



Research Article / Araştırma Makalesi

**SUSTAINABLE KEY PERFORMANCE INDICATORS FOR URBAN REGENERATION PROJECTS**

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**ABSTRACT**

The construction industry needs to assess its success in the long term considering the internal and external parameters affecting its performance. Urban regeneration projects have a considerable importance in terms of construction industry. Efforts have been exerted to overcome the problem of increase in building supply in contrast to the decrease in building demand with urban regeneration projects which don't increase building supply, yet increase building demand. Besides, urban regeneration projects have the potential to be a driving force for the Turkish economy by manufacturing construction materials and in terms of engineering, technical consultancy and potential construction works. In order to provide an efficient performance for the Turkish construction industry in the long term, it is crucial to determine benchmarks and indicators, which affect the performance of urban regeneration projects. In this context, this study aims to investigate the Sustainable Key Performance Indicators (SKPIs) and their effects on success.

**Keywords:** Performance management, sustainable performance, urban regeneration, construction industry.

**KENTSEL DÖNÜŞÜM PROJELERİ İÇİN SÜRDÜRÜLEBİLİR ANAHTAR PERFORMANS GÖSTERGELERİ**

**ÖZ**

Türk inşaat sektörü, dış ve iç çevresinde gelişen durumlar çerçevesinde sürdürülebilir performansını devam ettirmektedir. Kentsel dönüşüm projeleri ise, inşaat sektörünün sürdürülebilirliği açısından büyük bir öneme sahiptir. İnşaat sektöründe konut arzında gerçekleşen artışa karşın talepte gözlenen düşüş sorunu, konut arzını arttırmadan talebi arttıracak kentsel dönüşüm projeleri ile giderilmeye çalışılmaktadır. Ayrıca, kentsel dönüşüm projeleri; sahip oldukları inşaat malzemeleri üretimi, mühendislik, teknik müşavirlik ve yapım işleri nedeniyle ülke ekonomisi için de itici bir güç olma potansiyeline sahiptir. Bu nedenle Türk inşaat sektörünün uzun vadede etkin performans sağlayabilmesi için, gayrimenkul ve kentsel dönüşüm projelerinin performansını etkileyen ölçütlerin ve göstergelerin belirlenmesi oldukça önemlidir. Bu bağlamda ise; çalışma kapsamında kentsel dönüşüm projelerinin başarısına etki edecek sürdürülebilir anahtar performans göstergelerinin belirlenmesi hedeflenmiştir.

**Anahtar Sözcükler:** Performans yönetimi, sürdürülebilir performans, kentsel dönüşüm, inşaat sektörü.

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## **1. INTRODUCTION**

The construction industry is an important contributor to the growth of any national economy [1] and the Turkish construction industry has also started to hold a position that is open to the effects of economic and political changes resulting from the effects of increasing globalization and domestic risks related to political clashes and the crisis, inflation, current budget deficit, stagnancy, underemployment and etc. [2]. Thus, it can be concluded that there are many factors that can directly affect the performance of the construction industry and in order to survive, the construction industry should increase its performance by defining correct strategies and measures regarding with the factors affecting company and project performance. In 2015, the major problems the Turkish construction industry is facing are the increasing imbalance between the construction supply and the domestic demand as well as the strategic positioning of the Turkish contracting sector in the worldwide competition. At this point, considering the future growth of the Turkish construction industry, significant investments in urban regeneration projects can be regarded as a solution towards assuring sustainable performance of construction industry and overcoming economic recession. Urban regeneration projects can provide dynamism for the national economy by creating potentials for foreign investors as well as their environmental and social contributions. Consequently, the main purpose of this study is the determination of factors affecting long term sustainable performance of construction industry by defining Sustainable Key Performance Indicators (SKPIs) and their effects on success.

