International Journal of Technical Research and Applications e-ISSN: 2320-8163,
www.ijtra.com Volume-2, Special Issue 7 (Nov-Dec 2014), PP. 49-62

THE NATURE OF TECHNOLOGY, TRANSFER AND FUNCTIONS CASE STUDY: PRINT TECHNOLOGY TRANSFER TO KHORASAN DAILY

Reza Ghiasabadi Farahani
PhD student in Development and Economic Sociology,
Science and Research Branch, Islamic Azad University of Tehran
Director of Logistic Department - Khorasan Cultural & Artistic Institute
Iran, Mashhad
ghiasifr@gmail.com
ghiasabadi@khorasannews.com

Abstract-

The rate technological advances since late 20th century has been so high that the world does not look like real. Human Faced with this occurs remains in mystery. Technology services in various sectors has created positive change, But it has created problems for some countries. Social and technical experts have a lot of questions in these countries, "What is technology?", and "how technology is changing society". At the same time, a variety of transfer modes and its effects, have many problems particularly in the Third World. Iran is encountered with two important problems, like many countries. The first issue is the manner and mode of transfer and next one is functions of technology in religious Society of Iran. Technology transfer, necessary skills transition, maintenance, repair tools and equipment, are some of problems. Problems in Iran are compounded with economic sanctions imposed by Western countries. This paper, based on opinions of the diverse nature of technology and its social functions. Finally, the article is about style selection and transfer of the most modern sheet printing machines to Institute Khorasan. Khorasan Daily News is the oldest local Daily in Iran which has been published since June 22, 1949 when it was started as a local Daily. The Daily has been published nationwide for ten years. Fifty-eight years ago, Khorasan Daily News was initially printed by Letterpress printing machinery. Later on, there was a great improvement of equipment in Khorasan Printing House in 1992 by employing Apple Macintosh computers and a "Coldset" web-offset printing machine which was unique at its own time. "Now Khorasan Institute" owns five Daily's and a collection of published works by various devices . This paper describes the technology transfer "A Sheet Printing Device."In the hard way, some companies and institutions are trying to overcome problems.

This paper has studied: How is the choice of technology at Institute of Khorasan? How confident were obtained ? What are available capacities of Iran at printing industry; coming barriers, Success factors and process executive?

Khorasan Institute is a successful model at technology transfer in difficult conditions.

Key words: Technology; Technology Transfer; Functions of Technology, Transfer and; Khorasan Daily

1. Introduction

Humanity or Mankind has evolved from the essence that separates humans from beasts: the ability to use the mind for reason. Reason is the ability to analyze, create, deduce, and formulate. It is reason that enables human beings to strive to invent; it is through invention that mankind has developed society and created abettor world.

The definition for man stated that "Instrument maker. "From the inception of man on earth, was able to make tools and use them to fit with its purposes.

This feature is unique to humans, he has allowed despite the fairly limited physical ability to recruit other beings. Technology is from results of this unique human ability. Technology can also change the human in terms of his or her characteristics and abilities.

Technology has moved away from merely making our lives more convenient, and now it has the potential to change every aspect of what we are as humans. We are becoming transhumant. The rate technological advances since late 20th century has been so high that the world does not look like real.

At this period every year a new technology to was released Some of them remained and others are gone, Some of the previous technologies that drive changes in the market. But the same technologies that have changed our lives completely Human Faced with this occurs remains in mystery. Technology services in various sectors has created positive change, But it has created problems for some countries. Social and technical experts have a lot of questions in these countries,

"What is technology?" ,And " how technology is changing society" .

At the same time, a variety of transfer modes and its effects, have many problems particularly in the Third World.

How technology is chosen ؟What are the methods of technology transfer? How was transferred technology to Khorasan Institute?

This paper has studied:

How is the choice of technology at Institute of Khorasan? How confident were obtained ?What are available capacities of Iran at printing industry; coming barriers, Success factors and process executive?

Khorasan Institute is a successful model at technology transfer in difficult conditions.

1-What is The Nature of Technology?

Technology (from Greek τέχνη, techne, "art, skill, cunning of hand"; and -λογία, -logia) (Georg and scott, 1980) is the collection of tools, including machinery, modifications, arrangements and procedures used by humans. Engineering is the discipline that seeks to study and design new technologies. Technologies significantly affect human as well as other animal species' ability to control and adapt to their natural environments. The term can either be applied generally or to specific areas: examples include construction technology, medical technology and information technology.

Generally, technicism is a reliance or confidence in technology as a benefactor of society. Taken to extreme, technicism is the belief that humanity will ultimately be able to control the entirety of existence using technology. In other words, human beings will someday be able to master all problems and possibly even control the future using technology. Some, such as Stephen V. Monsma, connect these ideas to the abdication of religion as a higher moral authority. (Monsma, ,1986)

The western term 'technology' comes from the Greek term techne (τέχνη) (art, or craft knowledge) and philosophical views on technology can be traced to the very roots of Western philosophy. A common theme in the Greek view of techne is that it arises as an imitation of nature (for example, weaving developed out of watching spiders). Greek philosophers such as Heraclitus and Democritus endorsed this view.(Franssen, 2010) [In his Physics Aristotle agreed that this imitation was often the case, but also argued that techne can go beyond nature and complete "what nature cannot bring to a finish."(Aristotle, Physics II.8, 199a15)

Aristotle also argued that nature (physis) and techne are ontologically distinct because natural things have an inner principle of generation and motion, as well as an inner teleological final cause. While techne is shaped by an outside cause and an outside telos (goal or end) which shapes it. (Aristotle, Physics II). Natural things strive for some end and reproduce themselves, while techne does not. In Plato's Timaeus, the world is depicted as being the work of a divine craftsman (Demiurge) who created the world in accordance with eternal forms as an artisan makes things using blueprints. Moreover, Plato argues in the Laws, that what a craftsman does is imitate this divine craftsman. Greek craftsmen also became wealthy and often attracted women and men alike.

