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Measuring the competitiveness of a firm for an award system

Measuring
competitiveness

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Abstract

Purpose – Competition is of interest to both policy makers and managers. However, existing studies concentrate on the measurement of national competitiveness while neglecting firm competitiveness. The purpose of this paper is to fill this gap by developing a comprehensive and generic measurement model to understand firm competitiveness. The model is used to develop an award system to help companies in the self-assessment of their competitiveness.

Design/methodology/approach – The theoretical base of the measurement of firm level competitiveness is driven from two national competitiveness models, namely World Competitive Yearbook and Global Competitiveness Index, while the assessment structure is based on the well-known European Foundation for Quality Management Excellence Award. The competitiveness model developed in this paper is put into use in Turkey. The measures of the model are used for assessing the competitiveness of ten firms, in order to choose the most competitive firm of the year. The study in Turkey explains how the measurement model works by illustrating an example.

Findings – This paper attempts to develop a generic model in which the competition parameters do not change for individual companies. The model covers a wide variety of parameters that form the base of competition at the firm level. It is demonstrated that the competition model developed in the paper works in practice.

Originality/value – This paper contributes to the national competitiveness by providing deeper understanding of the dynamics of firm-level competitiveness and provides some implications and suggestions for further studies.

Keywords Organizations, Self assessment, Competitive analysis, Measuring competitiveness, Model of competitiveness of firms, Award systems, Turkey

Paper type Research paper

1. Introduction

Competition has been always an interesting topic. The appearance of competitiveness reports of major international organizations, such as World Economic Forum (WEF) located in Switzerland, has laid the solid ground about the measurement of competitiveness (Chikan, 2008). However, the measurement is at the macro level: nation. A slight adjustment is attempted by Porter to include business competitiveness index into the national index developed by WEF (2009). Nevertheless, the focus in that effort is still on how business (microeconomic) environment influences national competitiveness with no effort in observing firms internally. This paper aims to solely concentrate on firm competitiveness and attempt to understand how it can be measured in practice.

Competitiveness is a capability and its potential has to be realized in a firm's everyday operations. As Porter (2004) says, "unless there is appropriate improvement at the microeconomic level, macroeconomic, political, legal and social reforms will not



bear full fruit". In other words, macroeconomic conditions influence microeconomic (business) environment and vice versa. Further, there are many examples where firms exercise varying competitiveness (both positively and negatively) even though they exist in the same macro environment. Thus, competitiveness cannot be fully understood if the competitiveness of enterprises is not grasped.

Competitiveness of firms has been studied in the interdisciplinary fields of strategy, operations and economic (Ambastha and Momaya, 2004). Research presents many perspectives and frameworks at the country, industry and firm level. While some studies focus on individual firm and its strategies for global operations, some others observe the role of management in competition (Oral, 1993; Offstein *et al.*, 2007). However, measuring competitiveness of firms and benchmarking with other companies are negligible in the literature (Oral *et al.*, 1999; Oral, 2009). This is surprising since measurement of competitiveness of nations has well developed with respected benchmarking studies available.

This paper will develop an integrative and generic measurement system to quantify firm competitiveness that will benchmark firms. The goal is to contribute to the national competitiveness by strengthening the understanding of how firm competitiveness works.

The paper has five sections. After this short introduction, Section 2 presents literature review on measuring competitiveness of firms. Section 3 summarizes the measurement models adapted in practice. Section 4 introduces the new model developed and then it is used in awarding the most competitive company of the year in Turkey as an illustration how it might be used. Final section summarizes the contribution of the paper, its implications and suggestions for further studies.

2. Measuring the competition performance

Considering that national prosperity is by and large determined by competitiveness, it is critical to utilize a nation's human, capital, and natural resources in their ultimate productivity. Nations compete with each other to supply an environment to attract investments, keep high productivity, high wages and sustainable growth (Chikan, 2008). Competitiveness is rooted most importantly in a nation's microeconomic fundamentals, contained in the sophistication of company operations, the quality of the microeconomic business environment, and the strength of clusters (Porter, 1990).

The US Competitiveness Policy Council (1998) defines competition as the capability of producing goods/services at an international quality that can compete at international markets, resulting continuous increase in the welfare of a nation. Porter (1990) further emphasizes the productive use of resources in a nation as a good measure for competitiveness. However, measuring competitiveness at the national level has not been easy and straightforward. There are two major efforts solving this problem: Institute for Management Development (IMD)'s World Competitiveness Yearbook and WEF's Global Competitiveness Index (GCI).