## **2. URBAN REGENERATION PROJECTS IN TURKEY**

### **2.1. The Current State of Urban Regeneration Projects in the Turkish Construction Industry**

Based on forecasts, it is anticipated that the need for housing in Turkey is determined by three main factors, namely the increase in population-urbanization, urban regeneration and renewal [3]. Although there is no housing deficit in Turkey, the need for quality buildings and the problem of unlicensed buildings create an unsaturated market for qualified buildings [4]. Nowadays, since, real estate is considered to be the most profitable investment tool, there is a continuous demand in housing sector [3]. Also the most important element, which affects the housing demand in Turkey, is the advantageous bank loans such as mortgage etc. It is considered that increasing the purchasing power of large masses by mortgage causes an increase in the housing demand. Unfortunately, after the global mortgage crisis which broke out in 2008; a decline in the demand, a reduction in production, and adverse effects in the real and the financial caused Turkey's GDP to turn to negative in 2009 [5]. Fortunately, the effects of the crisis in Turkey was not as severe as predicted. After the global depression, 2010 was marked as the year of "normalization and improvement" and 2011 was marked as "going back to growth" in line [6, 7]. Also, a study from the Global Property Guide of 2012 housing prices reveals that the real estate-market is regaining its power worldwide, and it shows that Turkey is one of the fastest recovering countries in the global real estate market [8, 9]. However, increasing housing demand depending on the gain in real estate market does not meet the necessary supply in housing projects. In this context, in order to continue the acceleration in housing demand and balance the supply deficit in housing sector, urban regeneration projects become prominent as a new way to present housings [3].

Urban regeneration is a comprehensive reflection of the strategy and actions that aim to enhance the economic, social, physical and environmental conditions with extensive and eclectic approaches [10]. The project of urban regeneration has arisen from the need of understanding urban deterioration processes better, and it is an agreement on the results of transformation. In other words, urban regeneration is reformulating and reviving a long-neglected economic

activity, transforming inoperative social functions into operative, providing the social integration of urban spaces that are socially isolated, providing environmental balance in areas where environmental quality and balance have been upset [11]. Therefore, implementations should be based on social, public and economic foundations. By analyzing the urban regeneration applications around the world, it can be revealed that these projects are needed because of: 1) unhealthy and unplanned urbanization which is far from meeting the contemporary engineering requirements due to squatting as a result of urban migration and increasing population, 2) the need for the transformation of old and dysfunctional industrial areas, that is to say, turning them from abandoned and out-of-use areas into functional and beneficial areas, 3) the necessity of cleaning up and making risky or ruined areas healthier and 4) bringing physical collapse to a halt, the need of bringing historical values to light and putting them into active public service by adding new functions. Since Turkey is located on a seismic belt, and accordingly run the risk of suffering from violent earthquakes and considerable losses, urban regeneration projects are handled under the “Disaster Risk” title instead of economic, social and environmental reasons. Moreover, an overwhelming number of buildings that are on the verge of their 50th anniversary and technically and qualitatively insufficient buildings resulting from squatting are the other reasons that have triggered the urban regeneration projects in Turkey.

At this point, it is also important to make an evaluation about the performance of Turkish construction industry by focusing on the supply-demand imbalance in the housing sector. Economic uncertainty and recession resulting from global and macro-economic developments directly affect the balance between the growth rate and the supply demand in the industry within the national market. According to Analysis of Turkish Construction Industry that was conducted by Turkish Contractors Association in 2015 [2]; the improvement of the construction industry and that of the gross domestic product are generally interconnected. It can be stated that the success of the construction industry is directly dependent on the national economy. In this context, evaluating with the performance of construction industry in 2014, it can be suggested that there is a critical slowdown in the growth of the industry despite the 7% growth in 2013 in the light of the data related to the first three quarters of 2014. The decline in public investment and the stagnation of private sector investment can be shown as the main causes of this slowdown. In detail; in the third quarter of 2014 despite the increase in building permits that is reached to 39.2%, housing sales numbers started to decline; decrease in stock melting rate gave cause for a considerable increase in the housing stock and the rate of increase in construction expenditure began to slow down. In this context, considering the occupancy permit rates and the trends in house sales together; the imbalance of supply-demand in housing sector and the insufficient demand for new housing continue to pose a risk for Turkish construction industry. However, within the foresights and considerations of the government, urban regeneration projects are considered as a prominent solution to restore the supply-demand imbalance in the domestic market by increasing the housing demand [3]. Also considering the new demand that has emerged with the reinforcement of buildings against earthquakes and transforming technically insufficient buildings into qualified ones, it can be stated that urban regeneration projects that involve demolition and regeneration or reinforcement of risky buildings can be a solution to the imbalance between the supply and the demand in the housing sector, since these projects do not require an additional building stock whereas they increase the demand. Thus, the demands created by urban regeneration projects will lead national and international capital to urban spaces where new and lucrative investment opportunities may emerge [7]. In this manner, sustainable performance of Turkish construction industry can be guaranteed.