During the period of the Roman empire and late antiquity, practical works such as Vitruvius' De Architectura (1st century BC) and Agricola's De Re Metallica (1556) were produced. Medieval Scholastic philosophy generally upheld the traditional view of technology as imitation of nature. During the Renaissance, Francis Bacon was one of the first modern authors to reflect on the impact of technology on society. In his utopian work New Atlantis (1627), Bacon put forth an optimistic worldview in which a fictional institution (Salomon's House) uses natural philosophy and technology to extend man's power over nature. This is to be done for the betterment of society, through works which improve living conditions. The goal of this fictional foundation is "...the knowledge of causes, and secret motions of things; and the enlarging of the bounds of human empire, to the effecting of all things possible."

The native German philosopher and geographer Ernst Kapp, who was based in Texas, published the fundamental book "Grundlinien einer Philosophie der Technik" in 1877.(Kapp ,1978)

Another, more materialistic position on technology which became very influential in the 20th century philosophy of technology was centered on the ideas of Benjamin Franklin and Karl Marx.

Five prominent 20th century philosophers to directly address the effects of modern technology on humanity were John Dewey, Martin Heidegger, Herbert Marcuse, Günther Anders and Hannah Arendt. They all saw technology as central to modern life, although Heidegger, Anders Arendt [and Marcuse were more ambivalent and critical than Dewey.

The first pages of "The Question Concerning Technology," set the terms of Heidegger's discussion. The first paragraph establishes the essay's objective: to investigate technology in order to prepare us for a "free relationship" to it. One of the fundamental questions of the essay has to do with how "we" (and who this "we" is will be part of our own discussion) currently relate to technology, how we think about it, what we imagine it to be.

The problem for Heidegger is not so much the existence of technology or the forms it takes, but rather our orientation to technology. If we accept this formulation of the problem, then it becomes clear that our response to the various problems brought about by technology cannot be solved simply by making the technology better. It is also impossible to ignore these difficulties simply by "opting out" of technology:

Thus we shall never experience our relationship to the essence of technology so long as we merely conceive and push forward the technological, put up with it, or evade it. Everywhere we remain unfree and chained to technology, whether we passionately affirm or deny it. (Heidegger, 1977, 287)

Heidegger's assertion that "the essence of technology is by no means anything technological" serves a number of purposes:

It allows Heidegger to move his discussion of technology out of the domain of technological "experts." This attempt to "open up" the conversation is at once a democratic gesture (remember that this essay was first presented as a lecture to audiences who were neither philosophers nor technicians) and a strategy to shift the discussion to philosophy--a field in which Heidegger himself is the expert.

Arguing that the the essence of technology is not technological also allows Heidegger to expand the historical scope of his discussion; later on he will argue that the essence of technology actually precedes the historical emergence of the "concrete" forms of technology in the eighteenth and nineteenth centuries.

This historical expansion, in turn, makes it possible for Heidegger to go back to Greek philosophy (one of his areas of specialization) for some of the guiding concepts for his analysis.

Heidegger's method of "questioning" strives to expose the unexamined assumptions that shape our understanding of the world we live in. He tries to find the "blind spots" in our thinking that keep us from a more profound--and, we might say now, more "empowering"--way of conceiving the world and our place in it. In "The Question Concerning Technology," he asks, "how do we generally think about technology?" He comes up with two answers:

Technology is a means to an end

Technology is a human activity

These answers make up what Heidegger calls the current "instrumental [aimed at getting things done] and anthropological [a human activity] definition of technology" (ibid 288). He concedes that this definition is correct--that it describes technology accurately--but it does not go far enough for Heidegger's purposes.

Our everyday understanding of technology, that is, has blind spots that prevent us from understanding more fully our relationship with technology. Even our attempts to maintain control over technology, to master it so that it doesn't destroy us, are informed by our "instrumental conception" of what technology is. As Heidegger observes, "The will to mastery becomes all the more urgent the more technology threatens to slip from human control" (ibid, 289).

Heidegger applied the concept of Gestell to his exposition of the essence of technology. He concluded that technology is fundamentally enframing. (Godzinski, 2005), As such, the essence of technology is Gestell. Indeed, "Gestell, literally 'framing', is an all-encompassing view of technology, not as a means to an end, but rather a mode of human existence".. (Mitcham, 1994, p. 52)

The point that Heidegger was attempting to convey with Gestell was that all that has come to presence in the world has been enframed. Thus what is revealed in the world, what has shown itself as itself (the truth of itself) required first an enframing, literally a way to exist in the world, to be able to be seen and understood. Concerning the essence of technology and how we see things in our technological age, the world has been framed as the "standing-reserve." Heidegger writes,

Enframing means the gathering together of that setting-upon which sets upon man, i.e., challenges him forth, to reveal the real, in the mode of ordering, as standing-reserve. Enframing means that way of revealing which holds sway in the essence of modern technology and which is itself nothing technological. (Heidegger, 1977, 20)

Furthermore, Heidegger uses the word in a way that is uncommon by giving Gestell an active role. In ordinary usage the word would signify simply a display apparatus of some sort, like a book rack, or picture frame; but for Heidegger, Gestell is literally a challenging forth, or performativity "gathering together", for the purpose of revealing or presentation.

The philosophical definition of the term technology has led to different interpretations of the same. Whereby that sometimes made it impossible to apply define. But in general, the various debates on scientific issues cannot display an inability to function and role of science in it.

However, there are some simple definitions to Technology. For example:

1. The innovation, change, or modification of the natural environment to satisfy perceived human needs and wants.

2. Human innovation in action that involves the generation of knowledge and processes to develop systems that solve problems and extend human capabilities.

2. Types of Technology

Technologies range from the simplest to the most complex, and they are used in everyday life or special events.

Technology can be used to classify different approaches to classify any of its functions. Classification based on:

a) Life cycle
b) Origin
c) Complexity
d) Innovation
e) ability of capital-intensive
f) applications
g) Nature of Technology

A. Classification based on life cycle

New technologies are rapidly replacing older technology. New technologies have technical and economic benefits.

Different stages of technology are research and development, supply and innovation, manufacturing, diffusion and obsolescence and replacement within them. This technology can be in terms of their long life cycle of the supply, distribution and Obsolete. (Tarek Khalil, 2000)

• **The introduction of technology**: which is characterized by slow growth. In the course of experimental tests have been conducted and fix initial bugs system.

