ANALYSIS OF ORGANIZATIONS IN TURKEY TO THE CRITERIA OF KNOWLEDGE ECONOMY: A COMPARATIVE STUDY

Mehmet Barca

Sakarya University, TURKEY

Kerim Özcan,

Tuğrul Kandemir,

Ali Eleren

Afyon Kocatepe University, TURKEY

Key Words: Knowledge Economy, knowledge management, knowledge-based organization.

Introduction
The starting point of this study is the new economic environment that forces organizations to adapt. The new economy, generally speaking “knowledge economy”, emerging with new environmental conditions has brought a different business world for organizations.

So what is the profile of organizations in Turkey from the perspective of knowledge economy? In this study we will try to find answer to this question. In other words it is planned to analyze to what extent the characteristics of business organizations in Turkey could be matched to the characteristics of knowledge economy. For that firstly “knowledge economy” is going to be discussed and then the parameters of knowledge base are queried for organizations in Turkey.

1. Knowledge Economy

The most of social theorists agree that the roots of the knowledge economy go back to late 1950’s with declining industrial economic structure. The new economical conditions has brought some major shifts such as from capital to knowledge, industry to service, blue-collar workers to white-collar workers and so on. These transformations have been analyzed in all studies (Machlup, 1962; Bell, 1973; Porat, 1977; Masuda, 1981; Stehr, 1994) as a new economic era related to new scale, scope and effects of information and knowledge. So knowledge economy is defined as “…economies which are directly based on production, distribution and use of knowledge and information” (OECD, 1996). Or by definition of UK Department of Trade and Industry it implies “… one in which the
generation and the exploitation of knowledge has come to play the predominant part in
the creation of wealth”.

In other words knowledge economy is broadly accepted as a new version of capitalism
organized by knowledge. Some basic characteristics of knowledge economy as follows
(Olssen ve Peters, 2005; Tenant, 2004; Stigletz, 1999):

- The knowledge economy is not of scarcity, but rather of abundance. Knowledge economy builds on information and knowledge that can be shared, and actually grow through application unlike most resources that deplete when used.
- Laws, barriers and taxes are difficult to apply on solely a national basis. Knowledge and information ‘leak’ to where demand is highest and the barriers are lowest.
- Knowledge-based products and services provides high rate of return than those with lower knowledge intensity.
- Knowledge management is a management field emerging with knowledge economy to gain the competitive advantage.
- Human capital is a key component of value in knowledge-based companies.
- Knowledge, skill, creativity and entrepreneurs are key assets of knowledge economy.
- The effect of location is diminished. Using appropriate technology and methods, virtual marketplaces and virtual organizations can be created that offer benefits of speed and agility, of round the clock operation and of global reach.
- Information and communication technologies play a critical role in knowledge economies.

As can be seen knowledge economy is an economic structure in which basically knowledge, ICT technologies, knowledge management and knowledge worker are milestone. So an analytic investigation based on these parameters can show the case of organizations that to what extent they are knowledge based. But the measurement of knowledge content is a significant problematic.
2. Research Method

Almost all countries are seeking to shift their economies to be more knowledge intensive. But there are no standard methods of describing the extent to which an economy is knowledge intensive. In other words there is no internationally agreed framework for measuring a knowledge-based economy (Sahapira et al, 2005: Leung, 2004). The studies made in last decade, which have different systematic designs, can be classified by the scale of extent. From macro to micro we can categorize them in three levels: national, sectoral and individual organizations. Whether economies are knowledge-based or not can be relatively discussed through comparisons. As no given data and comparison on organizations about knowledge content, such a study requires a control group for analyzing the main analysis group. We selected organizations in the UK as the control group. So in this study we will follow an individualistic way to compare the organizations from various business sectors in both UK and Turkey.

Organizations in the UK are selected as control group as UK economy takes place in top ten in knowledge-economy ranking. According to the most recent Knowledge Economy Index ranking- which is developed by World Bank on four pillars related to knowledge economy those are economic incentive regime, innovation, education and ICT Technologies- UK is, ranked as 9th in 132 countries with 8.80 score over 10; while Turkey is 53rd with 5.56 score\(^6\). Knowledge Index (KI) also shows UK is 9\(^{th}\) with 8.88 score in 132 countries.

So we will compare organizations registered to the biggest Chambers of Commerce and Industry in both countries. The research is going to be studied with a well-structured questionnaire. The questionnaire will be applied to:

- In UK- Top 500 organizations in terms of most recent total assets ranking that are registered to London Chambers of Commerce and Industry.

- In Turkey- Top 500 organizations in terms of most recent total assets ranking that are registered to Istanbul Chambers of Commerce and Industry.

