listened too much to their users. Branding is really about differentiation, about standing out. User centeredness leads to the opposite, similarity.

2.17 Manufacturer-led Innovation

- This is also referred to as Business-led or company-led innovation. The manufacturer and employees are the source of innovation.

2.18 Collaborative Innovation

The term ‘collaborative innovation’ is used to describe innovation that is performed by individuals or teams from multiple organisations, such as companies, academic institutions or government bodies, as distinct from innovation performed within a single organisation.

2.17 Business Model Innovation

- Business Model Innovation refers to the creation or reinvention of a business itself. Whereas innovation is more typically seen in the form of a new product or service offering, a business model innovation results in an entirely different type of company that competes not only on the value proposition of its offerings, but aligns its profit formula, resources and processes to enhance that value proposition, capture new market segments and alienate competitors.

General Important Points about Innovation

- According to the OECD, innovation is the implementation of a new or significantly improved product, good or service or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations of a company.

- A broad definition such as the OECD definition above, encompasses a wide range of innovation types, in narrower terms innovation can be related to one or more of its forms, for instance product and process innovations.

- Innovation takes place not only when technologies are developed but also in business practice, workplace organization and companies' external relations. Innovation may originate in the R&D sector within or outside of company research centres.

The major features include that innovation:

- Is associated with uncertainty over the outcome of innovation activities.

It is not known beforehand what the result of these activities will be, e.g. whether R&D will result in the successful development of a marketable product or how much time and resources will be needed to implement a new production process, marketing or organizational method, and how successful these will be.
• Customer visit team

✓ With this approach, visit teams (cross-functional, typically three people) visit your customers or users; they use in-depth interviews based on a carefully-crafted interview guide to uncover user problems, needs, and wants for new products.

✓ The major advantages users claim are the ability to identify and focus on customer problems and unspoken needs during these interview sessions, a vital source of product ideas.

✓ The main challenges are getting customers to cooperate - to agree to the session and to provide honest answers, finding the time to do this valuable study - in-depth interviews at multiple customer sites do take more effort than most of the methods, training the interviewers, and designing a robust interview guide with the right questions.

✓ In spite of the challenges, however, this Voice of Customer (VOC) visit team method is definitely recommended.

• Lead user analysis

✓ The theory is that if one works with innovative customers, then innovative product ideas are the result. The technique often entails assembling a group of particularly innovative customers or users (a group workshop) to identify problems and potential solutions.

✓ The advantage of lead user analysis is that innovative customers, who are ahead of the wave, are quite likely to have your next new product idea; and this method is how you can uncover what it is.

✓ The major challenges are identifying who the innovative customers are, getting them to participate in an off-site workshop, and then structuring and running the workshop session properly.

• Partners and vendors

✓ This method entails seeking ideas from outside partners and vendors

✓ The advantages of this method are that vendors and partners bring to the table technical capabilities that may be beyond your scope of expertise. Buried within these capabilities are the seeds of your next great new product. The trouble is that vendors or partners may be equally as uncreative at ideation as you are hence you cannot expect a plethora of great ideas from this source. Nonetheless, because it is a tried-and-proven approach, is quite popular, and yields decent effectiveness ratings.

• External Product designs
According to Annamaria Wilis (2010) an innovation audit carried out by individuals or organisations before they embark on their innovation programmes should be in terms of the following:

- **Knowledge**
  - Knowledge of industry and markets
  - Deep knowledge of customers and competitors, who are the best and why.
  - Knowledge of different but related products and services including substitutes.
  - Understanding of business environment including technologies, policies, legislation etc.

- **Competencies**
  - Creative thinking, able to challenge and identify new market opportunities
  - Analytical skills - how to design significant improvements
  - Project management - to define, plan, monitor and control change activities
  - Risk management - able to think ahead, identify, prioritise and mitigate barriers to success.

- **Attitudes**
  - Determine how people work
  - Positive approach - operating in hope of success rather than fear of failure
  - Seeking synergies - open to collaboration. Be able to link with others
  - Inquisitive mindset - curiosity about doing things differently and willing to change status quo.
  - Breakthrough thinking - continually seeking to dramatically improve the way things are - never settling for the average or second best.

