Chapter-9

Availability and role of new techniques in computers for use of Official Language, teaching, training and translation
(Based on Oral Evidence program of Secretary, Department of Technology by the Committee on 31.08.2006)

9.1   Growth whether it is economic, industrial, cultural, social, scientific, etc is largely interdependent. A nation can not prosper if it gets developed only in one field. The all round development of a nation can not be achieved without its cultural and social growth. Linguistic growth is a vital component of cultural and social growth. Hindi is the tie that binds the beads of our rich and diverse culture. So to achieve sustained growth, strengthening of Hindi can not be neglected.

9.2   Before going into the details of Information Technology let us know about it. Information Technology generally includes the following:
  I.   Data Collection
 II.   Information
III.   Store-save
 IV.   Safety of Data
  V.   Conversion
 VI.   Communication
VII.   Study

The above functions are done by hardware and software.

9.3   We live in an age of Information Technology and other scientific research. Whether it is a village or a city almost all of them have been influenced by the Information Technology revolution. Most of the work in these areas is being done in English. On the other hand it is also true that the computer based internet is also available in Hindi. Even after 60 years of independence due to a mental block, latest scientific research and computer based knowledge is not available in Hindi in our country. While today even foreign companies are developing softwares in Indian languages because they too have realized that they can widen their reach only through Indian languages. Today Google is regarded as a big search engine universally. It too has facility of Hindi in its search engine. It understands that without adopting Hindi it can not fulfill its commercial needs in India. Microsoft, a leading company in the world too is developing software in Indian languages. According to an article published in the Hindi magazine Kadambini, February 2007 a Hindi cell has recently been formed under the chairmanship of Prof. S.C. Kaushik at the IIT Delhi that will perform Hindi studies, teaching and research. IIT is also feeling the need as more and more bright students from the backwards areas of the country qualify the entrance test, they initially face problem in understanding and speaking English. Many students in future want to do their research in Hindi.

9.4   Many IIT students and teachers feel that when highly technical studies can be done in languages like Chinese, Japanese etc then why it can not be done in Hindi or any other Indian language? It is true that in this age of globalization there is a need of knowing English and a student who comes to these institutions prepares for this but why he should feel that he is at a disadvantage and his admission in this premier institute is useless. Many students of engineering after qualifying class 12 come to these Institutions and their English in most of the cases are not good enough. The

use of Hindi will certainly benefit such students. In addition, if such students acquire high technical knowledge why shouldn't they impart it among their countrymen in their language?

9.5 All the achievements attained by India in the recent years would not have been feasible if we would not have incorporated and utilized the advancements made in one field into another. In other words proven expertise in one field acts as catalyst in the growth in other fields. One such catalyst is the use of computers and Information Technology. Information Technology has following specialties particularly for government work:

    (a)   Ability to perform repetitive nature of tasks with great accuracy and speed

    (b)   Ability to reuse/recycle performed tasks with modification

    (c)   Ability to archive for later reference and use

9.6 The whole world has recognized this potential of computers and has adopted it at all possible levels in all possible fields. Research and development to farther the sphere of its use is an ongoing process.

9.7 Today we can exchange information by contacting any person in any part of the world through a website on internet. In this age of Information Technology to connect common people and the government institutions it is important that all Ministries/ Departments/ Institutions/PSUs/Banks make all their information available in Hindi on their website.

9.8 The Committee is of the opinion that the softwares available in the offices of Central Government are in English. Oil Companies, Banks, Insurance companies, etc are using SAP, APS 2000++, I-LEAP, MS Office, MPS, JIST and software of other types. The number of staff working in Hindi on computer is very less. In the offices where complex network is used printed proforma in some places are though bilingual but most of the entries in them are done in English.

9.9 Unicode parameter is being widely used by the industrial world for development of multilingual software. Department of Information Technology, Ministry of Telecommunication and Information Technology are members of the faculty for ensuring adequate representation of Indic scripts in the Unicode parameters. Department of Information Technology has finalized changes in Unicode parameters and has submitted it before Unicode Technical Committee for including it in the parameter. Proposed changes which have qualified as per the specification policy of the Unicode have been included in the Unicode Parameter Version 4.0. Efforts are afoot to include other languages/scripts too like Lepchas etc.

9.10 A look at the special questionnaire of Oral Evidence of NIC held on 31.08.2006 reveals that in the last three years a total of 147 software packages were developed by NIC in which 114 were in English and only 33 were bilingual or in Hindi. The Committee believes that a standard font should be developed which can be used in the country and abroad and can be loaded in all types of software. Research work related to development of software should be done generally in Hindi. A standard Hindi key-board should be selected and it should be compulsorily loaded in all softwares.