• **Release of technology**: fast and stable growth with improving technology features of this period.

• Saturation of technology: when that technology comes the highest performance and little progress has been slow.

Technology obsolescence: to achieve technical restrictions and the emergence of new technology, old technology becomes obsolete.

2-1-1**) New Tech**: Any new technology or production run that is obvious and specific effect on market. For example a new computer software for engineering drawings that can be replaced by hand working.

2-1-2) **High Tech**: Any technology that is not yet commercial market fully. But this will be in about 5 years. Examples of emerging technologies include genetic engineering, nano-technology, can cause large changes in social institutions.

2-1-3) **Low technology**, often abbreviated low tech (adjective forms low-technology, low-tech, lo-tech) is simple technology, often of a traditional or non-mechanical kind, such as crafts and tools that pre-date the Industrial Revolution. It is the opposite of high technology.

B. Classification based on origin

Technology have been development in the country to meet demand, production or outside the country, to the political and economic goals.

C. Classification based on Complexity

For developing countries, the complexity of the technology can be classify to can be used and unusable.

D. Classification based on Innovation

The application process is based on a completely new technology or old technology can also be divided into:

- Performing a task related to new technologies such as electricity producing technologies that did not exist before.
- Performing a task related to old technology but modern methods such as baking bread Technology by machine.
- Technology used: the form in order to meet the needs of those utilized it.
- Manufacturing tech: the production of other technologies, including the production and consumption leads
- Documented tech: allow to users to understand of performance. This have been documented with forms of standardized signs
- Latent or OFF Tech: No palpable Knowledge, for understand needs to developer. Produce important part is understanding the technology.
- Appropriate Technology: This term is used to show a harmony between technology and resources to exploit them.
- Coding Technology is in front the OFF tech.

E. Sanjaya Classification tech

Sanjaya Lall (1940 –2005), was a development economist, Professor of Economics and Fellow of Green College, Oxford University. Lall's research interests included the impact of foreign direct investment in developing

Table 1: Technological Classification of Exports

Classification	Examples
Primary products	Fresh fruit, meat, rice, cocoa, tea, coffee, wood, coal, crude petroleum, gas
Manufactured products	
Resource based manufactures	
Agro/forest based products	Prepared meats/fruits, beverages, wood products, vegetable oils
Other resource based products	Ore concentrates, petroleum/rubber products, cement, cut gems, glass
Low technology manufactures	
'Fashion cluster'	Textile fabrics, clothing, headgear, footwear, leather manufactures, travel goods
Other low technology	Pottery, simple metal parts/structures, furniture, jewellery, toys, plastic products
Medium technology manufactures	
Automotive products	Passenger vehicles and parts, commercial vehicles, motorcycles and parts
Medium technology process industries	Synthetic fibres, chemicals and paints, fertilisers, plastics, iron, pipes/tubes
Medium technology engineering industries	Engines, motors, industrial machinery, pumps, switchgear, ships, watches
High technology manufactures	
Electronics and electrical products	Office/data processing/telecommunications equip, TVs, transistors, turbines, power generating equipment
Other high technology	Pharmaceuticals, aerospace, optical/measuring instruments, cameras
Other transactions	Electricity, cinema film, printed matter, 'special' transactions, gold, art, coins, pets

Source: Lall (2000.a)

countries, the economics of multi-national corporations, and the development of technological capability and industrial competitiveness in developing countries.

A recent paper by Lall (2000.a) provides a more detailed breakdown of manufactured exports by technological categories. The classification is shown in Table 1, and will be used later in analyzing the growing divergence within the developing world. Primary products are separated from manufactures, with the latter divided into four main technological groups and nine subgroups. In broad terms, the first two groups (resource-based and low technology) can be regarded as technologically 'simple' and the latter two as 'complex'. While there are (inevitable) problems in classifying products by technology groups, and the three-digit SITC product level puts together some diverse technologies under the same heading, the results.

3. Technology functions

While Heidegger proposes a quasi-historical account of modern technology, Habermas offers a theory of the transhistorical essence of technical action in general. As Thomas McCarthy writes, "Habermas's own view is that while the specific historical forms of science and technology depend on institutional arrangements that are variable, their basic logical structures are grounded in the very nature of purposive-rational action." At first Habermas argued that "work" and "interaction" each have their own logic. Work is "success oriented;" it is a form of "purposive-rational action" aimed at controlling the world. On these terms, technological development is a "generic project" consisting in the substitution of mechanical devices for human limbs and faculties. By contrast, interaction involves communication between subjects in the pursuit of common understanding.

In his later work, Habermas reformulated his approach in system-theory terms. This "media" theory supports a more concrete critique of welfare capitalism. Habermas distinguishes between "system", media regulated rational institutions, such as markets and administration, and "lifeworld", the sphere of everyday communicative interactions. The central pathology of modern societies is the colonization of lifeworld by system. This involves the over-extension of success oriented action beyond its legitimate range and the consequent imposition of criteria of efficiency on the communicative sphere. Habermas follows Luhmann in calling this the "technicization of the lifeworld." But in fact technology as such drops from the discussion even though Habermas's analysis of system rationality continues to be shaped by the original model of technique as purposive rationality. (Feenberg, 1996)

From this standpoint, Habermas criticizes Weber and by implication Heidegger as well for identifying the rationalization process exclusively with the extension of technical control. He argues for the possibility of a communicative rationalization that would enhance human freedom, but which has been partially blocked in the course of modern development. While this seems right, the indifference of the later Habermas to actual technical issues marks a significant regression. He seems content to tinker with the boundaries of the technical sphere while denying the all too obvious evaluative bias of what goes on within that sphere. (ibid)