- **Behaviours**
  - They determine conduct
  - Determination - always sees things through, resilient in the face of failure.
  - Visible and active support-making it clear you actively support others engaged in innovation.
  - Encouraging others - mentoring and coaching others, being the catalyst for the team. Being a visionary.
  - Positive challenge - helping and supporting others to think differently.

An innovation audit might also consider the following:
  - Strategy
  - Resources
  - Organisational culture
  - Teams
  - Leadership and management
An alternative is to adopt the McKinsey’s 7S based on the following:

- Strategy - This considers questions about strategic plans, innovation and change.
- Structure – This considers questions of roles and responsibilities.
- Systems – This looks at the processes which govern the organisation’s actions.
- Skills – This reviews the skills within the organisation as well as identifies what gaps exist within the skills set.
- Staff – This considers personnel and team aspects.
- Styles – This touches on organisational culture and tools adopted.
- Shared values - This touches on culture, vision, rewards and attitude of employees.

A summary of the benefits of an innovation audit is as follows:

- It enhances the company’s innovation capability;
- It identifies opportunities for increasing innovation;
- It clarifies where the organisation needs to focus to maximize innovation success;
- It embeds innovation in the company’s processes;
- It can build on individuals’ creativity to be innovative;
- It can identify and control the barriers that stifle creativity and innovation;
- It fosters innovation in the organisation’s culture.
- It can align the organisation in common purpose and action.

### 3.8 Disciplines of Innovation

- Companies find it difficult to manage their innovation processes systematically. They rely on spontaneous or ad hoc creativity and charismatic senior professionals.

- Most ideas do not come as a flash of inspiration to a lone genius inventor, they come from how people create, combine and share their ideas.

- Innovation like many business functions is a management process that requires specific tools, rules and disciplines.

- Innovation disciplines are guidelines and procedures that help entrepreneurs and organisations systematize their process of innovation.

**Why systematize**

- Because the need for innovation is becoming greater as the context is becoming greater for the creative industries is changing.
- New technological platforms
- More institutional change (regulatory requirements)
- New products for new markets.

### 3.8.1 Innovation disciplines

- A systematized method
  - Coming up with new ideas that work requires a discipline. A systematized method applied from idea generation right through to implantation.

- Purpose
  - The ideas have to have a purpose. The process asks the question - what is important not what interests us.

- Understand customer needs
What is important is developed from understanding what the customer needs—understanding comes from observation and engagement.

- **Practical input**
  - The method requires practical input (how) all the way through from people who have that expertise.

- **Review, reflect and develop**
  - The method requires frequent reviews, reflection and development.

- **Quantify results**
  - Results (what will happen if we do x) have to be quantifiable to be credible.

- **Build on what is known**
  - The process is knowledge compounding that is it builds on what is known rather than starting from scratch.

### 3.8.2 Principles of innovation according to Thomke

- Thomke outlines six principles companies can follow to unlock their innovative potential. These are:
  - **Anticipate and exploit early information through front loaded innovation process.**
    Innovation must be continuous. Front loaded innovation processes mean that the organisation should have a culture of innovation. Innovation that is continuous and on-going. The innovation must not be ad-hoc.
  - **Experiment frequently but do not overload your organisation.**
    Research and development must be present for research. It must not be over-emphasised because research and development is expensive.
  - **Integrate new and traditional technologies to unlock performance.**
    We use existing technologies for example morphological technologies where we tear and dismantle a product to see what it is made of, how it is made and the opportunities for innovation. We merge traditional technologies with new technologies.
  - **Organise for rapid experimentation.**
    Experiments should be done quickly but carefully. Ideas need to be experimented quickly. Try every word that comes on board. Feasibility studies need to be carried out.
  - **Fail early and often but avoid mistakes.**
    When organisations work on their innovation programmes they need to find out as early as possible problems that might affect the innovation out the programmes so that they can see that what they are doing is possible or not before they expend a lot of resources.
  - **Manage projects as experiments**
    When organisations work on their innovation projects they should do so scientifically.
patience and flexibility to establish a mass consumer market. Studies suggest that the success of product pioneers ranges between 25% for consumer products and 53% for higher technology products depending on technological and market conditions.