3. Research Hypotheses

We assert that firm’s knowledge base is twofold: knowledge hardware and knowledge software. Knowledge hardware implies physical concrete components in knowledge content; while knowledge software is used for managerial abstract components in knowledge content. We think that not only knowledge hardware but also knowledge software is crucial for knowledge-based competitiveness in the new economy. The synergy of these two branches constructs the readiness of business to the knowledge-based competitiveness.

\(^6\) http://info.worldbank.org/etools/kam2/KAM_page5.asp
Framework of the research consists of four basic components. The first one is knowledge hardware. We use “knowledge hardware” as physical potential of knowledge such as ICT infrastructure, R&D investments, and human capital. About this component studies on national level (UN, 2006; World Bank, 2006) show that UK is better than Turkey. So we can extend this case to the organizations.

**Hypothesis 1.** Knowledge hardware of organizations in the UK is stronger than those in Turkey.

The second component is ‘knowledge software’. We use it as managerial activities to create, share and use of knowledge to enhance organizational learning and performance. In this regard knowledge management as a self discipline and some other key functional forms facilitating these activities take place in the knowledge software.

**Hypothesis 2.** In the managerial activities for knowledge base, as a key determinant of readiness to knowledge-economy, the organizations in UK are in the position of pioneer while those in Turkey are in the position of follower.

**Hypothesis 3.** The knowledge gap in knowledge software is larger than that in knowledge hardware in favour of organizations in the UK.

The third and fourth components are key performance and innovative outputs taking place under the “knowledge-based outputs”. The synergy coming from mutual interaction and aggregation of knowledge hardware and knowledge software embodies as knowledge-based outputs. On one side it reflects on organizational processes as performance improvement and on the other hand it directly transforms to the innovative products such as new product-service, copyright, patent and so on. As knowledge acceleration increases power and abilities business enterprises can perform better than before with new knowledge base. It is seen that innovation requires continuously creating new knowledge. That is why we propose that UK can perform much better than Turkey in innovative practices.

**Hypothesis 4.** Organizations in UK can produce much more innovative output than those in Turkey.

In the next stage we analyze the data obtained by survey and discuss the research findings based on the hypotheses.

### 4. Research Findings

#### 4.1 Statistical Analysis on Knowledge Hardware

In this study “knowledge hardware” is based on three components which are ICT technology infrastructure, capacity on research and development and the number of educated human resource in the organization. ICT technology is implied as the first component of knowledge hardware. In this component we tried to detect the number of
PC’s per head, ratio of internet access, website ownership, presence of IT department, number of staff working in IT department and how long organizations have website and IT department. Especially internet can be accepted as the most important factor taking place in ICT technology as new economy is defined as E-economy by some authors (Robinson, 2000; Rogers, 2000; Suarez-Villa, 2003) referring to the increasing intensity of internet in the economy.

As a second component of knowledge hardware we refer to Research and Development possibilities. Both first studies (Machlup, 1962; Bell, 1973) and periodic studies (OECD, World Bank, UNESCO etc.) show Re-De is an important part of knowledge-base. Expenditures and budget allocated to Re-De also take place as indicator of development in data sets. Thus in this study we focused on a number of parameters concerning Re-De.

The third component of knowledge hardware is human capital in this study. Of course we imply educated human capital or “knowledge worker” as they are seen as one of the most important factor producing, carrying, stocking, sharing and using “knowledge”. We queried three categories of educated human capital as having degree of Ph.D, Master’s and Bachelor’s.

The scores of each component are obtained by combining number of parameters including in it. General scores of each component are obtained averagely by SPSS program. Then three general scores are combined and it is transformed to general score of knowledge hardware by SPSS. The comparison of organizations between Turkey and UK by T test indicates the difference in terms of “knowledge hardware”. Both individual scores for each component and total scores as a sum of them imply that organizations in the UK have stronger knowledge hardware than those in Turkey. As the “p” is less than 0,05 it is accepted that this difference is meaningful in the 95 % confidence interval. So we can conclude that Hypotesis 1 is supported by statistical analysis.

4.2. Statistical Analysis on Knowledge Software

Second part of the knowledge base is knowledge software. Managerial and abstract topics are implied by knowledge software in this study. Knowledge software includes two subfields. First one is knowledge management practices based on assumptions that knowledge is the main source of competitive advantage and it must be managed. Second practical subfield is main functional area consists of critical functions that are supporting knowledge management function, preparing good environment for knowledge-base. We collected knowledge management activities in three categories which are a) knowledge capture and acquisition b) training and mentoring c) communication. And functional area is categorized in four parts which are a) structuring b) managing c) marketing d) producing. The questions asked to subject are to measure attitudes by Likert Scale rating 1 to 5. So data obtained by this field is more abstract than the previous section.