Since GCI is the most comprehensive index in comparing competitiveness of nations and utilized in national policy documents, it is worth concentrating on it here. In 1979, the WEF produced its first Global Competitiveness Report, the most authoritative comparative assessment of countries' capacity to generate economic value, covering more than 130 major and emerging economies. Unlike traditional measures of economic development that look at levels of national income, WEF asked about the

future potential for economic growth. The report assesses the ability of countries to provide high levels of prosperity to their citizens. This in turn depends on how productively a country uses available resources. Therefore, the GCI measures the set of institutions, policies, and factors that set the sustainable current and medium-term levels of economic prosperity.

The rankings are calculated from both publicly available data and the Executive Opinion Survey, a comprehensive annual survey conducted by the WEF together with its network of Partner Institutes (leading research institutes and business organizations) in the countries covered by the report (WEF, 2009).

In many parts of the world there is an increasing understanding that the microeconomic fundamentals are a critical driver of sustainable prosperity. Stable institutions, sound macroeconomic policies, market opening, and privatization are necessary but not sufficient. Productivity ultimately depends on the microeconomic capability of the economy, unless microeconomic capabilities improve, sustainable improvements in prosperity will not occur (Oral, 1993, 2009). Thus, in this study, competitiveness refers to a firm's capacity to compete in a specific market, to increase its market share, to enter international markets by exporting, and to achieve sustainable growth and profitability.

Before introducing the measurement of competitiveness of firms, we will start by summarizing GCI to exemplify what kind of measurement is used in measuring national level of competitiveness in order to highlight the complexity and logic behind measurements. Accordingly, WEF considers 12 major pillars/measurement categories to quantify competitiveness: well-functioning public and private institutions (pillar 1), appropriate infrastructure (pillar 2), a stable macroeconomic framework (pillar 3), good health and primary education (pillar 4), higher education and training (pillar 5), efficient product markets (pillar 6), efficient labor markets (pillar 7), efficient financial markets (pillar 8), the ability to harness the benefits of existing technologies (pillar 9), market size (pillar 10), producing new and different goods using the most sophisticated production processes (pillar 11) and through innovation (pillar 12).

Even though there are alternating theoretical models and their implementations that guide policy makers across the nations, surprisingly there is almost no theoretical or practical measurement models developed to measure competitiveness at the company level (Oral, 1993, 2009; Porter, 2004). Companies are the micro units where competition actually takes place but they form the competitiveness for nation at the aggregate level.

Modeling competitiveness at the firm level for the purpose of strategy formulation or strategy formation is a challenge for the scholars both in strategy area and operational research. The recent work of Oral (2009) develops a mathematical model based on a framework that conceptualizes firm competition in a larger competitive environment at the national and international levels. The study offers an approach that results with different competitiveness measures for each company but unfortunately it does not allow a benchmarking of companies *per se*. The model is a very detailed account of one company and its competitor for a given customer market. As a function of market characteristics, customer expectations related to the attributes of products and services such as price, quality, quantity, delivery period, functionality, design, and packaging might vary considerably. However, once a market is chosen

for the unit of competitiveness analysis, all these attributes are fixed in the sense that both the firm and the competitor strive to meet the expectations of customers in that market.

Even though the model advanced by Oral is a comprehensive model, it is a rather complex approach making it difficult in practice. It requires in-depth data collection for the firm and its immediate competitor.

Then, data is used in a mathematical model where parameters change according to each firm since each firm chooses to compete on one product/service characteristic according to the model. But this makes the data collection for each firm an extensive work and prevents the development of a general model that will form the base for benchmarking. In addition, Oral's model overemphasizes performance and neglects to understand the resources and infrastructure needed to achieve that outcome. The following section offers a new model to measure quantitative and qualitative data related not only to outcomes but also to the resources and processes where these resources are utilized to obtain desired results.

In short, we want to develop a model where the competition parameters do not change for each company and it covers a wide variety of parameters forming the base of competition at the firm level. The details are discussed in Section 4.

3. Measuring competitiveness in practice

Similar to the lack of theoretical studies in understanding the mechanism behind competitiveness at firm level practice, the world also neglects competitiveness of firms across the countries. This is contrary to expectation given the wide coverage of competition issue in media and industrial associations.

