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Marketing and Networking of
Industrial and Technological
Information

Proceedings of UNIDO/KIRDI National Seminar

Organized by

The National Industrial Information Centre

2nd - 3rd December, 1997

at

Milimani Hotel, Nairobi, Kenya

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Acknowledgement

Introduction

The national seminar on "Marketing and Networking of Industrial and Technological Information" was held at Mililani hotel, Nairobi, Kenya from 2nd - 3rd December 1997. The National Industrial Information Centre, (NIIC) of the Kenya Industrial Research and Development Institute (KIRDI) organized the seminar with financial assistance from the United Nations Industrial Development Organization, (UNIDO).

The background to the seminar was the realization that the growth of industry, technology and investment is inextricably linked with information technology. It is thus a "sine qua non" for the developing countries, Kenya included, to get access to information networks in order to face the challenges arising in a competitive global economic scenario.

The exposure to a market economy is to encourage manufacturing enterprises to improve and standardize their products. In order to do this, it is important for manufacturers to have access to quality and adequate information for decision making, policy planning and for choice of right technology.

The advent of Internet has revolutionized the flow of information on industry, technology, investment, market opportunities, etc. The industrial information and its availability to the right people are therefore, crucial to industrial and economic growth of any nation.

The seminar was therefore, organized to bring together the relevant individuals and institutions to deliberate on pertinent issues relating to marketing and networking of industrial and technological information in support of industrial development. The participants for the seminar were drawn from a wide cross-section of institutions involved in the handling and dissemination of information.

The specific objectives of the seminar were to discuss issues related to: -

(i)   Marketing applied to industrial and technological information;
(ii)   Information products and services: Analysis of users' requirements, adequacy and quality of products and services;

(iii)   Delivering the goods: Dissemination of information products in the right form, at the right time and right place; information repackaging in relation to Internet;

(iv)   Promoting industrial and technological information products and services: Strategy for a marketing campaign.

During the two days' seminar, deliberations and presentations of papers by the resource persons, participants made useful contributions, which formed the basis of the recommendations, made at end of the seminar.

These proceedings contain a complete record of the seminar including official speeches, papers presented recommendations and plan of action.

Contents

ABBREVIATIONS AND ACRONYMS

ATMs	Automated Teller Machines
DARPA	US Defense Advanced Research Projects Agency
ELCI	Environmental Liaison Centre International
FAO	Food and Agricultural Organization of the United States
FTP	File Transfer Protocol
ICPs	Internet Connectivity Providers
IDRC	Industrial Development Research Centre
INTIB	Industrial Information for Technology Investment and Business
IP	Internet Protocol
ISPs	Internet Service Providers
IT	Information Technology
KENPAC	Kenya Packet Switching
KIPO	Kenya Industrial Property Office
KIRDI	Kenya Industrial Research and Development Institute
MSEs	Micro and Small Enterprises
NFPs	National Focal Points
NGOs	Non- Governmental Organizations
NIC	Newly Industrialized Country
R&D	Research and Development
SDI	Selective Dissemination of Information
SMEs	Small and Medium Scale Enterprises
TCP	Transfer Control Protocol
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific Cultural Organization
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency International Development
WANs	Wide Area Networks
WB	World Bank
WHO	World Health Organization
WWW	World Wide Web

MR. WAMATU NJOROGE

Permanent Secretary, Ministry of Research, Technical Training and Technology.

Opening Address

Mr. Chairman,
Distinguished guests,
Participants,
Ladies and gentlemen,

It gives me pleasure to be with you this morning to officially open this two-day seminar on industrial information marketing and networking.

I note that the main objective of the seminar is to promote user-awareness on information access potential and utilization of the Internet as the ultimate tool for information exchange, and above all commercialization of information products and services within information centres for their sustainability.

Mr. Chairman, recent changes in the global economy that have been characterized by the liberalisation of global trade, have presented enormous challenges to developing counties like Kenya. These changes have widened the range of products and industries resulting from innovative competition as opposed to conventional price competition.

In view of these challenges, Kenya must devise an appropriate infrastructure to ensure constant and timely flow of relevant industrial information to the industrial sector. This is necessary if we are to maintain competitiveness in the industrial market, while at the same time creating the much-needed employment for our people.

Kenyans are innovative as reflected in the ingenuity shown among the micro and small-scale industries. Attitudes to information and knowledge are very positive especially if the information has direct relevance to needs that are affordable and easily accessible. However, people have the tendency to give up the chase if the information is hard to find of if it is not easily affordable.

Mr. Chairman, with the globalisation of industrial activities, Kenya and Africa as a whole cannot afford to be left behind but should endeavour to identify itself positively on the "global information super highway". Today's industrial and commercial organisations will rely heavily on technological and information to support competitiveness, development and decision making.

In response to this need, the Government through the current National Development Plan (1997-2001), has announced its commitment to develop information resources and management to ensure access to specialised and professional knowledge, to the scientific, technical, industrial,

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commercial and economic information generated within the country and elsewhere in the world as a resource for development of all sectors of the economy. In the same vein, networking of existing institutions locally and internationally will be effected to ensure maximum resource utilisation and cost sharing. In particular, KIRDI should collaborate with the Kenya Industrial Property Office (KIPO) to strengthen their database on industrial processes.

The advent of "Internet" has revolutionised the information flow on industry, technology, investment market and a myriad of other areas.

Mr, Chairman, industrial information is crucial to economic growth. Hence the industrial enterprises in developing countries should take maximum advantage of the flow of data in order to adapt to new market conditions, choose the most appropriate technology and increase their productivity and performance. We need to strengthen the economic fundamental performance of our country as a priority to avoid any further marginalization of the economy in terms of the global economy.

When considering the Kenyan context, the availability of the right type of industrial and market information is critically important to increase productivity in a continuously changing and fiercely competitive environment. The existing industrial information infrastructure in Kenya does not meet the demands arising from both public and private sectors.

Therefore the core constraints facing National Focal Points (NFPs) viz. Institutional and structural weaknesses, insufficient qualified and trained personnel, material inputs, lack of market-orientation and inadequacy of awareness among end-users, etc. are being addressed by the United Nations Industrial Development Organization (UNIDO) through the implementation of Industrial and Technological Information Bank (INTIB) Africa programme, to convert the NFPs into robust market-oriented, self-sustainable organisations.

Industry provides a major force for the economic modernisation of developing countries. The industrial sector development is pursued by policy planners as a means of increasing economic growth, generating employment prospects, and giving impetus to agricultural productivity and diversification of exports. In the Kenyan context too, it is imperative to accelerate the pace of industrialisation to target these goals and meet the tremendous challenges of globalisation and liberalisation successfully.

In view of this situation, the NFP at KIRDI must gear itself (and its selected nodes) to respond effectively by assisting the decision making authorities in the state agencies, private sector business, community, industrialists, small and medium enterprises (SMEs), research and development (R&D) organisations and other relevant parties as a base and source of information. It is expected that KIRDI will assist in organising and packaging this industrial information in a manner that renders it assimilable by the concerned parties.

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The type of industrial information sought by key public sector organisations and private sector business community will vary from simple inquiry to complex technological subjects. We must remain aware that the Kenyan industrialist is not always aware of all existing industrial information or even its sources. It is our duty therefore to bring to the fore this data to enable Kenyans to make informed choices.

KIRDI national focal point and its selected nodes should gather and store basic information related to industry and technology, agro-processing development and research, market intelligence and investors demands taking into account the end-user needs. In the recent years, there has been a tendency to downplay industrialisation while strongly highlighting social issues particularly poverty alleviation. Hence there has been inadequate appreciation and recognition of the fact that the most effective way to achieve socio-economic transformation of developing countries and economies in transition is through sustainable industrial growth.

Mr. Chairman, with the uneven pace of industrial development in developing countries and with most African economies being least developed and lagging far behind, there has been an even greater need for a range of critical support services for industry. Support can, and must be, provided through specialised organisations like INTIB.

Ladies and gentlemen, I would like, at this point, to acknowledge the effort the Kenya Industrial

Research and Development Institute (KIRDI) is putting in the industrialisation of this country. I am glad to note that KIRDI held another seminar on information acquisition and dissemination for industrial growth, to deliberate on issues related to industrial information for development. I am informed that marketing of industrial information was an issue of concern.

Before I conclude my remarks, I would like to express my personal appreciation and on behalf of the Government, to the United Nations Industrial Development Organisation (UNIDO) for the continued support to this country in its industrialisation process. I am told that UNIDO is financing this seminar.

To the participants, I wish to pass special thanks for finding time to attend. I hope the two- day deliberations will be fruitful to your organisations and our country as a whole.

With these few remarks, it is now my pleasure to declare this seminar officially opened.

Thank you.

Dr. G. E. Mariki,

UNIDO Country Director

Remarks During Official Opening

Mr. Chairman,
The Permanent Secretary, Ministry of Research,
Technical Training and Technology,
Chairman, Board of Management, KIRDI,
Distinguished participants,
Ladies and gentlemen,

On behalf of the United Nations Industrial Development Organisation, I would like to welcome you all to this national seminar on Industrial Information Marketing and Networking, organised by KIRDI in conjunction with UNIDO,

Global Industrialisation, the liberalisation of Trade in Manufacturing goods and the trend towards privatisation in the industrial sector have led to a dramatic increase in the flows of technology and investment from the developed to developing countries over the past decade with an increasing role played recently by south-south investment flows. Behind these flows have been the strengthening of the Industrial Information Systems, a prerequisite for investment and technology advances.