9.11 National Informatics Centre (NIC) is responsible for computerization of almost all the Ministries/Departments in the country. According to the information received by the Committee websites of almost all the Ministries/Departments are being prepared by NIC. Materials related to websites are provided by the Ministries/Departments and the website is prepared by the NIC. To prepare the website in bilingual form the NIC has trained personnel and latest bilingual instruments are utilized in this direction. Ministries/Departments provide directions and information material, data

for development of website. Department of Official Language and some other departments have their websites completely bilingual (Annexure-I). Websites of other Ministries/Departments are either in English or partially bilingual (Annexure II). Concerned Ministries/Departments provide data/material for updating the website. The website is updated accordingly. Most of the Ministries/Departments provide data/material in English as a result most of the pages in the websites are in English.

9.12   There are some practical problems associated with Hindi websites which require immediate attention. They take time to open. They are lacking in aesthetics. The reason for this is that most of the institutions spend less amount on developing the Hindi website. Today aggressive marketing policy emphasizes on products that are interesting, relevant and enhance status. There is a need of modernizing Hindi websites. The Committee is of the opinion that just as the Government of India Press accepts only those materials for printing which is bilingual similarly NIC too should accept only bilingual material for developing the websites.

9.13   ERNET India, an institution of the Government of India unifies all the educational institutions in the country through internet. It imparts training in Hindi in Region 'A' and in other regions it is imparted in local languages. The trainings imparted by ERNET India alongwith local languages should also be in Hindi so Hindi knowing students too could benefit from them. Similarly, DOEACC is imparting OABC level training. Only the syllabus material of the above training of Triple C and O level has been translated in Hindi and that too has not been made available to the students. With these other material too needs to be made available in Hindi at the earliest.

9.14   Centre for Development of Advance Computing (C-DAC), under the Ministry of Information and Technology, is primarily an R & D institution involved in the design, development and deployment of advanced Information technology (IT) based solutions. Its repertoire constitutes of the following, alongwith others:

Lism (Linux based application for Indian languages)
CHITRANKAN (documentation made easy, digitally)
LEAP Office 2000 (Complete Indian Language Software)
ISM Office (Gets existing packages to work in Indian languages)
Apex Language Processor (Character based word processor)
GIST Terminal (The only solution for Indian Languages in Linux)
PCI GIST Card (A PC based PCI bus add-on card)
GIST Software development Kit (GIST SDK)
ISM Soft (ISM range for software developers)
NTrans (Name Translation aide for Custom Application)
GIST Shell (DOS based Application Tool)
GIST Card (Solution for Indian Languages on DOS)
GISTOra Tools (Server side data based Application Development Tool for the development and implementation of Indian Language enabled applications)
Glite (Glite is a light web application development tool)
G-JLET (Gist, Java Applet for typing in Indian Languages on web)
iplugin with Unicode
iplugin (Web Application Development Tool)
GIST Java Framework Architecture (Java enabled tool)
Indian Dynamic Fonts
LEAP Mail (eMail in Indian Languages)
LIPS Pro (Language Subtitling Solution)

Multiprompter Pro (Teleprompter for anchors and newsreaders)
MOVE CG Pro (Character Generator for broadcast, post production)
inDis Pro (Multilingual Online Ticker and Logo generator)
Web-LILA (Enabling Language Learning through web)
LILA (Learn Indian Language through Artificial Intelligence)
MANTRA (Machine assisted Translation tool)
Anveshak (Natural language Based Information Retrieval System)
Saranshak (Natural Language based summarizer)

Of the above technologies/software packages, the following requires a special mention:-

LILA
Learning Indian Language through Artificial Intelligence
These are Intelligent Self-Tutoring System which can be used to learn online Hindi by using a computer or a mobile.

MANTRA
Machine Assisted Translation Tool
MANTRA translates the English text into Hindi in a specified domain of Personal Administration, specifically Gazette Notifications, Office orders, Office Memorandums and Circulars.

Saranshak (the summarizer)
Saranshak is a Natural Language Based Summarizer.

VACHANTAR
The Vachantar is a speech-to-text translation system.
The user communicates with the application through the appropriate input device i.e. a microphone. Then it produces output in original Hindi text.

ANVESHAK (Quester)
Anveshak (The Quester) is a natural language based Information Retrieval system which can efficiently and accurately provide explicit information in natural language text to the question intended to be queried on a certain document.