## **2.2. Sustainable Performance of the Turkish Construction Industry**

In the light of the data related to current situation of the Turkish construction industry, it becomes possible to make inferences on the sustainable performance of the Turkish construction

industry from the perspective of national market. On the other hand, the situation in international market can be examined by analyzing the revenues of the “Top 250 contractors of 2014” list of the engineering news record [12]. In this list it is seen that; the total revenue of 42 Turkish contractors (20.409,8 million \$) is considerably lower than the revenue of the chart-topping company (44.053,8 million \$). In the late 2012, Turkish contractors undertook new jobs, worth 26,1 billion dollars abroad, which was a “historical peak” for them after 42 years, since it was the first time they undertook jobs abroad [13]. However, it can be stated that Turkish contractors do not have enough power to compete abroad. Therefore, Turkish contractors need to increase the number and the size of their projects, as well as their corporate performance so that they can increase their competitiveness in order to benefit from business opportunities in the global economy. Accordingly, the sustainability of the performance in the Turkish construction industry will increase. In the national market, the current situation shows that the most important problem in the housing sector is the imbalance between supply and demand as mentioned before. The decrease in the demand by the customers, which leads to a significant recession in the industry, is also a great problem for the long term sustainable growth goals set for the Turkish construction industry.

In the light of the information presented above, the gap between the demand and the supply of residential projects in the national market and the insufficient revenues of Turkish contractors in international markets might give clues to the policy-makers about the future growth performance of the construction industry. To handle these problems and to provide the sustainability of the construction industry as well, big investments in industrial sectors like energy, infrastructure, urban regeneration and reinforcement of the corporate status of Turkish companies in international markets might be considered suitable solutions. As governments conceive the key role that the construction industry plays in the macro-economy and the overall socio-economic development [14], efforts to assure the sustainable development of the construction industry will become more and more important. For example, in 1990’s larger private sector participation in infrastructure projects, increasing vertical integration in the preparation of construction projects and increased foreign participation in domestic construction can be seen as popular trends to sustain the development of the construction industry in the Asian region [15]. Today, the stability problem associated with the decline in the private and the public sector investments and the decrease in the housing demands in Turkey are at the center of the efforts exerted to resolve these issues by increasing public investments and through the implementation of urban regeneration projects. For this reason, urban regeneration projects are essential as they constitute a driving force for a country’s economy with their contribution in terms of accelerating the growth of the sector [16]. In this context, drawing up “urban regeneration projects” is considered to be a strategic activity to improve the performance of the construction industry in the study of “2023 Vision for the Construction Industry: Problems and Solutions” presented by the Turkish Contractors Association [17]. Moreover, in a similar study prepared and presented by the Association of Real Estate Investment Companies, it is pointed out that the urban regeneration projects will be a new and significant factor to achieve improvement in the real estate and construction industries [3]. Additionally, it is highlighted that Turkey is the 3rd most attractive real estate investment destination among emerging countries, 6.5 million housing renewal projects will be regenerated with the implementation of the “Law on the Regeneration of Areas under Disaster Risk” [7]. This regulation will lead the market to attract both local and foreign demand and will also create a financial activity worth approximately \$ 400 billion [7]. For this reason, urban regeneration projects should not be considered as a short term goal, rather they should be considered as a long term effort to increase the performance of Turkish construction companies permanently. Therefore, it becomes essential for Turkish construction companies to enhance their competitive advantages in urban regeneration projects, which constitute the bigger slice of the cake for domestic and foreign investors. Moreover, knowledge, experience and practice that have been gained from urban regeneration projects may

increase the popularity and preferability of Turkish construction companies in similar projects abroad which will possibly pave the way for larger projects and for increasing revenue. With this potential high revenue, construction companies can manage to hold higher positions in “Top 250 international contractors”.