Lewis Mumford 1895-1990 was an American historian of technology and science, also noted for his study of cities. He argues of his works: If we are to create balanced human beings, capable of entering into world-wide co-operation with all other men of good will — and that is the supreme task of our generation, and the foundation of all its other potential achievements — we must give as much weight to the arousal of the emotions and to the expression of moral and esthetic values as we now give to science, to invention, to practical organization. One without the other is impotent. And values do not come ready-made: they are achieved by a resolute attempt to square the facts of one's own experience with the historic patterns formed in the past by those who devoted their whole lives to achieving and expressing values. If we are to express the love in our own hearts, we must also understand what love meant to Socrates and Saint Francis, to Dante and Shakespeare, to Emily Dickinson and Christina Rossetti, to the explorer Shackleton and to the intrepid physicians who deliberately exposed themselves to yellow fever. These historic manifestations of love are not recorded in the day's newspaper or the current radio program: they are hidden to people who possess only fashionable minds. (Mumford,1946)

If we are to prevent megatechnics from further controlling and deforming every aspect of human culture, we shall be able to do so only with the aid of a radically different model derived directly, not from machines, but from living organisms and organic complexes (ecosystems). What can be known about life only through the process of living — and so is part of even the humblest organisms — must be added to all the other aspects that can be observed, abstracted, measured. ... Once an organic world picture is in the ascendant, the working aim of an economy of plenitude will be not to feed more human functions into the machine, but to develop further man's incalculable potentialities for self-actualization and self-transcendence, taking back into himself deliberately many of the activities he has too supinely surrendered into the mechanical system. (Mumford,1970,352)

This differences is caused by four factors in the analysis:

a) What kind of technology?
b) When period of time?
c) Where?
d) Impact of technology on which of things?

Because in this article may not deal with all aspects of the subject, we review the social and personal effects in information technology the basis on some of empirical researches.

A. Economic impact: business model, business and market structure

Jason Bennett Thatcher a, Jaejoo Lima ,D. Harrison McKnight ,Misty L. Loughryb examined sources of Internet anxiety; specifically modeling the ties from broad dispositional traits (computer anxiety, computer self-efficacy, and personal innovativeness with IT), beliefs about the work environment (about the adequacy of resources and trust in technology), and two forms of social support for IT (leader and peer support) to individuals' anxiety about using Internet applications

In this study they developed a model of Internet anxiety, which suggests that personality traits and individual beliefs directly affect Internet anxiety, and that social support affects Internet anxiety as mediated by individual beliefs. their results showed support for some aspects of our model, but did not support all of their hypotheses. Of their control variables, only computer anxiety was a significant predictor of Internet anxiety. Furthermore, much of the variance in Internet anxiety was explained by beliefs about the adequacy of resources available to support its use, and trust in the technology itself, leaving less variance to be explained by personality traits. From a practical standpoint, this is good news for organizations, because they can affect perceptions of resources and trust by providing reliable and useful technologies and giving users resources to support their use. A second finding was that users' perceptions of having adequate resources to enable the use of the technology reduced Internet anxiety. (Thatcher& other, 2007)

B. IT Social functions:

Blaise W. Liffick, Ph.D. Department of Computer Science Millersville University in Social Impact Characteristics of Computer Technology, reviewed some factors:

(1) Ubiquity
(2) Magnification
(3) Accessibility

(4) Reproducibility and Disreputability

(5) Lack of Accountability

(6) Temporality

(7) Spatiality

(8) Surveillability

The characteristics described above are factors in the social impact of computer technology. For most there is at least anecdotal evidence of their existence (with seemingly countless examples). For some, there is also experimental evidence. It has finally become widely accepted that technology is not value neutral, as originally thought. By examining this list and using it as a set of landmarks for evaluating new systems, it may be possible to better anticipate the social impact of new systems, prior to their dissemination. Perhaps this will help achieve the development of what some have called a Social Impact Statement, which is intended to be analagous to the Environmental Impact Statements (Schneiderman, 1990; Huff and Finholt, 1994) required by the Environmental Protection Agency prior to most building projects. (Liffick 1995)

4-Change and Technology Transfer

In today's business setting, interest in the profitable exploitation of a firm's technological assets, through technology transfer, has intensified. Factors that have facilitated international technology transfer include globalization of business, liberalization of the economic regimes of many countries, and the impetus given to the protection of intellectual property after the formation of the World Trade Organization (WTO). These factors have collectively resulted in commercial transfer of technology becoming an important element of the international business setting. Experience over the decades has shown that the technology transfer process can be problematic and transferees often lack the skills to manage it effectively. While the literature is rich in terms of the coverage of the areas of concern it is sparse when it comes to possible approaches that can be taken to remedy these problems. (Ramanathan)

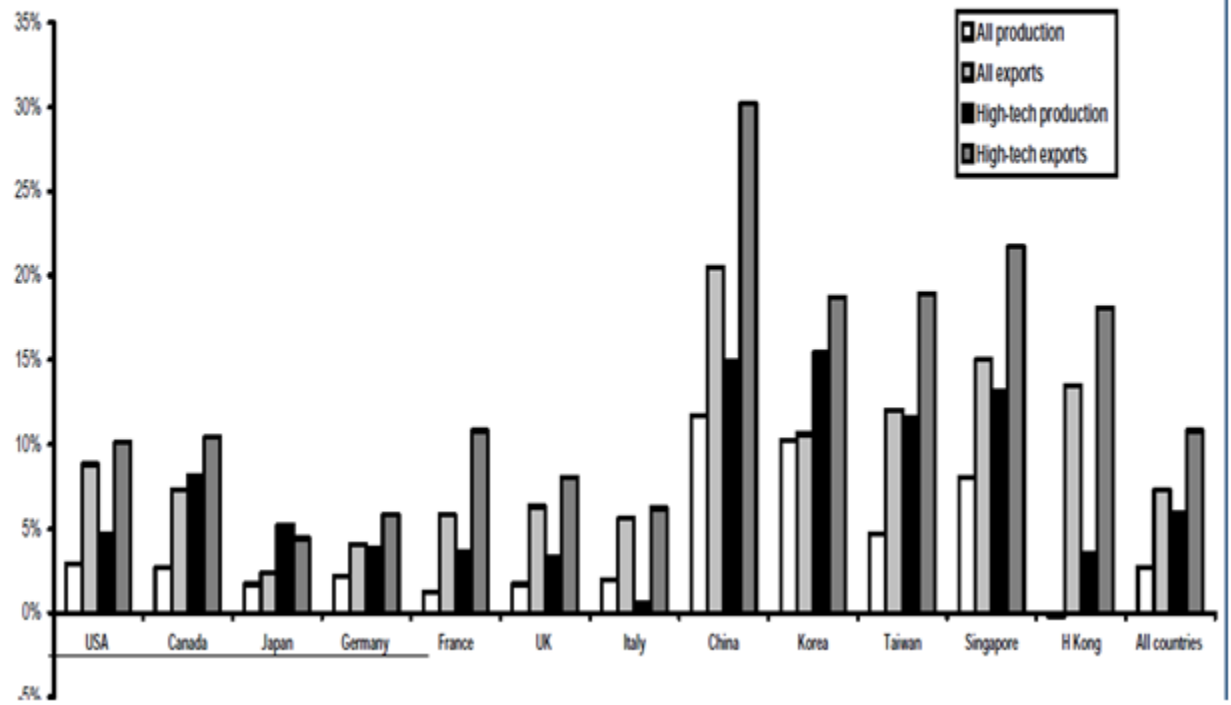
Freeman and Perez (1988) define a new technological 'paradigm' or revolution as follows: "A change of this kind carries with