Thus there are technologies in place for learning Hindi in interactive manner through LILA, original text creation in Hindi through the use of packages like LEAP Office, translation of existing information through MANTRA, summarizing through Saranshak, content creation through voice medium by using VACHANTAR-Rajbhasha and information retrieval through Anveshak.

9.15 Besides other software tools like Shabdkosh, Spell-checker, key-board layout, Unicode font of different Indian languages can be downloaded free of cost from Technological Development of Indian Language (TDIL) or can be carried in a Compact Disk. In addition, older version of the above software can be downloaded for the offices that uses older version of operating system in their computers.

9.16 Use of Unicode is very important for working in Hindi. Working in Hindi becomes easier through use of Unicode. Using Unicode Hindi typing can be done through conventional typewriters as well as Roman Keyboards.

To activate Unicode you can visit (www.rajbhasha.nic.in) and can click on 'How to activate Unicode'. There you can learn about how Unicode can be activated on different operating systems. These information are provided completely free of cost.

The Department of Official Language has begun to impart training of Leela Prabodh, Praveen and Pragya through internet. Besides, there are other websites for non-Hindi and Hindi speakers:
1. For Easy English Hindi Grammar- www.hindiwallah.com
2. For spoken Hindi free software are available- www.byki.com

In addition, Control Panel, Hindi Blogtips, Blogbukhar and Tech Preview are some blogs from where technical help can be received for working in Hindi.

9.17 Google has special online working facilities. Quillpad is a software where you can write in Hindi by typing Roman script. Besides, using transliteration one can work in Hindi. When you want to work online you can visit Google search and can activate transliteration where you can type in Hindi by typing on English keyboard. This could be very useful for Hindi translators. Here it is important to say that when there is a shortage of Hindi Typists in most of the offices and recruitment too is also not available, in such a situation if the translators are educated about this and also given some training on the computers knowledge of computers can be made mandatory for direct recruitment of the translators.

9.18 It is important to mention here that when work is being performed online in most of the Government offices the translated materials also can be vetted online that will save stationery.

During the period with effect from 01.04.2005 to 31.09.2010 number of offices inspected were 2095 where there are 177908 computers out of which bilingual software is installed in 163700 computers. On an average 43.84 % of total work done on computers is being done in Hindi.

9.19 Further, an oral evidence of the following departments/subordinate offices of the Ministry of Communication and Information Technology was organized on 31.08.2006:-
1. Department of Information Technology, New Delhi
2. National Informatics Centre, New Delhi
3. Centre for Development of Advance Computing (C-DAC), Pune
4. DOEACC Society, New Delhi
5. Software Technology Parks of India (STPI), New Delhi
6. ERNET India, New Delhi

9.20 The following issues came to light during the above Oral Evidence:
1. During the period 2003-06, 149 Software packages were developed by Department of Information Technology to aid the process of computerization of work in various Government Departments. Of these 114 were only in English, 30 were bilingual and only 05 were in Hindi.
2. Around 30 types of training courses are being conducted by Department of IT and its attached/subordinate offices. During the year 2005-06, total 104 programmes were organized by them and of these 26 were on fundamentals of computers with training material in Hindi and rest 78 programmes on other topics were having training material only in English.

3.	The expenditure on Hindi books during the year 2005 by the NIC was as low as 3.27% against mandatory 50%.

4.	The advertisements being issued by the C-DAC, Pune are solely in English (Most of their advertisements which invite applications for their training courses or are vacancy circulars)

5.	C-DAC, Pune is using 2000 computers of which only 250 are bilingual (rests 1750 are being used for software development).

9.21	Thus from the available facts, it can not be denied that despite having the resources and system in place and the potential to do so, the realization of goal of achieving 100% usage of Hindi work done on computers still remains unfulfilled.

On the basis of the above facts the Committee made amendments in its questionnaire of 31.08.2007 to collect information regarding software packages in various Government offices. The Committee inspected about 550 offices during 01.09.2007 to 31.12.2008. Only 165 (30%) offices were using softwares developed by C-DAC and the in the rest 70% offices were either using Hindi fonts of Microsoft or other softwares available in the market.

The problem area that has emerged from the available information can be divided and analyzed as follows:

9.22	**Reason for software developed by C-DAC not being effectively used:**

1.	Lack of knowledge about availability and usages of these softwares by consumers (government offices).
	Suggestions: An awareness program should be launched by the Ministry of Information Technology in all the Ministries of the Government of India which forwards information regarding this to the subordinate and concerned offices under them.