The only meaningful efforts in understanding firm competitiveness seem to be through the awards given to firms through some organizations. To the best of our knowledge, there are only two major awards available in the practice world: "The Most Competitive Company of the Year" given in the UK and "The International Growth Strategy of the Year" given in Belgium. There are many other awards such as Deloitte's fast growing company but they are not exhaustive of industries and they do not have integrative approach. For example, Deloitte's awards are given to mainly information technology companies and the award criterion is the growth rate alone. Similarly, "The Porter Prize" considers one dimension of the firm in competition: strategy. This award is launched in 2001 and it is given to Japanese companies that have achieved and maintained superior profitability in a particular industry by implementing unique strategies based on innovations in products, processes, and ways of managing.

The UK award model is developed and given by a magazine called *Real Business* since the launch of the magazine in 1997 (see details at: <http://gba.realbusiness.co.uk>). The awards receive a number of prestigious supporting organizations, including UK Trade and Investment, a government agency to enhance competitiveness of the UK businesses. The UK model offers many award categories, four of them are: "Green Business of the Year", "The Global Outlook and Expansion Award", "Young Company of the Year" and "Company of the Year". The most prestigious of all categories is the "Company of the Year" award where the criteria include mainly outcome indicators and the self-declaration of the CEO in terms of why the company deserves such an award by describing the unique characteristics of the company with 500 words.

The Belgium award is called “The European Business Awards” sponsored by the Dutch bank HSBC and other business organizations (see details at: www.businessawardseurope.com). It is an independent Awards program designed to recognize and promote excellence, best practice and innovation in the European business community. Since its launch in 2006, the European Business Awards has established itself as an important platform for outstanding businesses in the EU (EU, 2005). In 2010, there were ten categories, of which one is about the competitive company so-called the HSBC International Growth Strategy of the Year Award. The measurement is relied on organic growth, in other words award will go to the organization that best demonstrates an international organic growth strategy that has achieved outstanding levels of sales, profit and market share improvement. The data is supplied by the applicant firm.

Overall, the models used in awards consider a small subset of criteria in measuring competitiveness: sales, growth, and profits. However, these measures are outcomes, results of any unique resources the firm has and the way these resources are utilized. So, it does not supply insights about the mechanisms of competition.

4. A model to measure firm competitiveness and its application in Turkey

4.1 The foundations of the model

The authors of this paper are given the task of offering a competitiveness award to Turkish firms in order to increase the competitiveness of Turkish industry. Since 2005, REF (The Competitiveness Forum) and SEDEFED (The Federation of Industrial Associations) have been coordinating the Competitiveness Conference in Turkey. These two institutions are one of the best examples of university-industry collaboration in Turkey. REF is established in 2003 as a joint research institute between Sabanci University and the Turkish Industrialists’ and Businessmen’s Association. REF’s mission is to help improve the competitiveness of the Turkish private sector in international markets by conducting and supporting research on competitiveness, innovation and technology management, and benchmarking. The industry partner, SEDEFED is established in 2004 by 12 sectorial associations with the mission to leverage the sustainable competitive power of our national sectors and serve as an influential civil and social institution in furthering international strategic cooperation.

These two institutions put their forces together to measure the competitiveness of Turkey at the country, industry and firm level. Since REF is the Turkish partner institute for WEF, it is measuring national competitiveness on the basis of the national model developed by WEF. However, it is not easy to measure the firm level competitiveness as discussed in Section 2. In order to develop a new model, a task force is established in November 2009. The team is led by the authors of this paper. The team developed the theoretical model in six months and then it was implemented in 2010.

The goal is to measure competitiveness of a firm in such a generic way that it can help to capture the richness of competition and variety of firms. The starting point is the frameworks developed both in the World Competitive Yearbook (WCY) and GCI. In the WCY, world competitiveness is conceived as a combination of competitiveness potential (assets), management processes and competitiveness performance. Assets are conceived as inherent and created while processes transfer assets into economic results/performance (WCY, 2009). Similarly, the GCI measures the set of institutions, policies, and factors. In other words, factors are the basis of competition and are utilized

in institutions at the national level through the sets of policies directed to develop and sustain competition. Therefore, making an analogy with these measurement models developed for national competition, we suggest firm competitiveness can be measured through the outcome/performance of competition (i.e. output), assets/factors (i.e. input) and processes that turn the assets/factors into actual performance.

