Technology Identification

TI -Introduction

- **The identification of the most suitable, appropriate and efficient technology is an important activity which helps organizations to achieve their goals and remain competitive through creating new products or services or processes, improving current ones, working on patents, innovation and reducing costs.**

- **The identified technology may be the latest development or an innovative development originating in a completely different sector; creating new market opportunities.**

TI –Introduction (Cont.)

The identification of appropriate technologies should aimed

- businesses should stay abreast of advances in technology that are relevant to it.
- businesses should capitalize on the intelligence of technology and avail of market surveys so as to assess the business technological wants, or ones that may be of significance to the company;

TI –Introduction (Cont.)

Technological Identification occurs simultaneously in two different ways:

1. **Appraisal and analysis of the processes of production for a good or service.**
2. **Assessing the technological and scientific trends that can facilitate organization eradicating risk or modifying production methodologies**

One of the strongest paradoxes to be faced when considering identification of new technologies is an uncertain future, whereas forecasting and prediction are essential for investing in future innovation.

TI –Introduction (Cont.)

The TI activity must address the following questions:

- **How the company's technological needs are monitored?**
- **How does the company monitor technological developments and the technologies owned by competitors?**
- **How can we introduce, as embedded in product, technology to the market ?**
- **Which technologies can be used?**
- **In relation to competitive advantage, which technologies, competences and capabilities are necessary?**
- **Is the identified technology physically compatible?**
- **What is the impact to the system from the identified technologies?**
- **What is the readiness, or maturity, of the identified technology?**

Methods of TI

There are two methods of identifying a new technology:

1. Begin with a problem which requires a solution and review the new technologies available to eventually solve it.
2. Identify an innovative technology originating in a completely different sector which may be of potential interest for an application in other domain and may create new market opportunities.

Technical Identification

Technical identification process is affected by following factors:

- Technology Trends and Developments
- Business Requirements
- Internal Technical Needs and Technology Assessment
  - Technology
  - Tools
  - Process
  - People
- Existing Technology Assessment

Technology Trends & Developments

- **Technological changes and developments force organizations to choose an appropriate technology to remain competitive and sustainable.**
- **Organizations remain keen to keep up to date with every technological development in their respective domain;**

Business Requirements

- What are the nature and feature of new services?
- What would be the service development strategy?
- What are customer service requirement?
- What types of abilities would be required?
- Future trends, strategies & plans
- etc.

Internal Technical Needs and Technology Assessment

- **The technical requirements must be fully available to provide good products and services. Basic elements of technical requirements :**
  - **Technology:**
    - **Compatible with the Business plans, products and services.**
    - **Scalable, flexible, and reliable;**
    - **Meeting with future needs.**
  - **Tools:**
    - **Suitable and powerful to enhance organization's ability to reduce all complicated methods & maintenance issues**
  - **Process:**
    - **Powerful and automatic; able to remove delays in routine procedures and match with new technology and rapid change on life .**
    - **Speed up procedures for internal and external services and products development and delivery.**
  - **People:**
    - **Well trained and qualified employee improve and help it to proceed with new products and service that match with organization's business plan,**
    - **Well trained and qualified employee require less work force.**

Existing Technology Assessment

- gives a clear understanding to whether the current design, architecture and technology performance is meeting business requirements and needs.
- provides a quick snapshot of the current technology with an examination of the infrastructure, performance, availability, management and security.

Technology Identification Processes

TI can be formed from two sides:

1. **from business side that searches for every new services and technologies in the world trying to attract it to be applied in the business community;**
2. **from technical side that is responsible for searching for up-to date technology that can operate such new services and technologies.**

TI - Business Side

- **Involves three main processes:**
  1. **input,**
  2. **the main process, and**
  3. **the output.**

Input Process

Input process contains some external factors that affect the process of identifying the technology and the decision of choosing the appropriate one. These factors are:

- ***Technology trends and developments***
- ***Customers' needs and requirements***
- ***Market competition***
- ***Regulations***

Main Process

The identification process mainly includes seven processes:

1. **Scanning and Monitoring**
2. **Technology Intelligence**
3. **Technology Roadmapping:**
4. **Identify Customers Needs and Requirements**
5. **Identify the Technology**
6. **Making Preliminary Studies**
7. **Validation and Verification for the New services and Technologies**

MP 1- Scanning and Monitoring

Scanning or monitoring the internal and external environment on continuous basis is necessary since the external environment change rapidly and continuously. Product and services department can do the following:

- **Developing new service that will offer new challenges for the customers and Keep them pace with technological development**
- **Enhancing and maintaining the current service by adding additional features to it that will allow the customer to use it in the good way**
- **Following the Regulatory issue**

MP 1- Scanning and Monitoring (Cont.)