The ability to take advantage of resources, changing technology and new market opportunities puts a premium on access to information and know-how. In today's competitive environment, the information necessary for continuous upgrading and adapting of production and for promoting goods and services, can be crucial to survival. Companies and enterprises of all sizes require access to up-to-date information, both raw data and assessed technical and economic information.

Nationally, information is needed for a broad spectrum of areas on technologies, equipment and machinery, raw materials, spare parts, patents, environmental protection, investment and technology partners, technology transfer, economic conditions in other countries, market trends and export opportunities.

The dramatic advances in the information industry in recent years, particularly the rapid growth in electronic networking, are revolutionising access to and delivery of the world's knowledge resources. Access to networks and to other new information technology products potentially improves the position of developing countries - providing data and information to assist strategic planning, market access and technology acquisition. As an instrument of south-south co-operation, networks may also improve diffusion and effective absorption of internationally available technological and organisational innovations.

However, while industrialised countries are increasingly capitalising on these communications advances, the situation remains unsatisfactory in many developing countries.

To assist developing countries in responding to these challenges, UNIDO has integrated its information, investment and-technology promotion services and, where feasible, offers them as a "package" to recipient countries so as to enhance their impact.

An example of this approach is this regional *"Investment, Technology and Information Programme",* involving twelve (12) English-speaking African countries, of which the organisation of this national seminar on industrial information is one of the activities. The programme, which consists of eight (8) inter-finked components, has the overall objective to mobilise investment, technological and human resources so as to stimulate the development of a resilient private sector in the participating countries. To achieve this objective, the programme has been designed to provide inputs towards the development of an efficient partnership between the private and public sector.

Three components of the programme have thus far been implemented in Kenya. In September of this year UNIDO, in collaboration with KIRDI, organised a national seminar on Technology Transfer Management in which around fifty (50) entrepreneurs, consultants and government officials were trained in Technology Transfer Negotiations and Techniques.

A second component centred on the stimulation of innovation and the strengthening of technology management capacities for improved competitiveness at the enterprise level. A good number of Kenyan enterprises participated in this year's programme and the most innovative companies were invited to participate in the recently concluded technology market in Mauritius.

The organisation of the Techmart for Eastern and Southern African Countries, constituted the third element of the regional programme, the objective of this component is to support selected SMEs in forging technology and joint venture partnerships with companies in other countries to increase their competitiveness and growth. The other elements of the programme, which are focussing mainly on investment promotion activities, will be implemented over the coming months.

As mentioned earlier, this national seminar on Industrial Information is one of the activities undertaken under the programme-component on Industrial Information Systems and Networking. The aim of which is to strengthen the National Industrial and Technological Information Focal Points in acquiring, processing, packaging and delivering useful industrial and technological information in the appropriate form and at the right time to support industrial efforts in the participating countries. Over the years, UNIDO has built up a detailed knowledge of industry world wide by monitoring global economic and technological developments as they unfold and assessing their quantitative and qualitative impacts on different regions and countries.

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Similarly, through its technical co-operation activities UNIDO has generated a unique band of information and expertise on technology transfer in a variety of industrial sub-sectors. UNIDO also has the world's single source of industrial statistics covering all non-OECD countries.

Building on this comparative advantage, UNIDO's Industrial and Technological Information Bank (INTIB) provides expertise in collecting, storing, retrieving and disseminating information to ensure that the organisation's knowledge on industrial development is made as widely available, known and used as possible.

The Industrial and Technological Information Bank programme collaborates closely with other UN and many non-UN system organisations dealing with information. Most of these other organisations represent specialised sources of information for the national and regional focal points and networks that INTIB is establishing. UNIDO's comparative advantage is that it is helping to establish or develop the capability in developing countries to access and use the various information sources that are available for the use of industry and government.

INTIB has built up a network of over eighty (80) National and Regional Focal Points over the last five years to serve as the first contact point for industry in a country seeking specialised information. To serve better the demand for information, particularly for SMEs, this programme has been developed to expand the national focal points into self-sufficient and self-sustainable national industrial technology and market information networks.

With the organisation of this seminar, the national marketing campaign on Industrial and Technological Information Products and Services are being launched.

During this meeting you will have the opportunity to discuss issues pertaining to the Marketing and Networking of Information Products and Services. We do hope that your deliberations will result in realistic recommendations and in a pragmatic plan of action which, once implemented, will lead to the timely provision of much needed Industrial and Technological Information Services and Products, in a financially self-sustainable manner.

Before concluding, I would like to thank, on behalf of UNIDO, the Kenya Industrial Research and Development Institute for their willingness to act as the National INTIB Focal Point and for their support and encouragement for the realisation of this programme in Kenya.

Ladies and gentlemen, I wish you a successful meeting.

Mr. G. K. Yegon

Chairman, Board of Management, KIRDI

Remarks During Official Opening

Mr. Chairman,
Distinguished guests,
Ladies and gentlemen,

On behalf of the Board of Management of Kenya Industrial Research and Development Institute, (KIRDI) I wish to welcome you all to this seminar on Industrial Information Marketing and Networking which is aimed at promoting the commercialisation of information products and services within Information Centres for sustainability. I do hope the two days you will spend reviewing this important issue will be beneficial to you all.

For some time now, KIRDI has positioned itself to meet the challenges that have been brought about by the forces of change such as global marketplace, increased competition, technology advances, customer demands, social values and government regulations. The challenges we face today are too complex for one party to handle on its own. We in KIRDI realise that accomplishing our set goals requires a team/ coalition approach and I wish to commend the United Nations Industrial Development Organization (UNIDO) for joining us in facilitating this seminar. We strongly believe that a timely sharing of any available information adds value to our research efforts and to any other services that we provide. The

Seminar represents one initiative KIRDI is taking to respond to the challenges in the market place.

Computer knowledge is a fascinating topic that you can only ignore at your own peril. Unlike in the 1970's and 80's Computers have now become cheaper, smarter, more user-friendly and have crept into all aspects of human life. Both the computing hardware and software have evolved in a synchronised fashion such that the systems that are now available have improved usability and greater power. In the developed world and in some parts of Africa it is common to see computer "robot kiosks". These are interactive computer terminals placed at strategic points to allow users to interrogate them for the latest news on politics, weather, shopping, holiday resorts, travel times etc.

Through the introduction of personal computers in the workplace the concept of manufacturing has changed considerably. A manufacturing industry is now able to produce timely, cost-effective quality products needed by a customer.

The introduction of Internet in the business front has further enhanced the performance of the manufacturing sector. Internet is a global electronic communication system composed of smaller communications networks based in cities all over the world.

One of the services available in the Internet is the e-mail , which is indisputably the most popular service in the Net. Through this facility one is able to communicate with any other organisation or individual who has access to Internet anywhere in the world, at a very negligible cost.

I would, like at this juncture, to urge you, during the seminar, to note all the resources that Information Technology has to offer and how to use them in a cost-effective manner. Full exploitation of the tools available in IT will enable your organization improve its services and products and hence increase your chances of competing in the world market. This is the course KIRDI has chosen.

Thank you.

SHADIA BAKHAIT,

INTIB Africa Programme Co-ordinator

1.   INTRODUCTION ON INTIB PROGRAMME

Introduction

The future growth of industry, technology and investment will be inextricably linked with the information technology. Therefore it is a must for the developing countries to get access to information networks to face the challenges arising in the competitive global economic scenario.

In response to this need, the United Nations Industrial Development Organisation (UNIDO) has launched a project for capacity Building in Industrial Information for Technology Investment and Business (INTIB) for Africa, to strengthen the National Focal Points (NFPs) of ten African countries. This is a major step in establishing dynamic and effective mechanisms for the acquisition of information pertaining to industry, technology, investment and other business sectors. It is anticipated that respective NFPs would operate jointly with the private sector on a commercially sustainable basis in realisation of established goals. Therefore, a market- oriented approach is a pre-requisite for economic viability of these organisations.

Programme Objectives

The programme aims at strengthening national capacities and capabilities of the Focal Points in acquiring, processing and delivering useful industrial, investment and technological information using the Information Resource Management System (IRMS^{plus}) and the Internet. The former is a package developed by UNIDO for data processing and dissemination.

In particular the Programme anticipates to strengthen the capability of NFPs in the following ways:-

- Upgrading skills of information specialists;
- Provision of hardware and software;
- Networking of Industrial information service providers;
- Sensitisation and awareness of information users at different levels.;
- Providing access to reliable investment and technology information sources.

Countries Participating

The Programme is under implementation in two phases: The first phase will cover the following five (5) countries:-

- Egypt
- Kenya
- Tanzania
- Nigeria
- Zimbabwe

The second phase of the Programme is extended to five (5) other African Countries:-

- Cameroon
- Ghana
- Senegal
- Sudan
- Zambia

The inclusion of Sierra Leone under the United Nations Development Programme (UNDP) funding is also envisaged.

PAUL B. IMENDE

Manager, National Industrial Information Centre, KIRDI

2. MARKETING APPLIED TO INDUSTRIAL AND TECHNOLOGICAL INFORMATION

Introduction

Marketing is the management process for identifying, anticipating and satisfying customer requirements effectively and efficiently. It is a systematic approach to planning and achieving the desired exchange relations with other groups. Marketing is concerned with developing, maintaining, and regulating exchange relations, involving products, services, organisations and people.