However, we preferred to call the pillars of competition at the firm level different than the ones used at the national level. Resource-based view of firms emphasize that firms are a set of competencies/abilities of developing and deploying capabilities (Barney, 1991; Prahalad, 1990). Thus, for the first pillar, it is better to call “it outcome” since company needs to show performance in all aspects of what it does to compete. Using performance as a term for the final result of competitiveness might be confusing. The second pillar might be called “resources” instead of assets or factors, an umbrella term to describe competencies of a firm. The third pillar is an extension of the idea of institutions or policies for the firms, we name it “managerial processes and capabilities” to include a capability term in order to include the role of management in the transfer of inputs into outputs. This transfer mechanism is not a static result of processes and structures but also conscious involvement of management where managerial skills affect the whole process.

In short, competitiveness can be sustainable if and only if the resources resulting in competitiveness are kept alive and the company could establish a set of managerial processes where these resources are flourished and utilized. The resulting comprehensive model is shown in Figure 1. There are ten criteria: four of them help to capture the outcome indicators, three of them measure company resources, and the remaining three criteria assess managerial processes and capabilities.

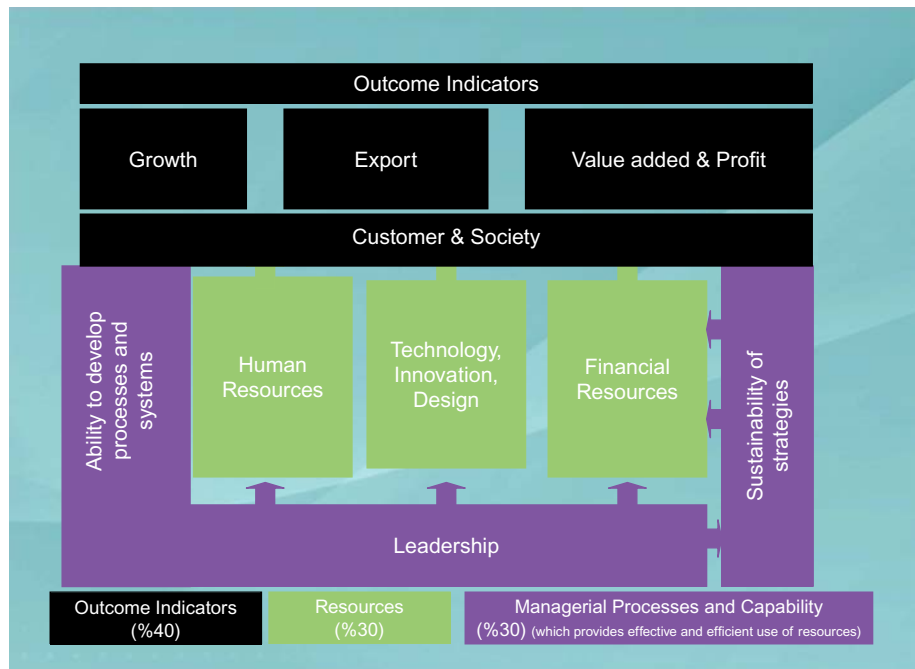


Figure 1.
The model for
competitiveness of firms

The widely adapted outcome indicators in the literature are growth, export, and profit. We expand these by adding the impact of company on customer and society. If sustainability of competition needs to be measured, it should certainly include stakeholders into calculation of company performance. The key resources for competitiveness can be grouped under three categories, namely human, financial and technology, innovation and design based resources. We keep technology resources wide to include innovation and design as well, since technology resources does not necessarily cover non-technical innovations and design capacity that can contribute to competitiveness. The indicators in the managerial processes and capability aim to observe how a company develops and employs its resources through leadership, processes and systems in a company, and sustainability of strategies.

The measurement model has many unique points, of which three of them are key dimensions to understand its contribution to the literature: multi-faceted evaluation, compatibility to all sectors, and linking performance data with company resources and infrastructure. It is a non-prescriptive assessment framework that can be used to gain a holistic overview of any organization regardless of size, sector or maturity.

(1) *Multi-faceted evaluation.* All criteria involve evaluation of relevant data. Only the last year is evaluated but the last three years' performance is taken into account to make evaluations about the trends and system sustainability. Both quantitative and qualitative data are collected. For each data, three types of input are collected: "goal" indicate objective numbers for each indicator that are originally set as goal by the firm; "realized" data are from the company records and show the real performance; while "benchmarking" data shows performance data of the company's competitors or the best in their field, or market performance average.