**NB** Factors that impede an organisation from realizing benefits from its innovation are not limited to the above factors. There are numerous factors, read widely.

### 4.4 Diffusion and Adoption of Innovations

The term “diffusion” term comes from the Latin word meaning “to spread out”. Gases and vapors are the examples that fit the definition of the term. They slowly expand and spread through available space. “Diffusion” is a concept that is linked with the idea of innovation. The terms “diffusion of innovations” and “spread of innovations” can be used interchangeably.

The term “imitation” was used by some scientists instead of “diffusion”. Many people also have used “technology transfer”, but this term refers to spread of technology from one industry to another, or among different economies. In some contexts diffusion may be analogous to the spread of information, but our concern here is the spread of physical items or techniques and practices. Some use the term “innovativeness” as a characteristic of the organization that shows the degree to which an organization wants to invent or adopt an innovation.

“Innovation Adoption” and “Innovation Diffusion” have been used interchangeably in the literature on innovation. It can be defined as a diffusion process from the industry viewpoint, but from the organizational viewpoint the term “innovation adoption” can be used. Diffusion process may also take place within the organizations.

Diffusion is defined by some as a means whereby innovations become part of the production function or product range economic units which are not the originators. It is also viewed a phase of technical change. According to other scholars diffusion is the stage where the benefits of an innovation are generalized. From the innovator, the innovation passes through other users until it finally becomes a commonplace and accepted part of productive activity.

### 4.4.1 Categories of Innovation diffusion and adoption

Diffusion of innovation takes place in two forms. These are diffusion of the innovations in the industry or market and diffusion in the organisation. Diffusion of the innovation relates to early or late adopters and diffusion in the organisation is interested in the organisational characteristics.

### 4.4.1 Factors influencing innovation diffusion and adoption in the market

What factors affect the adoption and diffusion of innovation in the market?

A number of characteristics of an innovation have been found to affect diffusion (Rogers, 2003) These innovation attributes are related to adoption of the innovation. These characteristics were suggested to show how individuals’ perceptions of innovations may be utilized in predicting the rate of adoption;
Complexity

It is the degree to which an innovation is perceived to be difficult to understand or use. In general, innovations that are simpler for potential users to understand will be adopted more rapidly than those which require the adopter to develop new skills and knowledge.

Trialability

It is the degree to which an innovation can be experimented with on a limited basis. An innovation that is trialable represents less uncertainty to potential adopters and allows for learning by doing.

Innovations that can be trialed will generally be adopted more quickly than those which cannot. The exception is where the undesirable consequences of an innovation appear to outweigh the desirable characteristics.

In general, adopters wish to benefit from the functional effects of an innovation, but avoid any dysfunctional effects. However, where it is difficult or impossible to separate the desirable from the undesirable consequences, trialability may reduce the rate of adoption.

Observability

It is the degree to which the results of an innovation are visible to others. The easier it is for others to see the benefits of an innovation, the more likely it will be adopted. The simple epidemic model of diffusion assumes that innovations spread as potential adopters come into contact with existing users of an innovation.

4.5.0 Approaches to Innovation

There are two approaches to undertaking innovation in organisations. These are;

- Closed innovation
- Open innovation

4.5.1 Closed innovation

It was used almost exclusively from the end of World War II (1945) until the middle 1980s. Its main tenet was best summarized as “Not Invented Here.” In other words, ideas that came from outside the company were viewed skeptically.

Innovation occurs within the boundaries of an organization and is performed by the company’s own employees within its internal R&D function.
Once open innovation is adopted, the organization's boundaries become permeable and that allows combining the company resources with the external co-operators.

The difference between open and closed innovation is that in the case of closed innovation the ideas, inventions, investigations and developments required to place a product in the market, are generated within the company. However, when applying the open innovation system, the company can use external resources such as technology and at the same time make available their own innovations to other organizations.