It presupposes the existence of a product, or a service on one hand and on the other needs, wants, demands of a consumer interested in the product or service. The two sides must be brought together in a transaction.

In applying marketing concept to information and information services, we must first of all understand what our products (information and information services) are and identify our customers.

Information

Information is simply data, facts, views, opinions, ideas, news, events, etc. of value, able to influence man's actions and decisions as he goes about with others in a given context. The source of information varies depending on the nature of information. Common sources are, however, books, journals, newspapers, reports, pamphlets, slides, films, broadcast meetings and people.

Services

These are intangible activities that provide want satisfaction.

Price

In between the product and the consumer is the price the consumer has to pay for the product or service. The price of the product or service is dictated by a number of factors, which dictate the market value of goods or services available on the market. These are production costs, availability or scarcity of the item/product on the market and the ability of the consumer to purchase the product/service.

An important element of marketing of information in developing countries - including Kenya - has been the development and implementation of computerised information systems to support the associated business process. These developments have assisted in:-

- Adjusting to changing macro-economic conditions,
- Improving the effectiveness by developing and implementing mechanisms of planning and evaluating budgets,
- Disseminating information faster and efficiently to customers',
- Improving the mobilisation of available resources,
- Capacity utilisation,
- Profitability;
- Cost efficiency, and
- Innovativeness.

Types of Information on Industry

The following are broad categories of information on industry and technology.

- Industry: -

This includes information on agro-business, research and development, products, industrial statistics.

- Technology
- Plant machinery and equipment, designs and technical process,
- Standards and quality;
- Market - competitive prices, overseas demands and buyers.
- Tariffs, custom duties, regulations.
- Investors, local foreign Incentives

Clientele

The users of industrial and technological information are wide and varied and they need this type of information for varied reasons. Some of the consumers or users of the above listed information are as listed below.

- Decision and policy makers in the state sector organizations.
- Private sector companies.
- Foreign investors/overseas development business associations or/ and trade associations, business councils based in host countries and abroad.
- Embassies
- Industrialists research institutes, bureau of standards.
- Training organisations.
- Banking and financial institutions including insurance companies
- Donor agencies
- Non-governmental organisations (NGOs)
- Export credit organisations
- Investment promotion centres/ export development agencies.
- Airlines and shipping agencies.

These and many others form the bulk of consumers of industrial and technological information. But before the information is marketed, it will need or require to be packaged i away that will certify the needs of the consumer. The consumer may require information in differer forms. The supplier of the information - the information specialist should be aware and familiar with the different formats in which the information will be required and which tools to use.

Marketing Strategies

We have the information, or we know where to get the information. We have a wide range of consumers/clientele. We need to device ways and methods of reaching our consumers so that they consume the products/services we have. Some of the strategies to use in order to reach the consumers are listed below.

(a)   Advertising

When we advertise our services and products we should select which media to use to reach the expected market. This will vary depended on the intended and expected results. We might choose to use the print media (newspapers), television, radio, play or pictures.

(b)   Trade fairs, shows and exhibitions

This strategy will also depend on the expected results. Fairs and exhibitions can be expensive and should be properly planned and properly costed - but they are avenues for product promotion.

(c)   Seminar and workshops

This is another strategy of reaching the customer but it has its own limitation in that you may not meet all the customers you would have liked to because of certain limitations. Most of the participants may have other engagements, space limitations etc. However, if well organised, it can be one of the best methods of Getting the feedback whether the product or service being offered Is acceptable or not.

(d)   Telephone

You can use the telephone to talk to selected customers and explain to them about the product you are about to launch or the service you are offering.

(e)   Parties/Cocktails

When launching a new product or service it may be necessary to have a party or a cocktail depending on the nature of the product or service.

Constraints

There are a number of constraints that hinder information professionals from effectively marketing their products and services. Some of these constraints are as listed below.

(a)   Organisational structure

The organisational structure is very rigid that they do not allow the information professionals to perform outside the laid down rules. Most of the information sections/departments or divisions belong to organisations that are state owned and have to take orders from above. This prohibits them from marketing the product and services they have thus prohibiting them from making profits from these products and services. Bureaucracy is prevalent.

(b)   Human resources

Some of the Institutions /Organizations that provide information and information services are not adequately equipped to provide the information and information services effectively - to their customers.

(c) Equipment

Most of the equipment used in some of the organisations is obsolete (computers, printers, and photocopiers (They can hardly satisfy the current market The require urgent replacement).

(d) Commodity

The nature of the commodity which the information professionals are dealing with - intangible commodity.

(e) Awareness

There is little awareness by the public of the value of information and information services.

Summary

The development changes taking place worldwide place a stress on aspect of activity. For information technology to survive sustainable, it must establish a market and find consumers that are ready to pay a price for the product and service provided. The price for the Product/service provided must take into consideration the following aspects:

- The human resources - investment

- Equipment
- Time
- Strategies
- Organisation
- Investment

Information will play a leading role in development_ and developing countries, Kenya included, must be prepared to invest in information technology. I_ is the backbone of development. Information professionals must get out and market the produc_ and the service.

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3. PROMOTING INDUSTRIAL AND TECHNOLOGICAL INFORMATION PRODUCTS AND SERVICES: STRATEGIES FOR A MARKETING CAMPAIGN

Introduction

In recent years, growth of demand for industrial and technological information has been spurred at a faster pace than ever before by increase in the economic activities of the sectors, and the specialised needs of the actors who assist the sector to develop. The key Characteristics of this growth is the technological penetration of every sector of the economy including Small and Medium Scale Enterprises (SMEs) which has brought about wide variations in performance, investment opportunities profitability and the consequent needs for information and documentation. This has called attention to emerging inter-sectoral links in industrial and technological activities, but also to the need for careful economic choices among industrial and technological investors across the sectors of the economy. Among the main reasons for these development is simply that common problems encountered for example in production technology, markets for raw material and inputs, government incentives or disincentives, taxation and marketing, do not necessarily imply the same economic opportunities or potential for different industries and technological sectors. This has important implications in terms of the type of information now required by the different actors in the different industrial and technological sectors.

Information Needs

In production operations, the type of information required to be provided for, ranges from investment requirements and production techniques, availability of tools and where to buy/sell them, access to raw materials and the relative prices, market trends for the selected products, access to infrastructure, access to technical assistance, taxation and fiscal incentives or disincentives and what markets and what access to them. This also depends on the type of industry and sector. Small and Micro Enterprises (SMEs) for example require a wider array of expertise in information technology and delivery than a modern formal industry will require.

The Prevailing Situation

The situation in Kenya today is that most industrial and technological information and services are not disseminated. Many actors are not only unaware of the availability of existing

information and documentation, but on their part, information experts and providers, such as Libraries Resource Centres, and Information Centres continue to add capacity and resources, but without clear profiles of areas where demand and change have become most pronounced. The information users have also changed. Many different types of users, including specialised ones, have emerged but the existing information centres continue to concentrate on providing information to policy makers, researchers, donors, students and trainers, mainly because these are the people who search for information. The entrepreneurs need information but are not searching for it. Whereas some are unaware that information can make a difference in their work there are those who want information made available or taken to them and are willing to pay for it, if it can yield tangible socio-economic results, i.e. improve productivity and performance; gain competitive advantage; enable new ways of managing and organising development of new business and increasing income.

The Promotion of Information Products and Services

The promotion of information products and services can take place through specified areas of activity as follows: -

- Through information, documentation and library activities aimed at processing developing, sustaining and providing data and up-to-date research information in the form of documents and audio-visual materials.
- Sectoral information products and services

- Information dissemination, communication, networking and use of information technology

(a) Information, Documentation, Libraries & Resource Centres

As society continues to move towards privatisation and the commercialisation of information, libraries and information centres that remain out of touch with the changing needs of information and documentation services run the risk of becoming anachronistic. The transmission, delivery and access of information is essential in a learning and knowledge based society, and libraries and centres of information must be capable of repositioning themselves in readiness to participate in the new developments and new opportunities. The new economy is dependent on the ability to supply information and knowledge to existing resource and manufacturing industries and or to develop new products and services. Therefore, the flow and accessibility of information is essential. Libraries, serving as one of the basic building blocks of the local information and knowledge infrastructure, have an important role to play in support of knowledge-based economic development in any community. That role is best achieved through active, mutually beneficial agreements, collaborations and partnerships. These Centres should therefore work with individuals, organisations, small business and all other economic development initiatives in order to foster knowledge based local economic development.

(b) Sectorial Information Products and Services

Provision of information will require capacity to develop the general information component and ultimately the information and repackaging component. The products proposed should be developed for specific target groups segmented by the levels and types of demand for the products. Certain target groups may require much more specialised information, packaged and repackaged with more professional skills than others. Certain tasks may require specific time bound orders whose implementation may require agreement between a client and the information processor.

Target Group

The target group should be well defined since the information is specialised. Examples including SMEs are:-

- Investors, businessman/women, traders including exporters

- Sector researchers, students, trainers, and consultants.

- Banks

- Microfinance and other institutions and NGOs

Packaging and Repackaging

Activities under this component will achieve the up grading of specialised services with the aim of developing commercial products that can cater to the specialised needs of different actors in the sector.

