

The Background.

The *Free/Open Source Software (FOSS)* movement stands for freedom for the production, distribution, modification and use of software. A free and collaborative environment with open standards is best suited for large scale development and deployment of quality software, unleashing creativity and productivity, leading to lower costs and higher quality of SW/IT products and solutions.

FOSS is now well established, both as a Technology and as a way of creating Technology. Today's mainstream SW/IT Market has a broad range of Open Source Tools, Technologies, Products and Solutions ; and they are there as much for reasons of lower cost as for technological superiority. Operating Systems, Data Bases, Web Servers, Data Base Servers, Internet&Web Technologies, Programming Languages, Applications of all types -- Open Source has them all.

Relevance and value of FOSS , especially to the Indian context, arise from the following, among other things:

- FOSS is low cost and affordable.
- FOSS makes design details & code freely available.
- FOSS is easy to modify & customise.
- FOSS products are getting robust and superior.
- FOSS & Open Standards prevent vendor-lockin
- FOSS helps eliminate use of un-licensed SW.
- FOSS embodies healthier and humane values.

Despite these inherent positives, FOSS still needs certain extent of support and patronage for it to fully realise its potential. It suffers from limited public awareness, absence of standards and inter operability norms, lack of FOSS trained Human Resources (HR), scarcity of proven business models, inadequate mainstream industry confidence, etc.

It was to help overcome some of these drawbacks of FOSS in our country that the D.I.T., C-DAC Chennai and Anna University Chennai came together in March 2005 to launch the NRCFOSS project.

The NRCFOSS Project

The NRCFOSS Project funded by the Dept. Of Inf. Tech., Govt of India, promotes FOSS in India with the twin goals of (i) helping to bridge the digital divide (ii) strengthening India's Software and IT industry.

NRCFOSS Phase – I (2005-09) was carried out by C-DAC Chennai and the AU-KBC Research Centre, Anna University Chennai. The main achievements of this phase were two:

- Development and Promotion of an Indian version of Linux Distribution named BOSS (Bharat Operating System Software) based on the Debian distribution (C-DAC Chennai), particularly for governmental and e-governance applications.
- Introduction of FOSS Elective Courses and Lab. Classes into the curricula of UG Engineering Programs (CSE/IT/MCA) in the country, along with Teacher Training, Text Book preparation, Student project support etc.

NRCFOSS Phase-II has commenced from May 2009 as a multiinstitutional project of the D.I.T. involving C-DAC Chennai, Anna University Chennai, I I T Madras, IIT Bombay, and the C-DAC centres at Mumbai, Hyderabad and Delhi – with C-DAC Chennai being the national coordinator. In pursuance of the project mission, these institutions carry out the following activities towards FOSS promotion in India:

- R & D on specific FOSS technologies & solutions such as operating systems, Compilers etc.
- Education and Certification in FOSS at the university and professional levels.
- FOSS Technology Development, Deployment, Promotion, Metric Development, Adoption assessment, etc.
- Creation of FOSS repositories and data bases for educational, training and research purposes.

NRCFOSS-AU, the Anna University Chennai unit of the NRCFOSS Project, focuses on the Education and Certification aspects of FOSS promotion, as elaborated below.

Objectives and Programs of NRCFOSS-AU

The primary objective of the NRCFOSS-AU part of the project (implemented by the AU-KBC Research Centre at the M. I. T. Campus of Anna University Chennai) is to help produce adequate number and quality of FOSS-trained Human Resources for our country. For this purpose, FOSS concepts and technologies will be introduced into the higher education and training processes and programs in the country, both in the formal as well as non-formal sectors.

Major activities involved are the following --

1. Human Resource Development in FOSS in the formal sector-- introducing FOSS in the Higher Education Curricula.

This consists of introducing FOSS Elective Courses, Labs and Projects into the college curricula, replacing proprietary packages used in education and training with their FOSS equivalents, mentoring students' projects in FOSS, conducting Workshops on FOSS products and solutions, offering internships to students, etc. NRCFOSS supports the universities in the introduction of FOSS Courses through syllabi preparation, teacher training, book writing, laboratory and training material preparation, etc.

2. Human Resource Development in FOSS in the non-formal sector – the FOSS Competency Certification Programme

NRCFOSS-AU will conduct Examinations and issue Competency Certificates to candidates in a number of FOSS subjects and at different levels of their mastery. This will provide the potential recruiter with a dependable and vendor-neutral assessment of the FOSS expertise level of a candidate. It enables working persons who are not a part of any formal educational institution to have his/her FOSS expertise evaluated and certified. These certificates signed by NRCFOSS-AU and Anna University Chennai are expected to serve as benchmarks of quality in this domain.

3. Development of a FOSS-based CSE/IT Engineering Degree Program.

Many of our CSE/IT/MCA graduates today are considered "unemployable" due to the poor quality of

education and training being imparted in most colleges in India. It is expected that this situation can be partly rectified by basing their education on the approaches, methods, tools and values evolved by the FOSS Movement. This will require significant re-working of the regulations, curricula and syllabi of the degree programs, and this is proposed to be attempted in a few universities on a pilot scale to test this hypothesis.

4. Development of a FOSS Maturity Model for Departments/Institutions/Enterprises

There are many metrics & tools for assessing the maturity levels of FOSS Products, as well as for quantifying the FOSS-friendliness levels of countries. Metrics & Tools are proposed to be developed in this project to quantify the 'maturity' levels of Departments/Institutions/Enterprises as regards their FOSS usage, awareness, policies etc.

5. Creation of FOSS Repositories and Banks

NRCFOSS-AU will contribute to this activity that is common to all the participating institutions.

As a part of the above programs, NRCFOSS-AU also takes up many allied activities such as the following:

- Promotion of established FOSS products of relevance to the educational field like Scilab, NS2, GRASS/QGIS, Koha, Blender etc, in addition to LAMP stack, Python Language, etc.
- Customisable corporate level FOSS Training and Certification to meet the specific HR needs of the industry.
- Helping researchers to open-source their work to achieve wider visibility for their findings, particularly in areas like language computing, bioinformatics, etc.
- Work with industry to build Educational portals, Cloud Computing platforms, etc. using FOSS.
- Promote the concept of FOSS Ecosystems involving the government, industry, community and academia that can promote FOSS in a sustainable manner in the country. Examples of France, Brazil etc are being examined and understood critically for this purpose.

NRCFOSS Implementing Agencies.

The NRCFOSS Project is being implemented by the following institutions:

- **Anna University Chennai**
 - C-DAC Chennai
(National Coordinator)
 - C-DAC Delhi
- C-DAC Hyderabad
- C-DAC Mumbai
- I. I. T. Bombay
- I. I. T. Madras

Contact NRCFOSS-AU:

AU-KBC Research Centre
(www.au-kbc.in)

MIT Campus of Anna University
Chromepet, Chennai-600044

Phone: 044-22232711

Fax: 044-22231034

e-mail: ncfoss@au-kbc.in

visit us at:

<http://www.ncfoss.au-kbc.org.in/>

National Resource Centre for Free/Open Source Software (NRCFOSS)



Anna University Chennai

A Multiinstitutional Project

Coordinated by

C-DAC Chennai

Funded by

**The Dept. of Information Technology
Ministry of Comm. & Inf. Technology
Govt. Of India**

**AU-KBC RESEARCH CENTRE
Anna University Chennai**