Under the open innovation paradigm, there is an important flow of external knowledge into the organization which can be incorporated into projects in cooperation with external partners and causes the purchase and incorporation of external technologies. At the same time, the innovations generated within the company can be sold as technology and/or industrial property to other organizations since either they are not applicable within their business model or because the company has no capacity or experience to develop the invention. The final result is that some products reach the market by using exclusively internal resources from the initial idea up to the commercialization of the final product. Other products are the result of incorporating external knowledge at different stages of their development.

Advantages of Open innovation

There are clear advantages of opening the innovation process to the flow of ideas and knowledge in both directions. They can be summed up as follows:

Reduction in the time and cost of innovation projects

Incorporation of solutions and innovations in the form of ideas, patents, products and technologies which would have never been generated by the company due to lack of time, knowledge and technological resources

Commercialization of inventions which are due to lack of ability or to strategic reasons cannot be placed in the market by the company owning them.
This type of entrepreneurship only fits the original Schumpeterian definition if the transformation involves innovation, a new arrangement or combination of resources, and results in the creation of sustainable economic value.

A middle manager at Sun Financial Group reorganized the internal value chain of his department in order to create a new and unique service proposition to their agents. As a result, the company’s service delivery was given both a speed and cost advantage over their competitors. In fact, this manager wound up using fewer resources in developing his new business model.

**Industry rule-breaking**

- It is a subset of transformation, but involves not only transformation of the enterprise but also the competitive environment of the industry into something significantly different than it was.

- Stopford and Baden-Fuller (1993) calls it “frame-breaking change”.

- Toyota for example, in the automobile industry, changed the rules of the game by producing low cost automobiles with exceptionally high quality. US and European auto manufacturers were forced by Toyota and other Japanese automakers to follow suit. Thus, Toyota not only transformed itself, but also helped to start a wholesale transformation of the industry.

**Commonalities in the four Typologies**

The four forms of Corporate entrepreneurship share common elements with each other and with external or start-up entrepreneurship. These common elements are;

- The creation of something new that did not exist before. This something “new” could be a new business-within-a-business, a product, a service, a delivery system, or a new value proposition to the customer.

- These “new things” require additional resources and or changes in the pattern of resource deployment within the organization.

- Learning takes place in both the creation of the “new thing” and its implementation which results in the development of new organizational competencies and capabilities.

- The new business, product or service is intended to result in long-term economic value and the creation of wealth, be it for the shareholders, owners, or society.

- The financial returns resulting from the “new thing” are predicted to be better than the returns resulting from the current deployment of resources.
sustainability (e.g. energy management) to simply make the existing business more environmentally friendly to take advantage of the benefits.

✓ An ecopreneur is an environmental entrepreneur.

✓ A person who is determined not only by the possibility of making profits, but is also determined by environmental issues.
✓ He/She wants to make the world a better place by improving, or at least protect the environment.
✓ The terms environmental entrepreneurship, ecological entrepreneurship and ecopreneurship are used synonymously to mean innovative behavior of individuals and organizations operating in the private business sector, which see environmental issues as a central objective and competitive advantage.

✓ The ecopreneurs identify environmental innovations and their market opportunity and successfully transform these innovations into new products or services.

✓ Ecopreneurship is not only limited to singular actors, as founders of organizations focused on environmental medium or intrapreneurs operating in an existing organization it also includes ecopreural organizations, organizations which act ecopreurally and encourages the environmental intrapreneurs and ecopreneurs within themselves. Hence corporate ecopreneurship.

7.1.7 Ecotechnopreneurship
✓ It is technological ecopreneurship.
✓ Ecopreneurship that embraces technology, hence ecotechnopreneurship.
(b) to connect science with industrial usage and other fields

(c) to develop regional economies by retaining and incorporating skilled workers as well as to create appealing and creative jobs.

(d) to provide consulting services and establish new technologies. The services offered by technological parks can vary. However, the most frequent ones are as follows

**What services do technological parks offer?**

The services offered by technological parks can vary. The most frequent ones are as follows.