It many clusters of radical and incremental innovations, and May eventually embody a number of new technology systems. A vital Characteristic … is that it has pervasive effects throughout the economy, i.e. it not only leads to the emergence of a new range of products, services, systems and industries in its own right; it also affects directly or indirectly almost every other branch of the economy." (p. 47) According to their analysis, a new technological paradigm has the following features:

a. A new 'best practice' form of organization in the firm and at the plant level;
b. A new skill profile in the labor force affecting both quality and quantity of labor;
c. A new product mix favoring products making intensive use of the new low-cost key factor (in this paradigm microelectronics);
d. New trends in innovation to substitute the new key factor for other, higher cost, factors;
e. A new pattern in the location of investment nationally and internationally with shifting costs and patterns of comparative advantage;
f. A particular wave of infrastructural investment to provide appropriate externalities throughout the system and facilitate the use of new products and processes;
g. A tendency for new innovative small firms to enter rapidly expanding branches and in some cases to initiate completely new sectors of production;
h. A tendency for large firms to concentrate in branches where the key factor is produced and intensively used;
i. distinctively new branches of the economy act as engines of growth in each successive Kondratiev upswing;
j. new patterns of consumption of goods and services and new types of distribution. (p. 59)

In the figure 1 shows total and high manufacturing.

Figure 1: Total and high technology manufacturing: annual growth rates 1985-97



On the significance of technology diffusion in the advanced countries, this extract from an OECD study is interesting.

"Technology plays a major role in shaping industrial performance: it affects productivity growth, creates and destroys jobs, changes skill requirements in the economy, and shapes the capacity of firms and industries to perform in international markets. Its potential economic gains are realised, however, as much from the widespread diffusion of new products and processes as from their initial development" (OECD, 1996.b, p. 9).

4. Technology transfer

Technology transfer concepts were put in perspective by Amsden (1989) and Habibie (1990).vc Amsden (1989) argued that while in developed countries the technology/product cycle took the route,
{Research to Development to Design to Production}
whereas in technologically less advanced developing countries, it tends to take the route,
{Production to Design to Development to Research}.
According to Amsden (1989), learners do not innovate and must compete initially on the basis of low wages, state support, high quality and productivity. The route that must thus be pursued should be based on transfer, absorption, and adaptation of existing technology. This viewpoint fits in with the material, design, and capacity transfer progression. Habibie (1990), often referred to as the architect of the Indonesian aircraft industry, states that, "technology receivers must be prepared to implement manufacturing plans on a step-by step basis, with the ultimate objective of eventually matching the added-value percentage obtained by the technology transferring firm." He refers to such an approach as "progressive manufacturing" and popularized the slogan, "begin at the end and end at the beginning" implying that a transferee firm should start with production and move backwards to research as also pointed out by Amsden.
Steenhuis (2000) has combined these ideas and developed the concept of "the technology building." The technology building has two wings; the innovation wing consisting of the research, development, production, and distribution stages of the transferor; and the exnovation wing that consists of the distribution, production, development, and research stages of the transferee. The innovation and exnovation wings refer to the technology development stages of the transferor and transferee respectively in accordance with the Amsden and Habibie models of technology development. Steenhuis points out that transfer of technology can take place between the stages of both wings of the technology building in a variety of
Combinations. The terms innovation and exnovation, as used by Steenhuis, while useful, may cause confusion to practitioners since the term innovation is used in many different contexts.

To avoid looking at technology transfer in a restrictive manner it may thus be useful to view technology transfer possibilities between the "generations" and "assimilation" processes of the transferor and transferee (Ramanathan, 2000). This is shown schematically in Figure 3

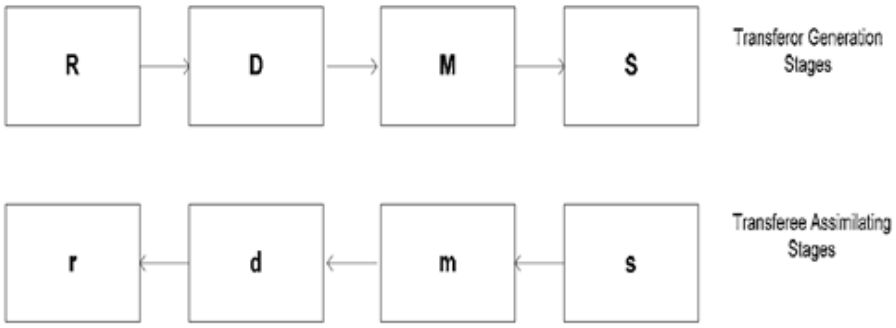


Figure 2. The technology development chains of the transferor and transferee

Based on similar considerations of business objectives, Ramanathan (2001) provides a classification of possible modes and possible transfer mechanisms that may be used. These are summarized below