Development of specialised credit information and documentation e.g. compilation of practical directories, indicating sources of useful Information e.g. sources of new materials, markets, and location, different types of institutions (training institutions, those providing credit etc.)

Development of specialised information and documentation on sector investment opportunities.

Developing of specialised information and documentation on market prices for inputs, raw material and finished products including exports.

Development of specialised information and documentation on financial management project appraisal, implementation, monitoring and evaluation.

The above entails creating new databases on the above topics, where such information will be retrieved and repackaged as new products.

(c) Information Dissemination, Communication and Networking and Use of Information Technology.

The focus of activities under this component is directed at developing simplified, general practica_ and operational economic and financial information required by different operators and

specialised clients. Existing information and new acquisitions could be processed for general dissemination to sector but with commercial earnings expected to be captured partly from advertising within the vehicles of the component.

Development of a regular bulletin newsletter, etc. of markets, products, sources of inputs and raw materials and government regulatory information (including advertising) with a view to eventual commercialisation of the bulletin as a sector communication tool. In the interim, develop advertising and advertising revenues related to the sector.

Using communication networks in e-mail and Internet repackage Information from distant databases and networks aimed at the operational needs of the operator of sector concerned. The activity would be funded as a time-bound investment after which such Information would be offered on a commercial basis to clients.

Conventional methods of acquiring, storing, managing and retrieving - information and data are falling behind the rapid improvements on information technology. Hence emerging appropriate information technologies should be optimally utilised to improve management of information and communication services locally. There is, therefore, need to further promote understanding of the benefits which arise from investment in information technology.

Conclusion

The promotion of information products and services will require assistance of institutions, associations, ngOs, and funding organisations to facilitate information meetings with staff from technology institutes progressive industrialists or traders and Micro and Small Enterprises (MSE) master craftsmen. They could facilitate on-line links locally and internationally and visits to organisations projects and private enterprises. They could also organise discussions with organisations and (private) individuals to make available technological information. Support of library or documentation centres with "how to" and "do it yourself" and other technology books subscriptions to newspapers, journals, newsletters and other relevant documents, and preparation and or dissemination of leaflets, folders etc with technological information. They could also play a useful role in assisting producers in the area of technology assessment through informal advice and referrals and also formal training and advisory services. However, this should be for a given period. Permanent solutions have to come with marketing of information such that information becomes a commodity like any other but with a difference.

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4. PRICING POLICY IN THE LIGHT OF COMMERCIALIZED INFORMATION PRODUCTS AND SERVICES

Information should be viewed as data of value to decision making. In other words, information (or useful data) is the raw material of executive action. Such action relates to production and consumption.

One common feature in all societies, whether developed, or under developed, capitalist or socialist is what is termed as the economic problem. The needs of society overwhelm its resource base. In other words, whereas needs are limitless, the resources available to satisfy, such needs are scarce. In view of this, producers have to make crucial decisions about what to produce. How to produce output and determine the distribution of such output (i.e. for whom is it produced?). They aspire to maximise production with available scarce resources.

Consumers of goods and services on their part, face constraints imposed by income. In their expenditure they choose a combination of goods and services whose consumption enables them maximise utility or satisfaction. Whether they are the producers, consumers, choosing combinations of goods and services that maximise utility information plays a very important part in their decision-making process.

There are two types of information: perfect information and asymmetric information. The former applies to the possession by market participants in a competitive economy of complete knowledge and foresight with respect to the array of present and future prices as well as the location of goods and services. On its part, asymmetric information applies to situations whereby there are differences in information applied to situations whereby there are differences in information possessed by the parties to a market transaction.

Information is important in all spheres of life be they economic social or political producers and consumers require information about market opportunities and availability of goods and services. Timely information has a social value and can make the difference between absolute poverty and relative prosperity

In the traditional theory of demand it has been argued that demand is a multivariate function dependent on several factors: Price of a commodity (Px) Price of a substitute commodity (Ps). Income levels (Yt), tastes (T), availability of credit facilities (Cr), past levels of income $(Yt\text{-}I)$

Symbolically: D = f(Px, Ps, Yt, T, G, Yt- I Yt, T, Cr, Yt-I)

Very often this theory, and more specifically the above functional relationship has downplayed the role played by information in the determination of demand for goods and services. For example, although the consumer may have income at his disposal, he may not know the price of substitutes that are available in the market without information. Similarly, without information he may not know which firms is offering, credit facilities.

Information has an economic and market value which is increasingly coming to be appreciated. We have entered an age of tradable information where there is and will be a large demand for fast fact services, for the instant delivery of information at a competitive price, to satisfy, the immediate hunger and the impulsive buyer. Competition in the supply of information is being, seen as a spur to greater creativity, diversity and efficiency. The advanced electronic media and the new mediators are becoming the prime means for the transfer of commercial and technical intelligence and for the distribution of information analogous to the advanced transport systems that have come to dominate the movement of goods.

Sources of Information

Human Sources: - For the Multinational Corporation external information is company executives based abroad in company subsidiaries, affiliates and branches.

- Other human sources include distributors, consumers, customers, suppliers and

Government officials. Other sources are friends, acquaintances, professional Colleagues, Freelance University consultants and candidates for employment particularly if they have worked for competitors.

- Three-quarters of the information acquired from human sources are gained in face to face conversation.

- The greatest contribution, technologically, of face-to-face communication of Information has been the jet aircraft, which has made it possible for executives in a far-flung, organisation to maintain personal contact with one another.

Documentary Sources

The outpouring of information ("information explosion") is one of the most salient features affecting availability of information.

Perception Sources

Information is easily available from other sources but it requires sensory perception of the actual phenomena to register the information in the respondent's mind.

Information as a Commodity

A commodity is any object, which is produced for consumption or for exchange in markets. Toward: the end of the 1950s harry Johnson produced the following theorem on value. A good is an object or service of which the consumer would choose to

have more. If this were so then the collection of goods which he chooses when he has more money to spend (prices being constant) must represent more goods than that he chooses when he has less or more to spend.

The industrialised countries are beginning to see information products and services as earners of foreign exchange. As material resources become scarcer and higher priced, so the information outputs of an economy will be seen as valuable "invisible" resources which can be offered in exchange for some other commodities. On the other hand the developing countries are deficient in the gathering. Processing and dissemination of information. A classic example is that we do not know what Kenya's population is in spite of having done a population census several years back.

The economic problem of scarce resources and limitless wants implies that choices have to be made. The producer has to choose the combination of production factors (inputs) which maximises outputs, revenue or profits. Due to constraints imposed by income the consumer, on the other hand, chooses the "basket of goods" which maximises his utility or satisfaction.

The selection of one line of activity (for the producer) on commodity, combination (for the Consumer) means that another line of activity is foregone. This is termed "opportunity cost"- due to scarcity of resources, producers cannot make limited quantities of goods and services. Scarcity means that choices have to be made. As a commodity, information has an economic value because it is scarce. For example, literature on

information is limited (in other words information on information is not easy to come across particularly in developing countries).

In a nutshell, a product/service can be said to be anything which can meet a demand or want.

Information Search

Consumers acquire and process information in order to make purchasing decisions. They acquire information from advertising their experience with products, friends and neighbours, and from other sources. Information search is important for an individual who is involved in a decision making and perceives some risk in the purchase, and has little past experience in buying a particular product. The consumer may under-take an external search for information particularly when past experience or knowledge is insufficient, the risk of making, a wrong purchase decision is high, and the cost of gathering information is low. The primary sources of external information are personal sources (relatives, friends), public sources (consumer organisations, government agencies and TV commercial programmes) and market dominated sources (advertisements, sales people, displays in shops).

Determinants of Information Search

(i) High Perceived Risks

The higher the perceived risk in purchasing, the greater the amount of information search.

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(ii) Low Product Knowledge

Consumers with less knowledge of products are more likely to search for information. Similarly past experience with a product reduces the need for information, but only as long as the consumer is satisfied with the product. Negative past experience may increase the search for information.

(iii) Less Time Pressure

Time pressure to make a decision will discourage information search. If more time is available, information search will increase.

(iv) High price

A higher price means that the economic benefits of information search are greater. Therefore more effort is like to be devoted to search.

(v) More products differences

There is higher pay off in searching for information when substantial differences exist between brands.

(vi) Cost

There are monetary and non-monetary, costs associated with information search. Information search usually involves the monetary cost of travel to various retail stores or library and documentation centres. Another cost is the line involved in travelling shipping (reading, advertisement, asking for the advice of friends. A

third cost may be psychological; Information search may be undesirable to the individual, who does not like shipping, travelling or reading,

Generally, consumers operate by weighing the costs of information search against the benefits of additional information.

Pricing and Marketing of Information Services

One of the most important and complex decisions of a firm has to make relate to pricing its products and services. If consumers perceive a price to be too high, they may purchase competitive brands or substitute products, leading to a loss of sales and profits for the firm. If prices are too low, sale may increase but profitability might suffer. Thus pricing decisions must be given careful considerations when a firm is introducing a new product. Certain goods and services are offered free of charge or at a fee by the public sector.

In a market system prices serve the dual roles of determining what moods and services will be produced and of rationing the available goods and services among competing bidders.

Decisions on the best use of resources and how best to produce and distribute the products of economic activity requires the establishment of priorities, a way of valuing things to help decide which are the most important. Market price is simply the outcome of the exchange of moods and services for money. It is an exchange ratio or demand to supply expressed in monetary terms.