(2) *Compatibility to all sectors and flexibility of the model.* The performance measurement comprises questions for "all sectors" from manufacturing to service. In order to be integrative of all sectors, "relevance" title is attached to each indicator and it is given by the company to allow the company manager to rate the performance for the indicator's relevance to its sector. In addition, each company is given "open-ended questions" to guide the evaluators on how to evaluate the performance of the company at hand. Since managers supply the additional questions, they are expected to be relevant to measure the company's real competitiveness.

(3) *Considering performance data within a context by evaluating it with its connections to company resources and infrastructure.* Sustainability is assessed by linking the achievements with the approaches. Thus, not the pure quantitative data is collected but qualitative data are collected as well for almost all indicators. These qualitative data help to grasp the underlying managerial applications and systems. Performance should come not from chance, but from solid infrastructures established in a company, only then it can be repetitive. Having extended information about the company's approaches will ensure the performance and the extensive details allow cross-examining of the data supplied by companies. This is because data are given by company executives, so it might be subjective. Another way to cross check the data is through site visits where three assessors who are independent experts observe company data at their daily operations on site in three days.

The excellence and quality awards in the world provide a solid basis for a through analysis at the firm level by taking into account the processes generating quality

and outcome. European Federation of Quality Management (EFQM) Excellence Award in Europe and Malcolm Balridge National Quality Award in the United States are the most widely known awards within the business environment. These awards are based also on systemic models with more than 20 years of implementation and development experience accumulated already. The assessment process in our model has a lot of similarities with the Excellence Awards since the Quality/Excellence award assessments have proven to be a benchmark. The assessment structure of these award cycles consist of team (a group of independent experts coming from different backgrounds) based views on the actual performances of the companies taken from the company itself.

4.2 Data collection from award applicants

Quantitative and qualitative data are collected through a questionnaire style document; however companies are left free in how they prepare and submit their data document. To exemplify the type of questions, Table I presents the case of human resources. There are nine questions that are required to be answered by the company. For example, employee satisfaction percentage is a generic data showing the satisfaction of an employee from the company management. In general, this data is collected by a questionnaire conducted in companies either through management or by a third party company. The satisfaction percentage ranges from 0 to 100, ultimate satisfaction.

	Relevance	2007	2008	2009
Employee satisfaction percentage	Realized			
	Target			
	Benchmark			
Employee satisfaction percentage for the objectives and performance management	Realized			
	Target			
	Benchmark			
Employee satisfaction percentage for "capabilities and competencies"	Realized			
	Target			
	Benchmark			
Training hours per employee	Realized			
	Target			
	Benchmark			
Number of improvement suggestions per employee	Realized			
	Target			
	Benchmark			
Employees' involvement in improvement activities percentage	Realized			
	Target			
	Benchmark			
Employee turnover	Realized			
	Target			
	Benchmark			
Number of employees in human resources	Realized			
	Target			
	Benchmark			
Number of certified in-house trainers	Realized			
	Target			
	Benchmark			

Table I.
Required data on human resources management

“Realized” data is the actual employee satisfaction percentage measured. The “target” is what the company planned to achieve in terms of employee satisfaction, while “benchmark” shows the employee satisfaction percentage of either the company’s competitor or market/industry average. “Relevance” attempts to see whether the company considers this indicator as relevant to make a judgment on its performance in managing human resources. The company gives a score of “0” if the indicator is not relevant, but it gives a score of “5” if it is highly relevant.

After the firm fills in the required data for any indicator similar to Table I, the firm can supply additional table where it lists other indicators (at most five) that might be used in evaluating its performance with regard to human resource management (HRM). For example, it can additionally list the ratio of women managers in the top management team.