Transfer Mode	Possible Transfer Mechanisms
Sales Intensive [S: s] or [M: s]	Sales and service agreement either as an agent or sole distributor
Manufacturing Intensive [M: m,S] or [M: m,s] or [D:m,S] or [D:m,s]	Subcontracting arrangements, original manufacturing arrangements (OEM), production licensing, and joint ventures
Development Intensive [R:d,M,S]or [R:d,m,S] or [R;d,m,s]	Original design manufacturing (ODM), production licensing, joint ventures
Research Intensive [R:r,D,M,S] [R:r,d,M,S] [R;r,d,m,S] [R: r,d,m,s]	Joint R&D and production, university – industry licensing, Government R&D institute – industry licensing

Source: Adapted from Ramanathan (2001)

Table 2: A Possible Taxonomy of Technology Transfer mode

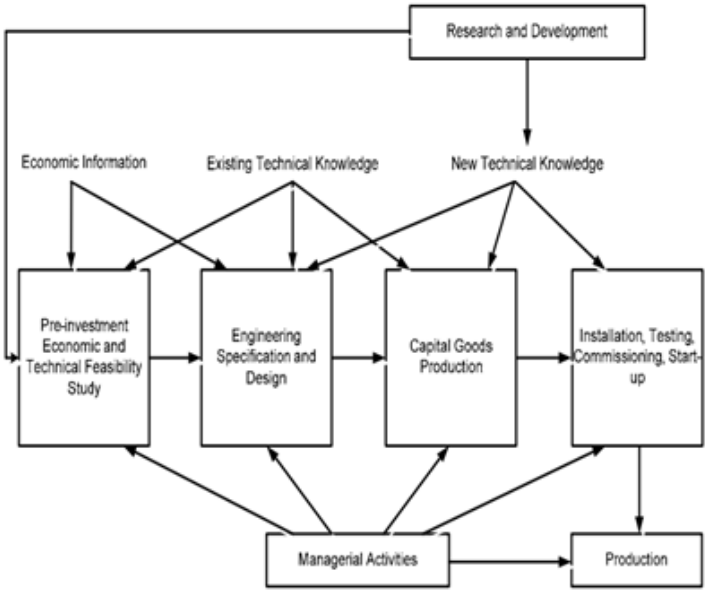


Figure 3;The Five-phase model of international technology transfer

The five phases of this model are as follows:
• Carrying out a pre-investment and feasibility study
• Developing engineering specifications and design based on the feasibility study
• Commence capital goods production based on the Engineering specifications and designs that have been developed.
• Commissioning and start-u including comprehensive of the workforce
• Commence commercial production (Ramanathan, 2008)

Source: Jagoda (2007)

5. Introduction of Khorasan Cultural and Artistic Institute

Khorasan Daily News is the oldest local Daily in Iran which has been published since June 22, 1949 when it was started as a local Daily.
The Daily has been published nationwide for ten years. The principal scope of Khorasan Daily News is cultural, social, and political concerns.
The Daily has been printed and published simultaneously in Mashhad and Tehran since january25, 1999.
The Daily has highly equipped with computerized and satellite-assisted state of the art technology. This paper is published nationally in (20) pages, all in full color.
It contains (8) exclusive pages for Khorasan-e- Razavi Province, (8)exclusive pages for Northern Khorasan Province,8 exclusive pages for Southern Khorasan Province, four pages dedicated to sports, and (90)pages of classified advertisement for all previously mentioned provinces.

Succeeding Hamshahri and Jam-e-Jam, Khorasan has the most circulation in the whole country. However, 90 percent of its copies are distributed in Khorasan, the largest province in Iran. Taking into account the small number of unsold copies (about 2 percent of the whole) and the fact that a single copy of the Daily is read by several persons, Khorasan is highly predominant in Eastern Iran and polls show that it is the first news source in the region. Khorasan is the one and only Daily in Iran with no structural and economic dependence on government, or any other similar resources. Thanks to its great popularity and large number of circulation, Khorasan has been successful in being independent through sale of Daily and also advertisement incomes, leading the Daily to be a corporation bringing readers' trust by its independence.
Khorasan Cultural and Artistic Institute as the owner of Khorasan Daily has got considerable technical and printing equipment including UNISET 60 and UNISET 70 web offset printing presses and Heidelberg XL sheet-fed printing machine. Of course, the development plans of printing equipment is going on rapidly.
Around 600 full- time employees based in Mashhad and Tehran, along with many part-time reporters and journalists plus employees hired in agencies of Khorasan all around Iran, make the whole number of 1100 employees of this institute.
The Institute has many plans for coming years, trying to promote the activities in online area and also on the scope of improving several magazines. Extension of commercial printing activities is another goal to be achieved.
Fifty-eight years ago, Khorasan Daily News was initially printed by Letterpress printing machinery. Later on, there was a great improvement of equipment in Khorasan Printing House in 1992 by employing Apple Macintosh computers and a coldset web-offset printing machine which was unique at its own time.
The second considerable improvement in printing equipment of Khorasan Daily was employment of two other web-offset printing machines, one Coldest and the other Heatset, which gave Khorasan's printing house a leading role in printing industry of Iran.
The press machinery being used in Khorasan are listed below:

- Uniset 60 Coldest manufactured by German company Man Roland, which can print eight pages in four colors, double side with a cutoff of 578 mm and with 86cm width of the web.
- Uniset 75 Coldset manufactured by German company Man Roland, which can print cutoff of 500 mm and with 70 cm width of the web.
- Uniset 75 Heatset manufactured by German company Man Roland, which can print eight pages in four colors, double side with a cutoff of 500 mm and with 70 cm width of the web.
- KOMORI E529: Embodies high print quality and leading-edge technologies in a press offering full basic functions. With stepless operator-side design and a small footprint, the Enthrone fits easily in any installation space.
- All above-mentioned machines are equipped with many different accessories from different companies such as Ferag, MBO, Muller Martini, Perfecta and so forth.
- Khorasan is also well-equipped with the best and newest brands of preprint equipment including the following items:
- Thermal plate recorder and thermal plate convertor together with Interplater 125T HDX manufactured by Japanese company screen and Slovakian company Glunz & Jensen.
- Suprasetter thermal plate recorder and thermal plate convertor together with Interplater manufactured by German company Heidelberg and Slovakian company Glunz & Jensen

At the moment a total number of (645) staff members with special qualifications and specification work in the pre-press and press sections. Khorasan Printing House is in operation seven days a week, in three eight-hour working shifts non-stop. It produces on average copies every day.