Increasing the above-mentioned long term competition power can only be achieved by increasing the project and company performance. Long term performance increase can boost the industry’s success; on the other hand, it provides permanent performance for the industry. Thus, determining performance indicators specifically set for urban regeneration projects is very important.

### **3. RESEARCH METHODOLOGY**

Within urban regeneration policy and practice, the determination of performance indicators is becoming increasingly significant in measuring sustainability outputs [18]. There has been little co-ordination between urban regeneration and sustainable development and an imbalance in action [19]. On the other hand, sustainable development and urban regeneration have increasingly been recognized as complementary goals [19].

In this research, it is aimed to investigate the Sustainable Key Performance Indicators (SKPIs) and their effects on success. With this aim, KPIs were considered with social and environmental proceeds in addition to the proceeds of KPIs such as the ones acquired through increasing the company's and the industry’s success with their contribution to the national economy. First, a comprehensive literature survey was conducted in order to determine the SKPIs among KPIs. According to this investigation, basic KPIs affecting sustainable performance were classified into four groups, namely “Economic KPIs”, “Social KPIs”, “Environmental KPIs” and “Innovation and Research & Development (R&D) KPIs”. From this perspective, it was acknowledged in this study that the interaction between these four main parameters will predict the “Sustainable Company Performance”.

Evaluation of a company’s performance by considering mainly financial benchmarks cannot predict a company’s future strategies [20]. Thus, in this study, “Company Performance Indicators”, were determined based on the Balanced Scorecard model developed by Kaplan and Norton which also defines some intangible measures such as satisfaction, learning and internal processes etc in order to provide sustainability. The Balanced Scorecard allows the researcher to take into account the non-monetary strategic success factors that have a significant impact on the economic success of a company. With these features, it is a promising starting-point to incorporate environmental and social aspects as well, into the main management system of a company. Sustainability management with the Balanced Scorecard will help overcome the shortcomings of conventional approaches to environmental and social management systems by integrating the three pillars of sustainability into a single and overarching strategic management tool [21]. In order to sustain a company’s success, four main dimensions of the Balanced Scorecard (financial, customer, internal operations and training) and core measures adapted for them [22] are redesigned in the light of the findings from the comprehensive literature survey that has been conducted. In the light of the information above, the SKPIs were determined considering the four main parameters of sustainability and their relevant sub-parameters, namely Economical, Social, Environmental, and Innovation/R&D.

### **4. FACTORS AFFECTING SUSTAINABLE PERFORMANCE**

Strategic performance measurement has become an indispensable strategic tool for the construction industry to assure success and continuous improvement [23] and it serves as a business tool for evaluating management performance, managing human resources and formulating corporate strategy [24]. In recent years, with technological advancements and