- **Co-financing of business premises**
  Because of funding provided by the government, other institutions and companies, the amount of rent for the business premises and other resources is lower than the market price for the companies included in the technological park, at least for the first few years. The duration and amount of financial help depend on the policies of each technological park; however, the funding usually decreases with each year. In this manner the companies can gradually adapt to the market conditions.

- **Prestige**
  The companies included in an established technological park enjoy special renown which similar companies not included in the park do not. That is especially important when it comes to conducting business deals, raising extra funding (creditworthiness with financial institutions) and seeking help at university centres.

- **Possibility of informal contacts**
  Owing to the concentration of high-tech companies, a technological park offers ideal conditions for establishing informal contacts (common areas for socializing) and cooperation with research institutions.

- **General and administrative services**
  Companies within a park may use common administrative and secretarial services, courier service and photocopying. They may also rent the same conference and teleconference halls as well as telephones, fax machines, photocopiers and other similar equipment.

- **Consulting services**
  Different kinds of training and consulting are organized by the management of the park, external experts and sometimes even companies in the park. Consulting usually consists of the initial help with forming a business plan, preparing documentation necessary for the granting of funds, advising on legal and financial matters, insurance, marketing, human resources and so on.
Technopreneurs can acquire some of the required capital for establishing a new technology-based firm from friends, relatives or acquaintances, but that is not enough especially if they want to grow to a significant degree, they will need outside capital.

Most important sources of outside capital for technopreneurs are corporations (for their corporate spin-offs), venture capitalist, angels, public stocks, government grants and banks.

One of the most common ways of financing new technological companies is venture capital. A venture capitalist invests capital in certain companies on behalf of the investors. In return for the invested capital he receives ordinary shares, preference shares and fungible bonds.

The returns from the company’s growth are realized with the sale of the equity share. The institutional investors, banks, pension funds, insurance companies and the government can all form funds. At the same time there can be independent funds which are managed by professional teams of venture capitalists.

Investors in a venture capital fund expect their investment to increase in the long term. The average life expectancy of a fund is approximately ten years. In that time the investors should get their stakes back along with the realized returns. Good venture capitalists should
(a) master different technologies
(b) be a successful manager
(c) assume responsibility for the company’s returns
(d) assess the managerial and leadership qualities of the entrepreneurs and employees,
(e) be persistent
(f) have a good sense of judgement
(g) know how to deal with the changes in technology and markets
(h) have an expert knowledge of market conditions

Besides equity financing, new technological companies can also apply for debt financing. However, this kind of financing is normally quite limited at first since the entrepreneurs of small companies usually do not have enough high-quality guarantees for the bank to grant them long-term loans, despite the fact that their projects are viewed positively.

In debt financing, the entrepreneur assumes the responsibility of paying off the principal and the corresponding interest. The advantage of debt financing is that the entrepreneur does not have to pay the whole sum at once, but postpones some payments for a future time. Also, the investor does not own a part of the company or have any control over it. The down side is that the entrepreneur must assume the responsibility of paying the debt off in the future – an obligation which does not hinge on the company’s profits.

Market/customers

The main focus of all entrepreneurs should be the customer. Although technopreneurs are often focused on technological challenges and product development, they should also
focus on market feedback, on how to be successful in commercialization and marketing of high-tech products, the high growth strategies, the internationalization issues, the environmental issues and many other market-related issues.

- Marketing of high-tech products
  - The last two decades of the twentieth century witnessed a marked growth in the use of marketing techniques in high-tech industries Davis et al. (2001) and Easingwood and Koustelos (2000).
  - Historically high-tech companies have relied on their unique technological advantage to remain competitive, the firms have found that it is becoming more and more difficult to maintain a competitive edge through technological advantage alone.
  - The marketing efforts of high-tech firms are as important as, if not more important than, the reliance on state-of-the-art technology. Although all of the fundamental principles of marketing apply to the high-tech industry, there are industry and product-specific factors that affect the development and implementation of successful high-tech industry marketing strategies. These industry specific factors include the following:

  (a) The short life of high-tech products
    - Owing to the high rate of change in technological development, the proliferation of innovative products and the market demand for leading-edge capability, most products in the high-tech industry have an extremely short product life. This has several significant product development and marketing consequences and puts pressure on reducing time-to-market and ensuring that the product will be backward compatible.
    - Short product life and the need to reach break-even within a compressed time frame has resulted in the need to sell in multiple markets, including international markets, almost simultaneously, and has resulted in the wide use of skimming strategies, rather than penetration strategies.