A. Technology transfer in Khorasan Daily

In 2009, Khorasan Cultural and Artistic Institute decided to develop printing machines. This decision was taken in difficult conditions .Iran was under international sanctions. Economic situation was Inappropriate. it was very hard to transfer money outside the country And transfer of Equipment from Western countries was harder to Iran .

Characteristics printing Machine for development:

- SPEEDMASTER XL 75: The Speedmaster XL 75 with its innovative technology and highest automation level has secured a leading position in the Peak Performance Class. With production speeds of up to 18,000 sheets per hour, Auto Plate XL for fully automatic simultaneous plate changes and Feeder and delivery operating panels with glass touchscreen.

But in the difficult conditions Khorasan during the 2-year institutions could do this hard work. Khorasan bought a printing machine from Germany and did whole process.

Khorasan Institute is a successful model at technology transfer in difficult conditions.

a. Determining factors

- Rate of budget for the development of the institution's total income. (About 7%)
- The projected share of value added than other choices in the Institute Vision.
- The need for new technologies of printing in east of Iran.
- Iran's foreign policy and relations affect the transfer.
- Availability of expertise in this area of the country.
- Support of infrastructure and access to managerial skills, monitoring and maintenance.

b. Choice based on:

- Define, record, and understand the needs of the printing industry in East.
- Consider various options for appropriate technologies (in terms of environmental, economic and social).
- Select a reasonable and practical measures to accelerate the optimization technology.
- Strengthen the ability to use all the potential adverse damaging effects technology.

c. Certainty based on:

- Identification and measurement of macro-economic factors that are indicative of low uncertainty,(particular in economic conditions Iran)
- Check the status of inflation, especially in paper
- Stable rates and real exchange and interest loans from state and private banks
- estimate based on actual pricing data and processes in the printing industry
- Control of state inappropriate management in transition and financial issues.
- Careful study of the free transfer of capital.
- Check the status of competitors in market.

d. Communication:

For This project, studied of detailed study of management knowledge .These local professionals through formal and informal networks of dams .This group includes operators, businesses, merchants, manufacturers, customers, representatives of foreign companies and members of Printing Union .

e. Capacity

Evaluation of capacity of printed publications in 6 East of states, Including Khorasan, South Khorasan, North Khorasan, Sistan and Baluchistan and Kerman Based on demand and the capacity of printing orders in Afghanistan.

B. Ahead Barriers:

- Changes and fluctuations in financial.
- Transportation problems are financial transfers between Khorasan Institute and the German company seller.
- Rapid changes in the exchange rate in 2011 until 2013.
- Environmental barriers that impede the optimal performance of technology
- Inadequate expertise to internal workers

- Inadequate and unreliable data in the printing industry
- The complexity of the printing industry
- Concern about the supply of raw materials and parts required.
- Concern about the supply of used paper
- Lack of liquidity

C. Success Factors

a. Internal factors:

- Faith in God that Allah helps them in this way
- Having a strong belief Institute Director for printing development.
- Preparation and interests of middle managers and staff of the institution
- Preparation of all platforms and infrastructure for development.
- Efficient and effective management and timely.
- Create new ways to solve problems, especially in economic matters
- Acceptance of Risk
- Creative solutions to bypassing of sanctions
- Have enough patience to pass the difficulties
- Focus on local forces training and rely on internal power

b. External factors:

- increased willingness of foreign investors to joint collaboration with Iran
- disregard European companies to some economic and political sanctions on Iran
- The availability of sufficient market
- Assurance to the Daily Khorasan based on past experience

Process of printing machines Transfer to Institution of "Khorasan"

Step	Stage	Details	Date
1.	Expert review for device selection	Expert team of experts, was formed to review sheet printing machine. Expert team of experts review Three German firms) Man Roland, KBA and Heidelberg) and two Japanese firms (Komori and Sakurai). After discussion and review of some of the companies report was prepared mentioned expert Expert Group prepared Initial expert report.	First half of 2010
2.	The selection of technical and financial experts	Financial managers reviewed report of technical experts. Financial management reviewed choices of technical experts in terms of financial. After renegotiating with technical experts, this selected : Heidelberg Speedmaster XL 75 4-P+L with innovative technology of the peak performance class and highest degree of automation offers 53*75 cm format ranges. Its production speed is up to 15000 sheet per hour and equipped with coating unit chambered doctor blade system which brings its strengths to the fore with metallic coatings, intricate spot coatings and special coatings. Also The dryer DryStar Combination brings together infrared, hot-air and circulating air modules Other features are as follow : • The inline measuring system Prinect Inpress Control that uses spectrophotometric technology to monitor each print sheet, corrects color deviations, and controls the register automatically. • Feeder and delivery operating panels with glass touchscreen. • AutoPlate XL for fully automatic simultaneous plate changes. • Optimized washing programs for fast and thorough washing results. • High-performance Prinect Press Center and Intellistart process-oriented operator guidance system.	Second half of 2010
3.	Meeting with the chosen device manufacturer	A meeting held between Khorasan experts with "Iran Rotative" company (representative of "Heidelberg" company in Iran) Both sides reached a preliminary agreement for the purchase of a printing machine The agreement signed from parties reached in 1389.	2011-02
4.	Final approval	Final approval by the institution and Managing Director	2011-03