Factors which influence price decisions:

Demand - demand is in turn influenced by

(i)   -Demographic factors
- number of potential buyers
- location of potential buyers
- expected consumption rates of potential buyers
- economic strength of potential buyers

(ii) - Psychological factors
- how will consumers perceive various prices or price changes
- Will potential buyers use prices as an indicator of product quality?
- Will Potential buyers perceive the price as too high relative to the service the Product gives them?

Is potential buyer's prestige oriented and therefore willing to pay higher to fulfil this need?

- How much are potential buyers willing to pay for the product?

(iii)   - Price elasticity
- affected by demographic and psychological factors. Price elasticity of demand measures consumers' price sensitivity, which is estimated by dividing relative changes in the quantity sold by the relative changes in price'.

$$ed = \frac{dq/q}{dp/p} = \frac{dq}{dp} \cdot \frac{P}{Q}$$

Some potential pricing objects

- Return on investment (ROI)
- Target market share (market dominance)
- Maximum short run and long -run profits
- Growth
- Market stability
- Maintenance of price leadership
- Discouragement of new entrants (barriers to entry)
- Speedy exit of marginal firms

Cost considerations in pricing

The price of a product usually must cover costs of production, promotion and distribution, plus a profit for the undertaking of risk by the entrepreneur. Cost oriented pricing is the most common approach in practice. There are three basic variations.

(i)   Mark up pricing common in retailing where a percentage is added to the retailers invoice price to determine the final selling price.

(ii)   Cost - plus pricing - the cost of producing a product on completing a project is totalled and a project amount or percentage is added on.

(iii)   Rate-of-return - (target) pricing - commonly used by manufacturers. Here a price is determined by adding a desired rate of return on investment to total cost.

Effect of competition on pricing

The effect of competition on pricing should be considered using the following factors:

- Number of competitors
- Size of competitors
- Location of competitors
- Conditions of entry into the industry
- Degree of vertical integration of competitors
- Number of products sold by competitors
- Cost structure of competitors

The above factors help determine whether the firm's selling price should be at below, or above competition. Pricing a product at competition (average pricing) is popular for homogenous products. An exchange below competition price can be found in sealed-bid pricing where the firm bids directly against competition for project contracts. Although costs and profits are initially calculated, the firm attempts to bid below competitors to obtain the job contract. A firm may price above competition because it has a superior product or because the firm is the price leader in the industry.

Effect of government regulations on pricing

The government regulates prices of certain goods and services (e.g. Public utilities).
The following are some of the legal constraints on pricing:-

- Price fixing is illegal *per se*. Sellers must not make any agreements with competitors on distributions concerning the final price of the goods.

- Deceptive pricing of products are illegal

A business firm (profit oriented) usually obtains its initial capital from investors and creditors. Once it is operating, however, its returns are primarily derived from the sale of goods and services. The business firm has a single marketing constituency - the consumers. If the firm satisfies the consumers needs, sales will rise, and the firm will have funds to continue its business.

Public libraries do not have the same objective as the business firm. The UNESCO public library manifesto states that "a public library should be maintained wholly from public funds, and no direct charge should be made to anyone for its services.

In treating information as a commodity which is produced, stored, sold and consumed, we can note that public library provides free services. The question should be for how long will they continue offering, "free goods" particularly in a changing and liberalised economic environment? Information is important since it is necessary to combat deprivation by enabling people to raise their living standards to the level of their rights in the law.

Pricing is a controversial topic in marketing library products and services. Pricing essentially consists of:-

- Determining the cost of product or service in terms of organisational resources consumed in the production process, and

- Establishing an exchange rate for the product or service between the organisation and the user.

Traditionally, academic libraries have provided users with "free" services, in the sense that no monetary exchange is involved in the organisation - user exchange transactions. However, with the recent introduction of costly, specialised services relying on sophisticated technology (e.g. Computer-based literature searching) many libraries have found it necessary to re-assess their position on monetary exchange between the organisation and the user.

Having established the cost of a given product or service in terms of resources consumed in production, academic libraries must then face the problem of determining, the price at which the product or service will be offered. The price thus established can range from no charge, to the recovery of the full cost of production plus, perhaps some profit margin. New products or services need additional funds while others need replacement funds.

A few libraries are in a position to absorb such additional costs into their operating budgets and offer the services at no charge. Other libraries may obtain a grant or subsidy from an external funding source; though this reliance on external sources may be short lived in which case libraries would be left in a position of having to price their services in a manner which recovers some or all of the operational costs.

The pricing, of library products and services should be based on a balanced assessment of market needs and wants and the ability of the organisation to respond to the needs and wants. The costs associated with computer based literature searching include personnel, training equipment purchase or rental, computer and communication charges, printing, etc. The methods to be used in the process of full cost recovery are.

- fixed charge per request
- subscription fees paid in advance
- variable pricing, as a function of value added per request. (i.e. proportional to the length of the search)

In deciding what price to charge it is important to make an assessment of market opportunities.

There are several categories of demand and therefore market opportunity;

- Existing demand markets - those currently being served.
- Latent demand - the demand, which would be expressed if a product were offered to customers at an acceptable price.
- Incipient demand - the demand that will emerge if present trends continue e.g. if income per capita increases the demand for consumer durable, automobiles for example, increases.

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Assessing a market opportunity requires a measure of both the overall sizes of a market and the competitive conditions in the market. It is the combination of total size and competitive conditions that determines sales opportunity and profit. In marketing, product acceptance is very important to the overall objective of the entrepreneur. Product acceptance is affected by:

- ·product improvement
- pricing,
- place (distribution)
- public relations or promotion

The above form the four P's of marketing.

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5.   INFORMATION PRODUCTS AND SERVICES' REQUIREMENTS, ADEQUACY AND QUALITY OF THE PRODUCTS AND SERVICES

Introduction

Information is progressively being, considered as an economic resource. Owing to the economic situation in many countries, information services are forced to consider the future effect of the pricing, of information products. A marketing strategy of an information service should include price as one of the most important components, because price is the only component that accelerates income.

In the past, little attention was given by information services to the marketing, and pricing, of information because the majority of information services are non-profitable enterprises. Pricing of information products in many enterprises has not been considered as a method of achieving the goals of the enterprise since such products and services were provided free of charge. This has started to chance and more information centres are selling their products to generate funds for their own survival.

For information products and services to be marketable in any organisation, the services must be a dynamic focal point for the organisation, not only responding to expressed needs but predicting requirements and taking initiatives,

becoming fully integrated as a vital part of the organisation. The information services should, as far as possible, be built around users. Unless users' requirements are fully considered, an information service may fall well short of full utilisation.

Analysis of users' requirements

In the analysis of users' information requirements, it is important to realise that information needs is highly personal and varying, even amongst those doing the same work in the same organisation. There is iusually a need to use an analytical framework to:

* Monitor and evaluate the effectiveness and appropriateness of existing, information systems from the user's perspective.

* Detect gaps in information provision and to remain vigilant to changes in need.

* Design appropriate information support system for the individual, for instance, piloting current awareness services and selective dissemination of information (SDI) services to their individual needs.

- Introduce, evaluate and justify new information products and services.

- Bring, the user or customer and the information provider or professional closer together.

Having identified users' requirements in the company where the information products and services are to be sold the next stage is to set objectives for meeting, those needs.
The aims of the information service are likely to be to:

- Provide specialised information to company staff in industrial trends marketing and management.

- Ensure that management staff are kept informed about government and other regulations and actions affecting their company.

Adequacy

While everyone requires a certain amount of information to do a job or solve a problem the size of the information appetite varies greatly, not only between individuals and groups, but also according to the nature of the need. Modern society requires us to be more informed than ever before. It is regrettable that Africa, and particularly Sub-Saharan Africa, trails the rest of the world in it development. Michael Traber (1986) edited a thought provoking collection of essays on the social and ethical implications of communication technology and called them "the myth of the

information revolution". Here are some startling facts from the book:

There are 600,000,000 telephones in the world, yet two thirds of the world's population has no access to telephone.

- There are more telephones in Tokyo than on the entire African Continent.

- While there is glut of information in certain parts of the world there is a dearth of information in others.

- There is a monopoly of information and communication by the first world countries and/or by the rich in the third world countries.

- The communication or information explosion hardly constitutes a concrete reality to most third world countries, because they cannot take full advantage of the range of possibilities offered owing, to lack of resources.

The developments in information technology have created a situation in which those who control wealth or political power will have access to increasing volumes of information, which they can manipulate for their own ends at the expense of the majority of underprivileged people who will have very little information. This is most regrettable since information should be treated as a social good since people need information to be able to live responsibly and perform their duties effectively in society.

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In order to benefit from information products and services available from the Internet, for example, as the ultimate tool for exchanging, information on technology, processes, investment and business opportunities, developing Countries such as Kenya need to build and strengthen their Information Technology (IT) Infrastructure.

The application of IT could ease the boredom of repetitive and tedious work in many companies, improve productivity within specific processes, as well as increasing the accuracy and reliability of systems, eliminating duplication and producing, consistent internal records. IT can help the private sector to reduce costs and improve product quality and productivity, through Increased efficiency. IT can help improve management of the control of inventories, costs and finance of marketing International organisations and agencies have been involved in development projects for IT infrastructure in Africa for a long time. A great deal of funding has been derived from the United States Agency for International Development (USAID), the United Nations Development Programme (UNDP), the World Health Organisation (WHO), and the Food and Agricultural Organisation (FAO). Other funding has come from the World Bank, the British Council, the International Development Research Centre (IDRC) and the Swedish Agency for Research and Co-operation, (SARC).