emerging management techniques, companies are required to regulate their performance measurement and management systems. Accordingly, companies in the construction industry should evaluate their environmental, economic, social contributions as well as their R&D and innovation skills in order to achieve the goal of attaining a sustainable structure. Therefore, as the qualifications acquired from the increase in both the total number and the quality of works will contribute to taking the lead in contractor selections in the international market [25, 26]. A company that has a sustainable structure may have many advantages such as; increasing the corporate profitability and reputation by reducing costs and risks, increasing the company's growth rate, providing clean technology and rapid innovations, attracting future investment, increasing the share value and attracting well-equipped employees. In addition to the above-mentioned advantages, increasing performance in the fields of economy, society, environment, R&D and innovation will help companies to obtain more profit and competitive power so that they can strategically survive. Taking into consideration the fact that the construction industry has been criticized for its underperformance and that the Latham and Egan reports emphasized the need for performance improvement and measurement [27], it can be stated that a company's success in the field of sustainable performance indirectly affects the whole construction industry in a positive way which will result in sustainability, that is to say, an increase in the overall success and a sustainable performance in the construction industry. To achieve an increase in sustainable performance on the company scale, the most important aspect which deserves top priority is to achieve an increase in project-scaled sustainable performance. In this respect, the Sustainable Key Performance Indicators (SKPIs) should be taken into consideration in the field of performance evaluation along with the Key Performance Indicators (KPIs), which only serve to measure time- and production-related costs. In this regard, determining the Sustainable Key Performance Indicators is very important because it has many benefits, such as achieving corporate as well as the industrial success. Consequently it will have positive effects on the national economy, while equipping companies with the valuable skill of taking action in a proactive manner.

#### 4.1. Evaluation Criteria for Sustainable Performance and Indicators for Urban Regeneration Projects

Urban regeneration projects have different success criteria from other housing projects since the targets and the aims of the applications in urban regeneration are different from those in other projects. For this reason, in the decision-making process of the kind of performance criteria to be set, in this study a meticulous and detailed consideration has been made about the factors that provide success in urban regeneration projects. This elaborate selection has been made because the success/failure criteria in goals, approaches, and applications are considered vital for the performance of a project directly. In this perspective, criteria for and indicators of sustainable performance evaluation for urban regeneration projects, which were specified after a comprehensive literature survey, are shown in Table 1.

**Table 1.** Sustainable performance evaluation criteria and indicators for urban regeneration projects [11, 18, 19, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40]

<b>Economical Key Performance Measures</b>
<p><b>Economy and work:</b></p> <ul style="list-style-type: none"> <li>• Redevelopment and revitalization of the lost economic activity</li> <li>• Number of jobs and enterprises created</li> </ul> <p><b>Cost:</b></p> <ul style="list-style-type: none"> <li>• Lifetime cost (<i>Return of the construction and operating costs</i>)</li> <li>• Project finance channels (<i>Continuity of financial resources used to the complete the</i></li> </ul>

project)

- Repayment period (*Order of the return duration of the project costs*)
- Interim payment (*Interim payments received during the project implementation*)
- Requested costs (*Correct calculation of requested cost*)
- Final estimates (*Correct calculation of final estimates*)
- Project finance Channels (*monetary transmission channels*)
- Rent

**Time:**

- Time management (*Time planning, keeping up with important dates*)

**Technical Features:**

- Design management
- Constructability (*Designing in a way that the building can be built*)
- Suitable design for demount (disassemble) and use (*Adaptation of the any possible revised plans to the project*)
- Accreditation of quality management (*Proper productions that will suit quality standards*)
- Implementation of sustainable building technologies

**Legal:**

- Legislation and regulations (*BEP-TR, Energy performance certificate applications*)
- Preparing compliant legal laws and regulations (*Integration between urban regeneration laws and reconstruction regulations*)

**Management:**

- Project integration management
- Organizational management (*Public, private sector and civil society cooperation at project organization stage*)
- Risk management
- Contract management
- Strategic management (*Developing local strategy and policies*)
- Supply chain management
- Communication management
- Human resources management
- Performance comparison between organizations (*General assessments in conjunction with other projects*)
- Stakeholder management
  - Local administration and other establishments' support and public participation in contemporary, democratic, participant medium in urban regeneration applications
  - Interdisciplinary work in planning stage
  - Problems originated from project launching
  - Partnership between public and private interests (*Private sector involvement*)
- Leadership (*support of regulators and lenders*)

**Social Key Performance Measures**

**Protection:**

- Protection of landscape, historical sites and cultures
- Conservation of built heritage
- Project design according to urban identity where project is planned
- Resurrection of historic fabric (*Historic and cultural values should not be harmed*)
- Reserving urban identity (*Continuity of original urban identity urban regeneration applications*)