5.	Obtaining the necessary permits	Obtaining the government organizations aapproval in the Iran for import	2011-04
6.	LC opening	The opening credits of the ban(LC)	2011-08
7.	Order registration of device	Order registration of device	2012-04
8.	change the features of machine	After attending Drupa exhibition, Review and change the features intended device and request a new version of machine.	2012-05
9.	Loading sets from Germany in three consignments		2012-07
10.	Arrival the documents to Iranian bank		2012-08
11.	Correction of order registration		2012-12
12.	sanctions against Iran and beginning of the problems and Beginning of the problems associated with the preparation and delivery	Following the intensification Europe Union sanctions against Iran, foreign agent banks refused to send documentation for the Iranian bank. At this time in collaboration with the Seller, the documents were sent directly to Iranian banks. From this moment the process of purchasing exited from natural process. And beginning of the problems for Khorasan institution. This period coincided with the country's currency crisis Although the validity of purchasing the device was opened with a reference currency, the Iranian banks were having difficulty. After unsuccessful efforts to confer with officials of the Iranian Bank Institute sent a letter to state officials. It also sent a letter to Iranian bank And announced the damage caused by returned and assistance again requested. Fortunately, after the notification of the Special Committee of Central Bank, the currency allocation problem is solved. But a new problem emerged The problem was archive of application by Customs Department, Because spent more than 4 months from the entry into the Cargo system, With numerous correspondence with Customs agency, This deadline could be extended.	2012-08 To 2013-03
13.	allocation of Foreign exchange	Currency exchange was allocated by the Department of the Treasury,	2013-03
14.	Clearance Devices	After the presentation of documents by the Iranian banks, since the institution had another chance to keep the device in Customs, Institute of Khorasan Clearance printing machine.	2013-04
15.	Last payment of debt	Final payment of the debt to a German company by the effort and the necessary rules.	2013-08
16.	The installation and set up	Germany company Experts installed and set up machine. Germany experts trained Khorasan experts	2013-09
17.	starts operation	In the a ceremony , the presence of Deputy Minister of Culture , provincial managers , professionals and institutional customers ,device came into operation	2013-11

REFERENCE

[1] Amsden, A.H., (1989). Asia's Next Giant: South Korea and Late Industrialisation. Oxford University Press, New York.
[2] Aristotle, Physics II
[3] Aristotle, Physics II.8, 199a15
[4] Bacon, F., 2000, the New Organon, Cambridge University Press.
[5] Ernst Kapp (1978).a Grundlinien einer Philosophie der Technik. Zur, Entstehungsgeschichte der Cultur aus neuen Gesichtspunkten Braunschweig/Brunswick 1877, Reprint Düsseldorf 1978, Engl. Translation Chicago 1978).
[6] Feenberg Andrew, (1996), Heidegger, Habermas,and the Essence of Technology, Talk at the International Institute for Advanced Study, Kyoto
[7] Forman, P., 2010, (Re)cognizing Postmodernity: Helps for Historians – of Science Especially, Berichte zur Wissenschaftsgesch
[8] Franssen, Maarten; Lokhorst, Gert-Jan; van de Poel, Ibo; Zalta, Edward N., Ed. (2010). "Philosophy of Technology". The Stanford Encyclopedia of Philosophy. Retrieved May 15, 2014
[9] Freeman, C. and Perez, C.,(1988) . Structural crisis of adjustment, business cycles and investment behaviour in Dosi et al Technical Change and Economic Theory. London: Frances Pinter. pp. 38-66
[10] Godzinski, Ronald (2005), (En)Framing Heidegger's Philosophy of Technology, Essays in Philosophy 6 (1
[11] Heidegger, M. (1977) The Question Concerning Technology, in: The Question Concerning Technology and Other Essays, W. Lovitt (trans.) (New York, Harper and Row), pp. 3– 35.
[12] Jagoda, K. I.,(2007). A Stage-gate Model for Planning and Implementing International Technology Transfer. Doctoral Thesis. University of Western Sydney, Australia.
[13] Jason Bennett Thatcher ,Misty L. Loughryb ,Jaejoo Lima ,D. Harrison McKnight ,*2007* , Internet anxiety: An empirical study of the effects of personality, beliefs, and social support;Information & Management ; https://www.msu.edu/~mcknig26/Thatcher-Loughry-Lim-McKnight,%20I+M,%202007.pdf
[14] Lall, S. (2000.a) 'The technological structure and performance of developing country manufactured exports, 1985-98', Oxford Development Studies, 28(3).
[15] Liddell, Henry George and Robert Scott (1980). A Greek-English Lexicon (Abridged Edition). United Kingdom: Oxford University Press. ISBN 0-19-910207-4.)
[16] Liffick , Blaise W. ,1995, Social Impact Characteristics of Computer Technology ; Department of Computer Science;Millersville University ; Proceedings of ETHICOMP95 Conference; De Montfort University Leicester, UK; http://cs.millersville.edu/~liffick/compchar.html
[17] MacKenzie, D. A. and J. Wajcman, 1999, The Social Shaping of Technology, Milton Keynes: Open University Press.
[18] Mitcham, Carl (1994), Thinking Through Technology, University of Chicago Press, p. 52, ISBN 0-226-53198-8
[19] Mitcham, Carl, 1994 ,Thinking through technology: The path between engineering and philosophy; University of Chicago Press
[20] Monsma, Stephen V. (1986). Responsible Technology. Grand Rapids: W.B. Eerdmans Pub. Co. ISBN 0-8028-0175-7.
[21] Mumford ,(1946), Values for Survival ,New York: Harcourt, Brace,
[22] Mumford Lewis; 1934; Technics and Civilization ;Routledge&Kegan paul LTD ;Londen
[23] Mumford, Lewis (1970) The Pentagon of Power: The Myth of the Machine. New York: Harcourt, Brace Jovanovich,
[24] OECD (1996.a) Globalisation of Industry: Overview and Sector Reports, Paris: OECD.
[25] OECD (1996.b) Technology and Industrial Performance: Technology diffusion, productivity, employment and skills, international competitiveness, Paris, OECD.
[26] Ramanathan, K. (2008) An Overview of Technology Transfer and Technology Transfer Models , available at www.business-asia.net/
[27] Ramanathan, K.,(2001), E-strategies for technological capability development, Proceedings of the Portland International Conference on Management and Technology, July 29-August 2, Portland, US.
[28] Steenhuis, H.J.,(2000) . International technology transfer: Building theory from a multiple case-study in the aircraft industry. Doctoral Thesis. University Of Twente, the Netherlands.
[29] Tarek Khalil,(2000), Encyclopedia of the industry and commerce Mining
[30] Khorasan Daily Site *:* www.khorasanews.com
[31] http://www.bsmt.ir/4203