When quantifiable data are collected, it comes to questions related to qualitative data. A set of open-ended questions, maximum of ten questions, are asked in order to understand management approach that gives insight on manager’s attitude in achieving a particular competition dimension. For example, the relevant questions targeted to measure the approach for human resources management are given as follows:

- (1) Is your HRM aligned with your company’s strategies? How do you achieve this alignment?
- (2) Does your company use a performance-based salary system?
- (3) What kinds of systems are in use in your company to enhance your employees’ competencies and capabilities? How do you evaluate their effectiveness?
- (4) What kind of systems is in use in your company to get your employees more involved? How do you evaluate their effectiveness?
- (5) Please define the contribution of your leaders and employees to the development & implementation of your HRM system?
- (6) Has your human resources approaches spread throughout the company (departments, location, and services)? How did you achieve this deployment?
- (7) Have you benchmarked the effectiveness of your human resources approach? If yes, please describe.
- (8) Have you improved your system after the assessments? If yes, what was improved and why?

4.3 Assessment

Each one of the ten criteria is assessed through a special set of scale developed for the model that eventually adds up to 1,000 points as shown in Figure 2. Each criterion can contribute to the general total by 100 points. The assessment process is total grade structure is developed by building an analogy with the EFQM model (EFQM, 2003) as mentioned in Section 4.2.

Except the first three outcome criteria that are straightforward data such as the growth rate, each criterion is evaluated both by the results achieved and approaches adapted in the company, then the scores of results and approaches are added with varying weights. For example, the results score for human resources management (called as A) has a weight of 40 percent, while the score assigned to approaches

AWARD SCORE TABLE								
	Results Score	%		Approach Score	%		Total Score	
OUTCOME INDICATORS								
1. GROWTH	A:	0	100%			(A*10):	0	
2. EXPORT	A:	0	100%			(A*10):	0	
3. VALUE ADDED & PROFIT	A:	0	100%			(A*10):	0	
4. CUSTOMER & SOCIETY	A:	0	50%	B (Customer) C (Society)	0 0	30% 20%	(A*5+B*3+C*2):	0
RESOURCES								
5. HUMAN RESOURCES	A:	0	40%	B:	0	60%	(A*4+B*6):	0
6. FINANCIAL RESOURCES	A:	0	30%	B:	0	70%	(A*3+B*7):	0
7. TECHNOLOGY, INNOVATION, DESIGN	A:	0	40%	B:	0	60%	(A*4+B*6):	0
MANAGERIAL PROCESSES AND CAPABILITY								
8. LEADERSHIP	A:	0	40%	B:	0	60%	(A*4+B*6):	0
9. SUSTAINABILITY OF STRATEGIES	A:	0	30%	B:	0	70%	(A*3+B*7):	0
10. ABILITY TO DEVELOP PROCESSES AND SYSTEMS	A:	0	40%	B:	0	60%	(A*4+B*6):	0
TOTAL SCORE							0	

Figure 2.
Award score table

developed and used in human resources (called as B) has a weight of 60 percent. The contribution of human resources management to general total is calculated as $(A \times 0.4) + (B \times 0.6)$.

The results score comes from an arithmetic calculation of four individual assessments: the scope of each indicator, realized performance, targets and benchmarking. The final value is calculated on the following formula: $[(\text{the scope of each criteria} + \text{realized performance})/2] \times (\text{targets}) \times (\text{benchmarking})$. The final value ranges from 20 to 100.

Each criterion involves a set of questions directed to measure its performance. For example, as in the case of human resources management in Table I, data is gathered through the answers given to nine questions listed in Table I. In addition, firms can add additional quantitative data as they wish. All given data are used as input for making a decision on the assessment of results.

Regarding the scope of results, assessors analyze the available data and attempt to understand how effectively the result satisfies the needs of the company and the sector as shown in Table II. If a company identifies all performance data for itself but they are not satisfactory to measure the performance of the specified indicator, then the company receives ten points. On the other hand, if a company supplies a detailed account of performance data, and then it is considered that the firm can be a role model for other companies along this performance, it receives the top grade: 80 points. For example, if a firm supplies data only for the first two indicators listed in Table I for its human resources management, leaving the rest empty, the management has very limited view about human resources management.

The second category of the evaluation of the results takes into consideration the realized performance. In other words, evaluation attempts to rate the trend of the indicators and if performance has a sustainable performance as shown in Table III. If indicators do not show a positive trend or an outstanding performance, then the company receives 40 points. If all the indicators show a positive trend or an outstanding performance, then the company receives 120 points.

Targets involve data given by companies for the specific criteria. Assessors consider if targets are appropriate for the specified question, and more importantly whether the realized performance meets or exceeds the targets given. If no targets are identified by the company, it gets a value of 0.8 as shown in Table IV. If appropriate targets are set for all indicators and they are realized, then the company gets 1.2.