2.	Lack of training regarding the usages of software packages.
	Suggestions: There is a difference between doing Hindi typing on computers and having knowledge about software and working on them. Consumers should be trained regarding various specialties and utility of the software packages. It is not possible to train consumers individually but the software developing bodies like Ministry of Information Technology or C-DAC may consider launching training program for Trainers from Ministries/Departments so they can further impart training to consumers in Offices/Departments.

3.	The possibility of these softwares being of lesser quality than the available software packages in the market cannot be ruled out.
	Suggestions: To develop a software is a time consuming process where imagination, primary development, test of authenticity, balancing and its feasibility in various sectors need to be scrutinized. Testing the software is the most important step upon which success of the product depends. However thorough the test the experiences of the consumer is invaluable. So the experience of a consumer is important to remove any lacuna and its final release. Therefore, it is suggested that all the software developers (C-DAC and others) should start a process of feedback and on that basis should bring a change in its product according to their need so if any lacuna, if exits, can be removed.
	This type of target will be more acceptable to the customers and will enhance the usages of Hindi in day to day work.

9.23   Recommendations

1.   The Committee suggests that a standard font should be developed which can be used universally and that should be loaded in all softwares. In addition, a standard Key-board too should be finalized and loaded in all softwares.

2.   The Committee is of the opinion that the NIC should accept only those data/materials for developing website which is submitted to them in bilingual form.

3.   An awareness program should be started by Ministry of Information Technology in all the Ministries of the Government of India regarding availability of software developed by C-DAC. These Ministries will further spread knowledge about it in their subordinate offices and concerned offices. This should include specialties, utility and price of software packages.

4.   Training should be imparted to consumers about various specialties and utilities of a software package. It is not possible to train consumers individually but the software developing bodies like Ministry of Information Technology or C-DAC may consider launching training program for Trainers from Ministries/Departments so they can further impart training to consumers in Offices/Departments.

5.   Therefore, it is suggested that all the software developers (C-DAC and others) should start a process of feedback and on that basis should bring a change in its product according to their need so if any lacuna, if exits, can be removed.

6.   A special training programme on the above subjects including practical classes should be conducted by the Department of Official Language for the personnel of the Central Secretariat Official Language Services in the first instance; other Hindi officers should be similarly trained thereafter.

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Websites if Ministries/Departments Available in Hindi

SL No.   Ministry
1. Ministry of Coal
2. Ministry of Commerce and Industry
3. Ministry of Consumer Affairs, Food and Public Distribution
4. Ministry of Corporate Affairs
5. Ministry of Culture
6. Ministry of Defence
7. Ministry of Earth Sciences
8. Ministry of Environment and Forest
9. Ministry of External Affairs
10. Ministry of Finance
11. Ministry of Heavy Industries and Public Enterprises
12. Ministry of Home Affairs
13. Ministry of Housing and Urban Poverty Alleviation
14. Ministry of Information and Broadcasting
15. Ministry of Labour and Employment
16. Ministry of Micro, Small, and Medium Enterprises
17. Ministry of Mines
18. Ministry of Panchayati Raj
19. Ministry of Parliamentary Affairs
20. Ministry of Personnel, Public Grievances and Pensions
21. Ministry of Planning
22. Ministry of Railways
23. Ministry of Road Transport and Highways
24. Ministry of Shipping
25. Ministry of Social Justice and Empowerment
26. Ministry of Statistics and Program Implementation
27. Ministry of Steel
28. Ministry of Textiles
29. Ministry of Urban Development
30. Ministry of Water Resources
31. Ministry of Youth Affairs and Sports

Websites if Ministries/Departments Available in English

SL No.	Ministry
1.	Ministry of Agriculture
2.	Ministry of Chemicals and Fertilizers
3.	Ministry of Civil Aviation
4.	Ministry of Communication and Information Technology
5.	Ministry of Development of north Eastern Region
6.	Ministry of Food Processing Industries
7.	Ministry of Health and Family Welfare
8.	Ministry of Human Resource Development
9.	Ministry of Law and Justice
10.	Ministry of Minority Affairs
11.	Ministry of New and Renewable Energy
12.	Ministry of Overseas Indian Affairs
13.	Ministry of Petroleum and Natural Gas
14.	Ministry of Power
15.	Ministry of Rural Development
16.	Ministry of Science and Technology
17.	Ministry of Tourism
18.	Ministry of Tribal Affairs
19.	Ministry of Women and Child Development
20.	Department of Atomic Energy
21.	Department of Space