  (b) The interdependence of high-tech products
    - There is no other industry where what one company does technologically can require so many other companies to change their products and where both product developers and product purchasers are preoccupied by interconnectability and interoperability concerns.

  (c) Tech-support
    - There is probably no more important factor in high-tech product marketing than tech-support.

  (d) Maintenance pricing
    - The pricing of maintenance agreements, service agreements and warranties in the high-tech industry is complex, but of extreme importance.
✓ In order to reach a favourable ratio between the cost for the support and its effectiveness, the government must
(a) clearly state the goals of its policies,
(b) identify appropriate programmes which will help it realize its goals in a certain time frame and
(c) appoint effective mechanisms (support organizations) for conducting these programmes.

✓ It is advisable that the government organize types of support which provide the development of a business environment which stimulates
- entrepreneurship
- simplification of procedures and tax cuts,
- development of new units,
- access to financial sources, information, consulting and guidance,
- help with technical and technological problems
- links between small, medium-sized and big firms, and the development of distribution networks and support with internationalization of business.

✓ The government may also offer support for firms at the national, regional and local levels by helping individual firms with
- favourable loans (subsidized interest rates, lesser guarantees, longer repayment periods)
- tax cuts
- favourable amortization costs
- nonrefundable employment benefits and low costs for firms wishing to buy or rent business space and equipment
- and also by developing business infrastructure special financial institutions (funds), incubators, business zones and the rest.

Advocacy
✓ Research on the problems of small firms has shown that there are typical gaps in the abilities of small firms, where it is reasonable to help with various types of consulting and training. These gaps are.

Information gap
Entrepreneurs who have just recently established their own firm lack certain information necessary for the preparation of business plans and the making of sound business decisions. Advisors are therefore the people who offer entrepreneurs basic business information at the lowest level of services.

A gap in problem solving and technical capabilities
Individuals who are new at running their own business and are more used to the safety of the organizational environment of big firms where others make decisions, often never developed or tested their own analytical capabilities. They do not know how to recognize problems and solve them in a fast and efficient manner – advisors will help them in learning how to do just that.
Technopreneurship contribute to the economic development of a country through creation of new companies this eventually increase the productive capacity of the economy as more idle resources are brought into use.

**Increased potential for value addition**

Nearly all developing countries/economies including Zimbabwe are characterized as producers and exporters of natural resource based goods, whereas economic thinking dictates that these countries should change their strategy from being merely merchandise producers to technology developers in order to experience higher levels of development and producers of value added products.

**Increase economic competitiveness**

Science, technology, innovation entrepreneurship has been proven, not only to be the impetus for growth and economic prosperity, but also serves as the foundation for the transformation of the new economy.

- **Sustainable Development**

  Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development in its essence means working together in order to create a future that will in least possible manner exploit the resources, eliminate degradation provoked by pollution and waste accumulation, avoid any actions that provoke disturbance and disruption of the environment, build strategic, long-term dimensions and growth and solutions. Technopreneurship enhances the implementation of new and better technologies in different production in ways that minimise the effects of economic activity on the environment, so that the cost do impact and fall on future generation. Ecotechnopreneurship is therefore important and should be encouraged.

- **Significance of Technopreneurship to organisations**

  ✓ Reduce labor costs
  ✓ Competitive advantage
  ✓ Enterprise growth
  ✓ Business renewal
  ✓ Organisational survival
  ✓ Improve firm performance

**Reduce labour costs**

Technopreneurship reduce the labour costs of the organisation. This could be achieved by cutting on the number of employees or as productivity increase less labour hours are experienced. Reduced labour costs translate to low prices thereby making the company competitive.