The UNESCO has a sectoral unit responsible for "informatics". The Informatics section sponsors small project activities such as postgraduate and short term training courses in computer science and technology, and support for computer centres and journal publication, as well as other professional activities.

In 1987 the United Nations Industrial Development Organization UNIDO prepared an international project for the "Transfer of Microelectronics and Software Technology" - which was designed to strengthen the technological capability of developing countries. In co-operation with computer and software manufacturers, the centre planned to provide developing countries with:

● Technical services in the form of advice on various problems, formulation of projects, documentation and analyses.

● Technology, in the form of software or readily applicable solutions.

● Knowledge of world-wide microprocessor applications and software production and marketing,

● Information and available microprocessor applications and software, Software development methods, marketing, and training,

UNIDO's main objective in creating this centre was to strengthen the technological infrastructure and capabilities in micro-processor applications and software development of participating countries so that they could apply the technology to suit their local needs.

Despite the enormous advantages derived from aid agencies in the developing countries, their support has tended to be sporadic and uncoordinated. There are serious problems for recipient countries in terms of compatibility of hardware and supply of spare-parts.

The advent of data communication facilities either via telephone, satellites and the advent of Internet, has probably been the most phenomenal IT development in Kenya in the recent past. The launching, of the Kenya packet switching, (KENPAC) and the advent of Internet Service Providers (ISPs) were also of major significance. KENPAC was launched by the Kenya Posts and Telecommunications Corporation and has enabled users with data communication requirements to link terminals, personal computers and host computers using a wide variety of protocols and speeds thus eliminating the need for dedicated facilities.

KENPAC uses two gateways out of Kenya. IPSS of the UK and Sprint Net of US. By 1995, KENPAC had over 600 users, mostly in banking, research, Industrial and International Organisations.

IInternet Service Providers (ISPS) in Kenya.

The Worldwide web (WWW) is an important component of what is termed as the Information Super Highway. Some of the more popular services available on the Internet are the www (information pages), FTP (File Transfer Protocol) for getting, files, Usenet news (interactive communications) and e-mail.

There are more than five ISPs in Kenya providing e-mail services and connection to the iInternet, which include Africa On-line, African Regional Centre for Computing, (ARCC), Form-Net which has full 'real-time' internet and WWW capability as well as local and international e-mail, and Flashnet and Net 2000.

The biggest problem to Internet connectivity in Kenya, however, is the low capacity of telecommunication infrastructure. Although the telephone system in the country is relatively better compared to many other African Countries it has a high fault rate that makes wide area networks (WANs) problematic. The speed of the connection between Kenya and the Internet is low.

It is important to realise that although complex information technology is available to Kenyan buyers, and many of them are no doubt very interested in buying various information products and services, the market cannot develop ahead of the infrastructure provided by the government. The government and international donor agencies have therefore got a big challenge to develop and sustain an appropriate infrastructure for marketing, of complex information products and services.

Quality

An important part of the information manager's job is to select relevant information. Quality of information rarely increases with quantity.

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Particular emphasis needs to be given to exploiting, sources of relevant information. Assessment of the quality of information may be highly subjective. But, nevertheless, quality ranks very highly in the mind of the users. Quality determinants are obviously very important in reducing the information pile.

Selection surely has to take place and far better that it proceed alone, logical, grounds than arbitrary ones. There is an important role for the information professional here, in providing information filtering mechanisms that embody quality determining criteria.

To select information on quality grounds you need a very good understanding of the information players in the subject field and of course, it can be a highly personal decision. There are though, a number of aids that can help, and which are employed by knowledgeable users all the time. The perceived authority of the sender or source is probably the principal aid. Users are aware that certain organisations, because of their economic or political power, command particular authority or respect and, as a consequence, their publications carry a lot of clout. Some organisations carry a lot of respect just as a result of the quality of their work and excellent track record. Authority can also come from having used a source successfully before it is tried and trusted. Among practitioners there are a strong preference for the known and trusted information source over the new and untried source. Sometimes this can lead to problems with users reluctant to move on to a new source or even an updated edition of the original one.

Computerised information systems pose problem when it comes to determining authority. Their sheer size and numerous access points means those searches are frequently characterised by the large number of irrelevant documents that they produce - natural language, computerised databases are particularly noted for this.

Pricing of Information Products and Services

IIn economic theory the concept of price describes the monetary value of an item. Price can be regarded as the exchange value of a product and it is closely closely linked to concepts such as benefit and value. In the context of this paper information products and services are understood as the products, services systems an channels which carry information.

To be able to price an information product, one needs to know the real costs of the product. It is also important to understand the structure of the costs that are related to the provision of information products:

- A fixed cost is an element, such as rent, salaries or property tax, which remains constant regardless of how many items are produced. Such a cost continues even if production stops completely. It is called a "fixed cost" because it is difficult to change in the short run. Fixed costs are the same whatever the usage of the product.

- A variable cost is an element, such as labour or material cost that is related directly to production. With an information service variable, costs vary according to usage for example, on-line searches.

- Total cost is the sum of the total fixed cost for a specific quantity produced.

It is useful to think of "cost" as setting a lower limit for prices while "demand" sets an upper limit. Within these limits lies the range of possible prices that management may consider when making a pricing decision. A product's cost therefore determine the floor to the range of feasible prices an information service must cover its costs in the long run to make a profit and render a service. At the other extreme, the price sensitivity of demand for the product determines the ceiling, for the range of acceptable prices.

There is a need for providers of information products and services to develop a price strategy. A price strategy can be seen as a long- term plan aimed at realising the price objectives. The plan involves four steps:

- The first step in the development of price strategy is an analysis of the internal and external marketing, environment in which the information services operates.

- The second step is the formulation of specific price objectives which are based on an analysis of the internal and external marketing environment identified during the first step.

- The third step is the determination of the basic price. The basic price is established only after both the target and the market price have been determined.

- The last step entails determining the final price by making adjustments to the basic price with the aid of price differentials.

The implementation of specific steps is determined by the specific marketing environment of a specific product, as well as the consumers to whom the product is being marketed. An information service should therefore formulate a price strategy for each individual product, and this strategy will differ from product to product.

Developing a price strategy allows managers of information services to price products accurately and pinpoint products that have high costs and need improvement. Decisions in this regard must be of such a nature that both the product and the target market are taken into consideration.

Conclusion

In this article, the importance of marketing and pricing information products and services have been stressed. The paper has identified and highlighted the factors which ought to be considered in order to make information marketable in companies which include carrying out an analysis of users' requirements and paying attention to adequacy and quality of information provided.

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The various steps to be followed in the development of information products and services price strategy is discussed. It is concluded that information systems should formulate a price strategy for each individual information product and service and that the environment in which an information service functions will influence the marketing and pricing strategies.

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6.   INFORMATION PACKAGING IN RELATION TO THE INTERNET

Introduction

The Internet enables instant, point-to-point communications between any connected Computers and supports an increasing variety of private, group and public communications. It will soon become at least as fundamental to daily life as the postal system, the telephone system and the road and rail systems. It will encompass the telephone system, perform some functions currently handled by print and broadcast media (e.g. classified advertising) and will enable computers everywhere, at home, work and mobile, to permanently linked to the global network.

Electronic commerce - the selling and buying of goods over the Internet - is now growing at a steady pace. While web transactions still make up only a small percentage of retail sales today, businesses seeking to take the lead in their markets are establishing storefronts on the Internet. The explosion in electronic marketing is the beginning of a new age in marketing communications that provides marketing executives with a powerful tool in reaching their audience. The most exciting aspect of the Internet is that it provides two of the most important aspects of modern marketing philosophies - the ability to target select groups of buyers and to continue interactive dialogue.

The World Wide Web

The World Wide Web (simply referred to as the web or WWW) is a "distributed heterogeneous collaborative multimedia information system". The WWW is conceived as a seamless world in which ALL information, from any source, can be accessed in a consistent and simple way. The World Wide Web was the brainchild of Tim Berners-Lee while working at CERN, the European high-energy physics laboratory in Geneva. It was originally conceived in 1989 as an idea that information should be accessible through a simple interface on any kind of computer, anywhere on a network.

Once it became publicly available in 1991, the Internet community jumped on it immediately. In 1993, the Web got a phenomenal boost with the release of Mosaic - a Graphical User Interface called a Browser - which now runs in virtually any personal computer.

The WWW's principle of universal readership is that once information is available, it should be accessible from any type of computer, in any country, and an (authorized) person should only

have to use one simple program to access it. In practice the Web hangs on a number of essential concepts. Though not the most important, the most famous is that of hypertext. Hypertext is text with links. Hypertext is not a new idea: in fact, when you read a book there are links between references, footnotes, and between the table of contents or index and the text. With hypertext, the computer makes following such references as easy as turning the page. This means that the reader can escape from the sequential organization of the pages to follow pursue a thread of his or her own. Hypertext authors design their material to make it open to active exploration and in doing so communicate their information and ideas more effectively. Documents need not be text: they can be graphics, movies and sound, so the term " hypermedia", meaning "multimedia hypertext" applies equally well to WWW.