Bright (1970) states that technology monitoring should include many activities and not simply "scanning" and gathering data processes. It includes:

- **Checking the environment for signs or signals that could be beneficial in identifying technological advances.**
- **Identifying the possible ramifications and consequence of signs.**
- **Picking the parameters, policies, events, and decision that should be followed to ensure the correct pace and approach of technology and the impact of using it.**
- **The creation of a conclusion based on assessing the modifications in these viewings and observations.**

MP 1- Scanning and Monitoring (Cont.)

Porter et al (1991) suggest general four steps for the monitoring process:

1. Identify the monitoring aims and focus
2. Explain the technology and lay out the relevant context
3. Modify a relevant monitoring strategy
4. Understand and communicate results

MP 2- Technology Intelligence

- "the activity that facilitates organizations to single out the technological opportunities and obstacles that could have an effect on the future of its progression and existence.
- It strives to capture and diffuse the technological data needed for decision-making and strategic planning.
- Intelligence is derived from both internal and external resources. (explicitly or implicitly)

MP 3 - Technology Roadmapping

- refers to many types of prediction studies such as visions and detailed expectations of future possible technological advancements, goods or environments.
- It represents a particular method for technology planning, which works inside a broader framework of planning activities.
- It is adopted in many environments, including physical and service product planning, development of product family tree, and program planning.

MP 4 - Identify Customers Needs and Requirements

- Organizations seek to win customers satisfaction through providing them with the best of its products and services.
- Marketing research help to collect information from customers and public that can be used to:
  - identify and define marketing opportunities and problems;
  - generate, refine, and evaluate marketing actions;
  - monitor marketing performance; and improve understanding of marketing as a process.

MP 4 - Identify Customers Needs and Requirements (Cont.)

- Finding out what the end customers want, need and expect and how satisfied they are with what they get is an important issue for the success of the firm. Organizations use the following methods for this:
  - Telephone interviews
  - Questionnaire
  - Face –to-face interviews
  - Focus group

MP 5 - Identify the Technology

After identify the customer needs and requirements organizations try to search for every new technologies and services in the world that enable them to serve the customers and provide them with what they want. So organizations keep touch with the vendors to be informed with the last and upto dated technologies used in the world.

MP 6 - Making Preliminary Studies

Through preliminary studies, organizations primarily analyze consumer behavior in order to discover

- who is buying,
- what they are buying,
- where they are buying it, and
- when people buy products or services and
- then asking the question why are they buying it?

- Preliminary studies help organizations to find out what they can do to entice customers to buy their product or service.

MP 7- Validation & Verification for the New Services & Technologies

Before introducing any new services and products Market research team study the market situation and the needs of the customers, formal and informal organizations for the new services. marketing research team do the following:

- Market Analysis
- Forecasting studies
- Analyzing the collected data
- Generating the required reports
- Making feasibility studies
- Pricing the new products

Output Process

Technical team usually working on checking the technical requirements necessary to supply new services and working on:

1. Finding out the technical requirements ,specification, criteria needed to run the new services or product
2. Verifying the ability of the current used technology, network, devices and equipments, to support new services or they needs to make some improvements and enhancement or use new one.
3. Assess the readiness of the existing state from all perspective and sides, including assessment of the following elements:

- Existing infrastructural design
- Configuration
- Accessibility
- Management and security
- Devices and equipments
- Location availability

Output Process (Cont.)

- Technical identification process is concerned of choosing up-to date, modern and appropriate technology to operate any new services that enable the organization to meet the customers' needs and get them satisfied and even offering the best quality services.
- Technical identification process begins with receiving the business requests for operating new product and services and end up in the form of a document known as "service description documentation (SDD)".

Output Process (Cont.)

The SDD includes the following main subjects:

- Service definition
- Service description
- Service features
- Rational of the service
- Target customers
- Service development strategy
- Technical requirements
- Technical specification
- Support requirements
- Customer service requirement
- Billing requirements
- Documentation
- Training

Vendors Recommendations

- Organizations usually looking for basic technical criteria that enable them to provide high quality of services and enable them to add additional value to it in the future, in addition to considering the operational and financial criteria.
- Vendors are considered as major players in the process of identifying the appropriate technology.
- Organizations usually make differentiation and comparisons between vendors by looking to the criteria and specifications of the services and devices through Request for Proposal (RFP).
- RFP includes an overview of the projects that will be applied at the organization, the statement of the work, the scope, specifications and requirements of the work, vendor information, vendor qualifications, vendor certification, evaluation criteria, technical and financial evaluation criteria, budget& estimated pricing, selection and notification.

SDD

- Business requirements summarized in a document known as “service description documentation (**SDD**)”, which includes in its content a full definition and description of the new service, the specification, characteristics and features of it, in addition to the technical requirements and other parameters needed to operate it.