**Security:**

- User safety (*Safely usage of the building and the environment by the user*)
- Macro Social Performance (Social Impact) and Customer Satisfaction:**
- Integrative approach (*Effective participation of relevant stakeholders*)
- Customer satisfaction (*Acceptation of the design and construction of the building*)
- Community satisfaction (*Doing design and implementations considering the community development and social justice*)
- Making operational and inoperative social function.
- Creating spaces that prevents social exclusion, inequality, polarization where social exclusion, inequality and polarization exists, thus achieving social integration
- Creating urban center/attraction point
- Creating public space
- Enrichment of technical and social equipments in an area where living population needs and increasing limits of usage of these areas (*Cultural and recreation opportunities and multi-functional usage possibility*)
- Integration of city and citizens or integration of city and disjointed parts of the city
- Providing socio-economic balance
- Increasing life quality and urban prosperity
- Creating social infrastructure and increasing quality of life, accessing health, education, housing and public services
- Providing employment and employment stability
- Customer demand (market demand) (*Changes in customer demands*)
- Sustainable urban life (*Urban parts for modern-day needs and expectations; healthy, livable urban structure, new infrastructure and transportation*)
- Occupational Health and Safety:**
- Occupational health and safety management
- Education, practice exercises and meetings

#### **Environmental Key Performance Measures**

##### **Ecological Impact:**

- Soil (*The negative impacts of all products interference with soil in the phase of construction and operation*)
- Protection of water resources (*The negative impacts of the building on the lack of water resources*)
- Water pollution (*The negative impacts of all products interference with water in the phase of construction and operation*)
- Released carbon (*The minimization of the amount of released carbon*)
- Resource use (*The effective use of physical resources whilst dealing with environmental issues such as the reclamation of materials, waste minimization, energy efficiency and conservation*)
- Ecological footprint

##### **Design:**

- Visual effects of the aesthetic design
- Effect of the aesthetic design to the habitat
- Effect of the aesthetic design to the quality of interior design (*Lighting, ventilation, cooling, heating solutions*)
- Landscape design (*Including landscape plans*)
- Using sustainable construction technology in the phase of design
- Regeneration of physical space

##### **Land use:**



- Land selection (*Selection of suitable lands for construction, the relationship forged with the physical resources and land-use planning component of urban regeneration*)
  - Selection of area
- Relationship of land selection and transportation (*Proximity to public transportation routes*)
  - Transport and mobility ‘encapsulate matters pertaining to infrastructure improvement, travel habits, in relation to range of activities and car parking provision
- Buildings and land use relation (*Ratio of open space to build form, ratio of redeveloped buildings to new buildings, mixed use combinations, usage of public space, reclamation of contaminated land*)
  - Minimum land usage
  - Soil pollution (*The prevention of soil pollution proceed from land-use*)
  - Regularization of population density / urban development (*Implementation of buildings without ignoring the terms of population density and urban development*)
    - Housing stock (*Existing unlicensed buildings / healthy buildings that are appropriate for planning and development / buildings that needs to be strengthen*)
    - Increase in existing reconstruction rights (*this makes physical areas that emerged from increasing density suffer from social and spatial aspects*)

**Waste Management:**

- Making the right design for minimum waste (*Accurate and adequate material selection/design according to material*)
- Building-site waste management planning
- Use of recycled waste

**Energy:**

- Energy storage and energy efficiency (*Storage of extra energy to use in case of requirement and applications of energy-efficient usage*)
- Lifetime energy and carbon analysis
- Green energy (*Solar panel, wind turbine, rain water harvesting, green roof applications, etc.*)

**Use of Material:**

- CE certified material (*Choosing CE quality certified materials in buildings*)
- The negative effect of materials used in buildings
- Use of renewable materials
- Making the right amount raw material order
- Choice of local / regional materials

**Indoor Air Quality:**

- Use of low dissipative materials
- The chemical and hazardous source controls of indoor
- The negative impact of using chemicals

