signed during the year
2.7 Generation of External Budgetary Resources (EBR) and Internal Revenue	IEBR is the result of C-DAC's projects and solutions & training imparted and is therefore a demonstration of acceptance of our solution by the target community. Hence, revenue generation in this manner is a measure of success.	Quantum of funds (in Rs crores) received during the year, computed as per C-DAC's accounting policies.
3.1 Students trained	Number of students enrolled in various training programs run by C-DAC has been used as a success indicator for the HR development programs.	Number of students trained through the various courses
3.2 Persons Trained	Number of persons trained under Skill Development activity	Number of persons trained under Skill Development activity
3.3 Number of Ph.D.	Number of Ph.D.	Number of Ph.D. produced with C-DAC's support
3.4 Number of International Training/ Certifications in the area of e-Security	International Training/Certification (like SANS) under e-Security indicate	Number of members who have undergone International Training/Certification

Success Indicator (Ref: objective number, action number)	Description and Definition	Measurement Methodology
	the expertise in this area.	
4.1 Percentage of completion of structure document	State of document as percentage	State of document as percentage (20: draft; 50: approved by C-DAC MB; 80: approved by CC; 100: approved by GC)
4.2 Percentage of implementation of proposed structure	State of implementation as percentage	Percentage implementation of the ideas/changes proposed in the document

SECTION: 5

Specific Performance requirements from other Departments/Organizations for year: 2013-2014

Location Type	State	Organisation Type	Organisation Name	Relevant Success Indicator	What is your requirement from this organisation	Justification for this requirement	Quantify your requirement from this Organisation	What happens if your requirement is not met
Central Govt.	_	Departments	Department of Electronics and Information Technology (DeitY)	Funds and reviews	• Timely release of funds • Periodic review of progress	C-DAC is dependent on project based funding for R&D work	As per the project plan	Delays in implementations/completion of projects

Outcome / Impact of activities of organization

S.No	Outcome / Impact of Organization / RCs	Jointly responsible for influencing this outcome / impact with the following Organization (s) department (s) / ministry(ies)	Success Indicator	Unit	2011-2012	2012-2013	2013-2014 Target	2014-2015 Projected	2015-2016 Projected
1.	Generation of IPR within the country	Department of Electronics and Information Technology (DeitY)	No of research papers published/ patents filed	Nos	20	45	50	55	60
2.	Make available state-of-the-art technologies for Indian industries/academia	Department of Electronics and Information Technology (DeitY)	No of such organizations using C-DAC's technologies	Nos	25	40	45	50	55
3.	No. of student trained	Department of Electronics and Information Technology (DeitY)	Conduct specialized courses and finishing school programmes	Nos	5000	5000	5500	6000	6500