Benchmarking data shows performance of the company's competitors or the best in their field, or market performance average. Evaluators consider identification of benchmarks needed for each criterion and then compare the company performance with the benchmark data. If no benchmark data is given, it gets a value of 0.8 as shown in Table V. If the company's own result meets or exceeds the comparative data in all indicators for the specific criteria, then the company gets a value of 1.2.

Scope/scale	10	20	40	60	80
How effectively does the result set satisfy the needs of the company and the sector?	Identified but not satisfactory	Appropriate for the company's needs	Appropriate for the company's and the sector's needs	Appropriate for the company's and the sector's needs, and its relevance identified	Can be a role model for other companies

Table II.
The scale used for the evaluation of scope

Performance/scale	40	60	80	100	120
How do the indicators show a positive trend (for over three years) or sustain its outstanding performance	Indicators do not show a positive trend or an outstanding performance	25 percent of the indicators show a positive trend or an outstanding performance	50 percent of the indicators show a positive trend or an outstanding performance	75 percent of the indicators show a positive trend or an outstanding performance	All the indicators show a positive trend or an outstanding performance

Table III.
The scale used for the evaluation of realized performance

Targets/scale	0.8	0.9	1.0	1.1	1.2
Appropriateness of targets, and meeting & exceeding the targets	No targets identified	Targets are set and met for %25 of indicators	Targets are set and met for %50 of indicators	Appropriate targets are set and met for %75 of indicators	Appropriate targets are set for all indicators and they are realized

Table IV.
The scale used for the evaluation of targets

Similar to the quantitative data, qualitative data is assessed and turned into a mathematical value. The assessment of approaches is carried through a combination of three sub-evaluations. The final value is calculated on the following formula: (appropriateness and development level of the approach) × (implementation) × (achieving sustainability). The final value ranges from 20 to 100.

The first assessment considers the appropriateness and development level of each approach. Developing approaches that are appropriate for the requirements of the criteria might guarantee reaching the necessary results. If evaluators observe that there are some approaches adapted in the company, however these approaches are insufficient to get results targeted, then the company gets 20 points. If the company is successful in this evaluation, it is considered to become a role model, so gets 100 points as shown in Table VI.

Even though the companies develop relevant approaches required for their competitive capability, these approaches might not be fully implemented. Thus, checking the level of implementation becomes an important assessment. If a firm identifies right set of approaches, it gets a value of 0.2, while this value goes up to 1.2 when it can be considered as a role model for other companies in implementing approaches defined (Table VII).

It is possible that companies might be successful for some period of time but they might not be able to establish a system that keeps its operations and management

Table V.
The scale used for the evaluation of benchmarking

Benchmarking / scale	0.8	0.9	1.0	1.1	1.2
Identification of comparisons in relevant indicators and how the performance is meeting or exceeding the comparisons	No comparisons identified	Performance meets or exceeds the comparisons for %25 of the indicators	Performance meets or exceeds the comparisons for %50 of the indicators	Performance meets or exceeds the comparisons for %75 of the indicators	Performance meets or exceeds the comparisons in all indicators

Table VI.
The scale used for the evaluation of appropriateness and development

Appropriateness & development/ scale	20	40	60	80	100
Developing approaches that are appropriate for the requirements of the criteria and guarantee reaching the necessary results	There are some approaches however insufficient to get results	There are approaches appropriate for the requirements of the company	Approaches are defined to drive to the required results	Approaches are appropriate both to the needs of the company and the sector, and defined to drive to the required results	Can be a role model for other firms

Table VII.
The scale used for
the evaluation of
implementation

Implementation/ scale	0.8	0.9	1.0	1.1	1.2
Implementing the approaches in all areas that are appropriate for the requirements of the criteria and will guarantee reaching the necessary results	It is identified where and how the approaches to be used	The approaches were just put into use	The approaches have been implemented in all areas for at least one year	The approaches have been integrated in all the processes	Can be a role model for other companies

dynamically evolving. Thus, assessing sustainability dimension takes into consideration whether firms evaluate and improve their approaches. As shown in Table VIII, if a firm reconsiders its approaches on the basis of a problem, it gets a value of 0.2, while it gets a value of 1.2 when a sustainable review and improvement mechanism is institutionalized for approaches.