Searching the WWW

Whilst hypertext is a powerful tool for finding information, it cannot cope with large amorphous masses of data. There are different tools to aid navigation, especially since the structure of the web has features to make it more organized. Computer-generated indexes allow the user to pick out interesting items from textual input.

Home Page

A "home" page is a hypertext document, which is a starting point for a user. Users with hypertext editors make their own home pages. Other users use home pages provided for anyone in their organization.

Notice that there are links to things of particular local interest, as well as links to broader areas. This customization of starting point provides a tailored "view" of the web to make it easier for particular users.

The Virtual Library

Another way of locating information is to browse by subject. A starting point for this is the WWW virtual library, an amateur collection of resources to demonstrate what could be done if librarians were to get involved and do it properly.

Catalogue by server type

If you know what you are looking for, that is, you know what sort of a server it is on, then there are lists and indexes to help you, in the catalogue by server type. This includes things such as the Warchie index of File Transfer Protocol (FTP) archives, the Veronica Gopher index, the WAIS master index, etc.

Electronic Commerce

Electronic commerce - the selling and buying of goods over the Internet - is now growing at a steady pace. While Web transactions still make up only a small percentage of retail sales today, businesses seeking to take the lead in their markets are establishing store fronts on the Web.

A business case for conducting electronic commerce is very compelling. Local companies can establish a global presence and market products and services 24 hours a day, 7 days a week with comparatively low overheads. Business can define innovative products and services, advertise their existence, provide searchable electronic catalogues, support secure electronic payment systems, deliver these products and services, and provide customer support – all using specialized electronic commerce technologies. More importantly, business needs to be involved in electronic commerce because clients, competitors and colleagues are exploring this medium now.

The delivery of value-added content and services over the Internet's World Wide Web holds great promise for both businesses and consumers. Web-based businesses can offer a greater selection of products and services to a larger, global customer base. And because distributing products over the Web eliminates the high costs of product packaging and distribution, businesses can pass along some of their cost savings to customers.

The cost of doing business changes dramatically when content providers move from distributing physical items to distributing bits moved by electronic means. It is estimated that 75 percent of the purchase price of physical goods goes to support the underlying costs of manufacturing, packaging, distributing, and wholesaling and retailing the products. On the World Wide Web, content providers can avoid most manufacturing costs and all packaging costs for information

goods. They can also bypass traditional physical distribution and sales channels and directly deliver goods online to customers.

When information goods are freed from physical distribution and sales channels suddenly magazines and newspapers can be sold by the article, and the song can sell music.

In the information marketplace, can be used to sell stock quotes, database queries, articles, research, cartoons, clip art, music and video. On corporate intranets, software can meter access to applications, services, databases, and information resources.

The Internet and the Marketing Executive

The most effective promotional tool has been the ability of the Web to carry the message o marketing and communication professionals to targeted groups. Here, promotional information like: new product announcements, product catalogs, and training/seminar schedules, can be put on the Web. Interested customers and prospects can instantly click – get the information – and respond interactively. But the question remains – will the right people see the information since the Web with its massive scope can leave companies lost and unnoticed – buried deep in the sea of over 10,000 sites on the Web today?

The explosion in electronic marketing is the beginning of a new age in marketing communications that provides marketing executives with a powerful tool in reaching their audience. And the most exciting aspect is that it

provides two of the most important aspects of modern marketing philosophies – the ability to target select groups of buyers and to continue interactive dialogue.

The World Wide Web allows marketing executives to target specific buying groups.

In contrast to traditional marketing programs that are essentially one-way communications to relatively large audiences with varied buying interests, - electronic marketing on the World Wide Web develops an affinity between the customer and seller through a closer, more intimate relationship. Here customers have the ability to get information on-demand that relates precisely to their exact needs and develops a strong feeling of being highly served by the selling company.

Three Principles of Web Marketing

It is very important for the business world to understand that the Internet is not just another marketing tool. It is as revolutionary as any media is yet developed.

Provision of Information

The expansiveness of the Web leads to the first principle of Net marketing: provide information, provide as much quality content in as many forms possible. Use text, video, audio, and combinations to communicate. Unlike the print and broadcast media the web promoter is not restricted by the volume of content. The difference between the cost of one typed page and one hundred typed pages is minor. The current Internet user represents the most literate and educated population ever to walk the earth. These users actually read. They read more than any other group, and are seeking quality information. To market your services and goods, provide information.

Information they can personalize. If you choose, you can let users customize information so it is more personal to their needs, even while others are accessing the same information. Shadow files allow users to keep their own view of the information in a customizable format without jeopardizing the integrity of the original file. They can add bookmarks, sticky notes, and highlighters and can then search these areas, providing even greater efficiency.

Interaction

It is not enough to provide content and quality information to your Web site visitors, but interaction. This brings us to the second principle of Internet marketing. Build a relationship with your customer base. The Web is a community of people. They are on the Internet because they enjoy the interaction and communication that is provided. It is not, as many people first think depersonalizing. On the contrary, it is a " high touch" technology that enables, increases, and facilitates interpersonal communication. Many people report that as a result of e-mail alone they have increased their sphere of communication, often interacting on a daily basis with people across town or on the other side of the world. Stories abound of romances started on the

Internet and of lost friends found, and new friends made.

Simple online forums for your customers to talk about your products with each other. Online magazines, email newsletters, feedback forms, frequently asked questions, information request forms, easily found information, Online catalogs, and secure transaction methods, making it possible for consumer to decide to purchase and make the purchase easily, these are some of the things that make a successful Internet marketing strategy.

Dynamism

The third principle of Internet marketing: the Internet is dynamic. Recognize that the media is flexible and the massages can be quickly changed, updated, and expanded. Businesses do this in response to the feedback and relationship building process that is enabled by the Internet. Providing an interaction with quality content and information exchange does this. A new message can be made available in moments, not months!

In the old world of marketing and mass communication advertising alone cost millions of dollars just to create brand name recognition on a national or international scale. Small and medium – sized businesses could not compete on this playing field. The new world of Cyberspace enables the small entrepreneur to "level the field," a half billion consumers can be literally at one's fingertips.

Security

Security is a baseline requirement for network computing. Privacy, authentication, authorization, and integrity are all-important elements of any security strategy and work to defend against the threats of eavesdropping, manipulation, and impersonation, which are defined as follows:

Eavesdropping: where intermediaries listen in on private conversations.
Manipulation: where intermediaries intercept and change information in a private communication.
Impersonation: where a sender or receiver uses a false identity for communication.

Web security is a complex topic, encompassing computer system security, network security, authentication services, message validation, personal privacy issues, and cryptography.

The general goal of network security is to keep strangers out. Yet the point of a Web site is to provide the world with controlled access to your network. Drawing the line can be difficult. A poorly configured Web server can punch a hole in the most carefully designed firewall system. A poorly configured firewall can make a Web site impossible to use.

Security and rights management. As a commercial publisher, your information must be kept secure; you can't just hand it out to anyone who wants it. You determine who has access to

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your information, what they can do with it, and how long they get to keep it. Security can be set for users, user groups, and guests with password protection to prevent unauthorized access or adaptation of your information.

Censorship

The Internet, and the global broadband network it is evolving into, is one of humanity's most significant achievements – at least as significant as writing, printing vehicular transport, flight, electronic communication and computers. It cannot be censored in any useful way – unless only a moderate reduction is banned communications, whilst creating network inefficiencies, unenforceable laws and serious restrictions on free speech is considered to be useful. Attempts to censor the Internet based communications will be ineffective and cause serious problems for commerce and both private and public communication.

Digital Signatures/ Legality of electronic transactions

To help the Web reach its full potential, it is important that end users have a reliable mechanism for deciding what Web content they can trust. Documents implying commitments (e.g. price lists, press releases, political statements) requires sufficient magnitude of public trust. Publishers need a means to assure authenticity and users need to verify it. Both needs are addressed by attaching digital signatures to on-line documents. These signatures serve to identif_ the origin of a document. For many uses, however, there is additional information required to underly trust decisions. This typically takes the form requiring endorsements by parties trusted by the users.

As buyers and sellers in electronic marketplace do no meet face to face, authentication or providing to identify of both buyers and sellers is a must. Certification or guaranteeing identity or buyers or sellers by an official third party is sometimes also required.

K. T. LUMUMBA

Computer Analyst, National Industrial Information Centre, KIRDI

7. INDUSTRIAL INFORMATION MARKETING AND NETWORKING: INTERNET OPPORTUNITIES

Introduction

Information is a major resource to industrial development process. Industrial growth plays a key role in national economy in Kenya, like many other developing countries. It increases the importance of information and calls for better use of existing information services and the development of new services to cover technologies of growing economic importance.

The last decade, alone has seen wide application of Information Technology (IT) in almost all sectors of economic activity. It has much to offer; ranging from improved efficiency in business operations and service delivery to growth in local economies and high technology based industries. The advent of the Internet has changed the whole information-networking scenario.

"Networking" is normally used to refer to several autonomous peers and usually small groups linked up to share a resource (knowledge, information etc.) while in different places. Today, "networking" is synonymous to Internet, where Internet is a worldwide network of thousands of computers, making it the largest information bank and largest business window in the world.