**Law:**

- Construction considering health, safety, environmental and regulatory requirements
- Property rights (*In buildings that are not appropriate for planned building usage because of stock distribution and acreage, same rights can be used actively and issueless with condominium applications*)

**Innovation and Research & Development (R&D) Key Performance Measures**

**Innovation:**

- Eco-Innovation (*Production of building in accord with nature*)
- Providing economic rant with innovation practices (*Product-process-marketing and organizational innovation*)

- Process improvement and creating value with innovation practices (*Quality / Cost*)
  - Technological capability (*Owning the new technologies that will be used for the production*)
  - Technological resources (*People, equipment, information, money, etc.*)
  - Customer demand oriented innovation
  - Institutionalization / innovation in corporate culture (*Leadership, training, teamwork, knowledge sharing, organizational learning, etc.*)
  - Suitable designing for different purposes
  - Marketing innovation
- Research-Development (R&D):**
- R&D pursuant to quality cost optimization framework
  - Contribution to technology production
  - Patent activities (*Reference number, the number of patents, registration rate, etc.*)
  - Existence of university-industry cooperative projects

#### Company Performance Indicators

**Financial:**

- Growth (*Rate of profitability, the shareholder gain, increase in the rate of sales, cash flow*)
- Profitability (*Increase in market share and return on resources*)

**Customer:**

- Market share (*The company's market position perceived by the customer*)
- Customer acquisition (*Retaining existing customers and getting potential customers*)
- Customer satisfaction
- Customer profitability (*Comparison between the value of the product and the benefit of the product*)

**Internal Processes:**

- Learning organization / institutional memory (*Creating a corporate structure*)
- After sales service (*Installation, maintenance, repair, renovation, etc.*)

**Learning and Innovation:**

- Organizational innovation (*Innovations about processes and organizational structure*)
- Employee competency (*Transfer of corporate experience to the employees, trainings*)
- Capacity of information systems (*Data base management*)
- Employee motivation and compliance

**Sustainability:**

- Financial sustainability (*The continuity of financial inputs to ensure the continuity of company*)
- Customer retention (*Ensure continuity of customer*)
- Owning sustainable production channels (*The continuity of production channels to ensure the continuity of company activities; environmentally friendly approaches in the production processes; being a pioneer in the sector with company's housing production channels*)
- Continuity of adaptation to new technologies

## 5. CONCLUSION

In order to survive and provide a sustainable strategic position in the construction industry, a company should increase its project success by seizing the opportunities in either domestic or international market. In this paper it is assumed that project performance affects the industry's success, and the industry's success stimulates the national economy. After evaluating the

developments in the construction industry and the forecasts of experts, urban regeneration projects were specifically prioritized, since urban regeneration projects are one of the best tools that can increase the growth rate of the construction industry and hence accelerate the growth of national economy. Moreover, considering the fact that urban regeneration projects have different objectives and specialties compared to other housing projects, it is crucial to determine the factors that will bring success in urban regeneration projects. For this reason, in this study, it is aimed to determine valid performance measures which lead urban regeneration projects to success in order to obtain “sustainable performance evaluation criteria and indicators for urban regeneration projects”. Especially in the light of the findings on the current state of the Turkish construction industry, it can be stated that investing in urban regeneration projects in Turkey will be a great opportunity for both foreign and domestic construction companies for achieving sustainable performance as Turkey is considered to be one of the most attractive countries to invest in. At this point, the “sustainable performance evaluation criteria and indicators for urban regeneration projects” that are presented in this study, which mainly focuses on the Turkish construction industry, can be considered as a general performance evaluation model that can be used by all construction companies all over the world due to the fact that urban regeneration projects in Turkey are important opportunities not only for domestic construction companies but also for foreign construction companies to assume leadership in urban regeneration field and to increase their revenue and sustainable performance accordingly. Determination of the performance measures and indicators that are presented in this study is the preliminary phase of an ongoing research. In future studies, validation of SKPIs by using the statistical data gathered from Turkish construction companies and investigation of the effects of SKPIs on success will be conducted and a sustainable performance measurement model for the construction industry both in corporate and project level will be formed.

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