4.4 Assessment process

The implementation of the Turkish award system took 11 months in 2010. Initially a Competitiveness Committee is established, made of five individuals (two academicians and three business people). The Committee is responsible from all decisions regarding the award system. The process starts with the announcement of the award and a widely distributed call for applicants. Application is done stepwise. First, applicants send one page of document showing their intent of application. Second, they fill the application document in detail and send it to the secretariat of the award.

Achieving sustainability/ scale	0.2	0.4	0.6	1.0	1.2
Evaluating and improving the approaches that are appropriate for the requirements of the criteria and will guarantee reaching the necessary results in all areas	Approaches are assessed only when faced with a problem	In line with the problems, approaches are assessed and improved	Approaches are assessed periodically and improved based on the results	The review and improvements of the approaches are integrated into all processes	Sustainability has been achieved so that the company can be a role model for other companies

Table VIII.
The scale used for the
evaluation of achieving
sustainability

Evaluators/assessors have been critical people in the process. A call for assessors is announced and CVs of applying individuals are analyzed to prevent conflict of interest. Selection of assessors is mainly based on intensive managerial experience in manufacturing or services, as well as assessing experience in other award systems such as national quality awards. The selected assessors are given a two-day training on the competitiveness model and its assessment. A real-life company case is developed and used in the training.

When applications are finalized, the application documents are given to the assessors. Individual assessments are carried out to describe positive aspects of the application, improvement opportunities, and questions that arise from unclear statements, missing data and so on. After a consensus meeting between individual assessments, if the applicant firm passes a total value of 400 points, then a site visit is organized. Site visits last three full days. Top managers host the assessors and answer all the questions they ask and supply additional documents or show the documents where the data given in the document comes. After the site visit, the team writes its report through a discussion where consensus is reached and a final score is given.

The assessor reports are presented to the selected jury of the award consisting of seven individuals. These jury members are selected from universities, newspapers, and business people. During the Jury meeting, they discuss the finalists whose site visits are completed. The Jury decision is final. The winner is announced in the national competitiveness Congress after the Jury meeting, followed with an Award ceremony (see the winners of 2010 in Appendix). All applications receive an evaluation report prepared by assessors so that they can get an internal audit report for their performance.

5. Concluding remarks

Systematic frameworks such as World Competitiveness Yearbook and GCI are great measurement and benchmarking tools for competitiveness of nations. There is a similar need for the competitiveness of firms, since it is the firms, not nations, which compete. Moreover, considering that “competitiveness is a marathon, not a sprint” (Porter, 2004), it is necessary to understand factors behind firm competitiveness for better economic growth and social welfare.

This paper contributes to the literature by improving the understanding of how firm competitiveness works by developing a comprehensive and generic model. Then the model is used to actually measure firm competitiveness that is adapted to give an award in Turkey.

Taking companies as the unit of analysis, competitiveness refers to a *firm's capacity* to compete in a specific market, to increase its market share, to enter international markets by exporting, and to achieve sustainable growth and profitability. Thus, the firm competitiveness is based on three key pillars: competitive outcome/performance (output), firm resources (input), and the managerial processes and capabilities where these firm resources are flourished and utilized. Competitive outcome can be measured through data on growth, export, profit, and customer and society. The key resources for competitiveness can be grouped under three categories, namely human, financial and technology, innovation and design based resources. Managerial processes and capability consist of processes and systems in a company as well as

leadership and sustainability of strategies. In sum, the overall measurement model could be based on collecting data on these ten criteria.

The model can be used by managers and policy makers. Individual companies might use the model to measure their own performance as a self-assessment or it can be adapted by a national body/association and used to award competitive companies so that they become role models for other firms in the country. By measuring firm competitiveness, policy-makers might map out and drive change to make their economies stronger and more productive.

The future studies should apply our model presented in this paper as many countries possible to bring data that can help for comparisons and benchmarking studies. In addition, future studies might enrich the model of firm competitiveness. For example, there is an extensive discussion on networks and firm performance such as firm growth and sustainability (Sapienza *et al.*, 2006). Future studies could investigate the association between networks and competitiveness. This might be done with more comprehensive studies at the network level, including partners into the analysis of measuring competitiveness of firms.

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Appendix. 2010 winners of the most competitive firm in Turkey

Bilim İlaç (main category) – www.bilimilac.com.tr/en/

Aksa Akrilik (success category) – www.aksa.com/?lid=2

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