The Internet

(a) History

Internet was conceived in the late 1960's when the United States (US) Defense Advanced Research Projects Agency (DARPA) launched a programme to build the ARPANET. The initial objective was to develop communication systems, which would allow networked computers to communicate. By mid 1980's, the number of the "Net" users had expanded internationally and had already begun to include commercial facilities. This is the same period a version of the Net (EUNET) was introduced in Europe. Internet reached the African continent in the late 1980's, South Africa and Tunisia being the first countries to acquire it Internet connectivity in Africa was initially taken by small Non- Governmental Organisations (NGO's) e.g. Environmental Liaison Centre International (ELCI) was the first to set up the first publicly accessible e-mail networks in sub- Saharan Africa.

All along, the Internet concentrated on networking facilities in educational, research institutions and government departments across the globe. This begun to change when in the mid 1990's the

private sector and international agencies (UN, WB, USAID, etc.) entered the Internet community. Indeed, today, the bulk of the system is made up of private sector commercial and industrial information.

The Internet has come to be accepted as the fastest and relatively cheap means to communicate information. In Kenya the Internet industry is experiencing gradual growth and the number of users is expected to increase as awareness increases and more people, institutions and organizations appreciate the immense resources on the Net. The last three years have seen an increase in the number of Internet Service Provider's (ISPs) and Internet Connectivity Providers (ICPs). There are now not less than ten (10) registered commercial isps in the country.

(b) Technology

The Internet uses Transmission Control Protocol (TCP)/ Internet protocol (IP) which was developed by the US Department of Defence. It uses an addressing system of the IP numbers, a group of four numbers, which rather like a phone number uniquely identify the location of a computer on the Internet. The net is composed of host computers spread across the world. A host computer is a computer with its own IP address connected to the Internet. There are various domain names used in the Internet (. com, .edu, .net, .uk, .org etc.)

Internet is not owned by anybody or country, has no frontier barriers, and gives worldwide coverage.

Internet Services and Business Opportunities

The information resources available through the Internet are immense. The volume of files accessible via the Internet is counted in thousands of gigabytes. The information is structured according to many, sometimes very poor patterns. In addition to the storage of information, there are various interesting forums packed with experts discussing new developments in their fields. Indeed asking questions and getting answers is a part of the Internet culture.

(a) Basic Internet Services

(i) **WorldWide Web (WWW)**
Allows a user to surf the Net. It is a user-friendly combination of servers with hypertext facilities, which allow the user to go through the www document. It is like an advert that is available for any one at any time. Further, it is interactive: one can make an inquiry right away.

(ii) **File transfer protocol (FTP)**
This is a facility for downloading information from a remote computer to a local one in the form of text, graphics or video.

(iii) Telnet (Rlogin)

This allows one to login into a remote computer attached to the Internet. The user can run any programme / application on the remote computer, if authorized.

(iv) Electronic Mail (e-mail)

E-mail is the most popular Internet service and many companies and individuals find it the most appealing part of the Internet. It allows one to send messages (letters) in seconds to many users anywhere in the world without printing the letters, putting them in envelopes, stamping and going to post them. The key advantages of e-mail over traditional communication modes (i.e. fax, phone, telex, cable and postal) are that: -

- It provides speedy, cheap and convenient means to communicate.
- Messages can be sent at any time regardless of time zone differences between countries or continents.
- Mail can be targeted to an individual or even publicly "broadcaste" at non-linear additional cost
- Saves on printing costs; given that printing is a secondary stage of e-mail, much of the information can be read expedited and deleted while still on line - thus saving on often costly paper.
- Does not necessarily need a dedicated phone line.

- Offers better confidentiality than comparative technologies - especially if passwords are supported.
- Can transmit text, voice and graphics.

(b) Business Opportunities for the Internet

More and more companies today are using the internet to establish **customer support** bulletin boards offering technical advice, monitoring customer satisfaction, providing new product information, and making software upgrades available electronically. The advantage of the Internet based customer service is inter-alia, instant access to information thus saving on long distance phone calls.

The Internet is a fertile file for companies **marketing and advertising** their products and services. Businesses that are able to target the Internet technocratic culture in a well-conceived and non- conflicting way can gain a competitive edge and boost income. The "home page" is the most effective marketing tool in the Net. However for it to attract prospective readers it should contain incentives to entice the Net surfers.

The Internet offers a low cost and fast information transfer mechanism, which makes the organization of work much cheaper than classic communication means such as phones and business trips. Thus co- operation **(remote collaboration)** with partners can be facilitated and improved if information exchange mechanism which are an inherent part of the internets are used by an organization.

Basic Requirements for Internet Connection

For a viable and sustainable network, the following pre- conditions have been identified necessary: sound planning and effective management suitable telecommunication infrastructure and computing systems. The last category merely entails a simple personal computer (PC), and communications software (e.g. Eudora, front door).

A modem is essentially used to convert messages (or signals) from digital to analogue, and vice versa.

8.   OBSERVATIONS AND RECOMMENDATIONS

At the end of the presentations and discussions, the seminar came up with observations and recommendations aimed at promoting commercialization of information services within Information Centres.

The crucial areas addressed hinged on marketing and networking of industrial information.

1.   Information Technology plays a very important role in information gathering, storage, processing and disseminating, and lately marketing of products and services.

2.   Commercialization of information services is a new idea which should be supported by all.

3.   A policy regarding access and co-ordination of information infrastructure in support of national development is lacking. KIRDI should ensure such a policy is formulated. This is the only sure way Kenya will achieve the goal of becoming a Newly Industrialized Country by the year 2020.

4.   The Information Resource Management System (IRMS^{plus}) is a useful tool for the implementation of INTIB network, the time allocated for training was inadequate. UNIDO and KIRDI should consider providing further training.

5.   INTIB should play an even bigger role in supporting information interchange and connectivity within the envisaged partners with KIRDI in order to help Kenya fully benefit from the current information communication technologies advancements.

6.   For INTIB to further develop as an effective network system, it is necessary to establish common standards and formats for data management and to harmonize existing systems where possible. KIRDI should spearhead this.

MR. J. AKENGA

Director of Information

CLOSING SPEECH

Mr. Chairman,

Participants,

Ladies and Gentlemen,

It gives me pleasure to be here with you this afternoon to preside over the official closing ceremony of the two-day seminar on "National Industrial Information Marketing and Networking".

This Seminar marks a beginning of a long journey for information professionals. I say so because the title of this seminar marks a beginning of a revolution in the profession of information professionals in that they have to review the nature of products and services, and the price they have to offer them. What methods are you going to use to offer the products and services and to whom are you going to offer those products and services? Who are your customers? Where are they located? What are their tastes? What type of information and in what format do they want it? I believe you have spent the two days at this hotel and at KIRDI looking for answers to the questions.

The Government has set the year 2020 when Kenya should achieve the status of a Newly Industrialised Country (NIC). We can not achieve the status of NIC unless we have access to information that will assist us in achieving the desired status.

The tools to use to access the information are very crucial and the speed at which we get information is crucial if we have to achieve this goal.

In your two days ' deliberations, I am told you have explored markets for information, the mechanisms of making it available, accessing it and the tools to use - computers.

The modern world is moving at a speed, which if we do not adjust to cope with it we shall be left behind or drop out. We need to take advantage c what other countries have gone through and leapfrog ourselves to narrow the gap. This will only be possible if we access to information. The years ahead of us are challenging and we must face them well equipped. We need to have well-trained personnel.

You have come up with recommendations and a plan of action that you intend to use as a measur of achievement or failure and I am glad when you meet in a few months' time you will be able to us these recommendations as a yard-stick to measure the progress to enable you to review the strategies of achieving your goals.

With these remarks, may I again express my Governments' and my own gratitude to United Nations Industrial Development Organisation (UNIDO) for the efforts and financial assistance they are according the Industrial and Technological Information Bank (INTIB) Africa programme.

To you participants, I thank you most sincerely because this seminar would not have taken place without your presence.

To KIRDI I congratulate you for the initiative you have taken. Keep it up.

With these few remarks may I declare this national seminar officially closed.

Thank you.

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APPENDIX I

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APPENDIX 2

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Assistants:	Mr. K. T. Lumumba
	Miss Beatrice Odero
	Miss Rachel Omao
Secretary:	Miss Z. Bogonko

SEMINAR PROGRAMME

Tuesday, 2nd Dec. 1997

8.00 - 9.00   Participants registration.

9.00 - 10.30   Official Opening. .

10.30   - 1 1.00   Tea/Coffee.

11.00   - 11.30   Brief Introduction on INTIB Programme.

11:30-12.30   information Products and services: Analysis of Users' Requirements, Adequacy and Quality of the Products and Services.

12:30 - 2:00   Lunch.

2.00 - 3.00   Marketing Applied to Industrial and Technological Information.

3:00 - 3:15   Tea/Coffee.

3:15 - 4:00   Promoting Industrial and Technological Information Products and Services: Strategy for a Marketing Campaign.

4.00 - 5:00   Guidelines for a Pricing Policy in View of the Commercialisation of Information Products and Services.

Wednesday, 3rd Dec. 1997

9:00 - 10:30   Internet and Networking Overview

10:30 - 10:45 Tea/Coffee

11:00 - 12:30   Internet Demonstration

12:30 2:00   Lunch

2:30 - 3:00   Discussions

3:00 - 3:1 5   Tea/Coffee

3:15 - 4:00   Recommendations and Plan of Action

4.00 - 5.00   Closing Ceremony.