In the first subfield the activities concerning capturing knowledge, training-mentoring and communicating are asked. When we combine these three practical categories taking place
under knowledge management activities to obtain a general score we can see that, average of organizations in Turkey is higher than those in the UK.

Second practical subfield is main functional area consisting of four functions structuring, managing, marketing and producing. These functions, if designed and operated to support and facilitate knowledge management activities, can help the accomplishment of knowledge-based competitiveness. When we combine average scores by questions in each group a general score is obtained for each function. For the functions of structuring and producing the average scores of organizations in Turkey are higher. On the other hand for the functions managing and marketing average scores of organizations in the UK is higher. When we combine these four functional area to get one score as a general score of “functional subfield” we can conclude that, general average of organizations participating from Turkey is slightly higher than others from the UK. But the difference is not meaningful in terms of statistical methods as the p>0.05. So in other words the difference is not meaningful in the 95 % confidence interval.

So we can repeat that in the first subfield of knowledge software, in terms of knowledge management activities, organizations participating research from Turkey have a better performance. But in the second subfield of knowledge software, in terms of supporting functional area, there is no difference between analysis group and control group. But the knowledge software is total sum of two subfields and to reach the general “knowledge software score” two subfields have to be transformed into one group. Knowledge software score of organizations participating in Turkey is higher than control group’s organizations participating in the UK. As the p<0.05 the difference is meaningful by assumptions of statistics. This shows us that Hypothesis 2 is not supported by statistical T test. We asserted that “In the managerial activities for knowledge base, as a key determinant of readiness to knowledge-economy, the organizations in UK are in the position of pioneer while those in Turkey are in the position of follower”. What we concluded is reverse of what we claim in the Hypothesis 2.

4.3. Statistical Analysis on Outputs of Knowledge-Base

In the research model we assert that sum of knowledge hardware and knowledge software can reflect on business performance as “knowledge-based outputs”. We defined two fields in this regard, awareness on knowledge based advantages and innovation performance. The first one consists of nine attitudes questions towards awareness and based on Likert Scale. Second field, innovation performance, consists of direct information questions querying last three years’ innovative performance including patent, copyright and new product-service.

In the first field of knowledge-based outputs, knowledge based advantages are queried including such as improving of worker retention and competitive advantage, increasing efficiency and so on. The data obtained by those nine questions are combined and transformed into one score. And scores of organizations in Turkey compared to those in
the UK by T test. Average score of organization in Turkey is higher than organizations in the UK. The mean value of organizations in Turkey is 4,4271 while it is 3,8422 in the UK.

On the other hand innovative performance is accepted as direct indicator of knowledge-based output. That is why in this field direct information questions are directed. Last three years’ new product-services along with patent and copyright applications are queried. Both individually in all innovative fields (new product- patent- copyright) and in generally (sum of three) the scores of organizations in the UK obviously higher than those in Turkey. So our fourth hypothesis is supported by results in which we assert that “Organizations in UK can produce much more innovative output than those in Turkey”.

So we generally analyzed knowledge hardware, knowledge software and knowledge-based outputs of organizations in Turkey comparing to organizations in the UK. Organizations in Turkey are well enough in knowledge software but their knowledge hardware and innovative performance are behind than the other in the UK.

5. Concluding Remarks

In the beginning of the study organizations in Turkey were supposed behind their counterparts in the UK. In other words organizations in the UK were supposed on a higher scale in all aspects from the perspective of knowledge economy. In terms of knowledge-based competitiveness organizations in Turkey were supposed that they were far away from the capabilities and effectiveness to compete organizations operating in leading knowledge economies. And these assumptions are conceptualized in four hypotheses.

Statistical analyses over the data obtained showed that organizations in Turkey are not as in bad case as we supposed. Knowledge software is stronger in organizations in Turkey than others in the UK. Especially the awareness on strategic importance of knowledge is so high in organizations in Turkey. On the other hand knowledge hardware and innovative performance is lower than those operating in the UK. We may generalize and say that top organizations in Turkey can compete on a global scale in terms of knowledge software. But they don’t have capability to compete organizations carrying knowledge-based criteria especially in terms of knowledge hardware and innovative performance.

It shows us another reality that organizations in the Turkey are capable for abstract-managerial aspects from the perspective of knowledge economy. On the other hand they lack in concrete-structural aspects. This may be interpreted as the discourse on knowledge base is so common and widespread. So organizations are aware of importance of knowledge but they can not cope with concrete structural issues.
References


