Journal of International Architectural Sciences



JIArcS

e-ISSN: 3062-1399 2025 Volume 2: Issue 1

Journal of International Architectural Sciences
JIArcS, 2025, 2 (1)
e-ISSN: 3062-1399
Journal homepage:
https://mimarlikbilimleri.com/ojs/index.php/architecturalsciences

Journal of International Architectural Sciences (JIArcS)

Year: 2025, Volume: 2, Issue: 1
e-ISSN: 3062-1399

CONTACT INFORMATION

WEB:
https://mimarlikbilimleri.com/ojs/index.php/architecturalsciences
E-mail: *architecturalsciences@gmail.com*
@jiarcsjournal

Publisher: Blacksea Natura and Environment Association
(Karadeniz Doğa ve Çevre Derneği)
https://www.kadoced.com/associations/kadoced/

Cover Design: Neriman Gül ÇELEBİ

Publish Date: July 30, 2025
Isparta- Türkiye

Important Not: Authors are responsible for the copyright of figures, pictures, and images in the articles, the content of the articles, the accuracy of the references and citations, and the suggested ideas and others.
(Önemli Not: Makalelerdeki şekil, resim ve görsellerin telif hakları, yazıların içeriği, kaynakça ve alıntıların doğruluğu ve önerilen fikirler vb makalenin tümünden sadece makale yazarları sorumludur.)

JIArcS is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License. (https://creativecommons.org/licenses/by-sa/4.0/)
*(**JIArcS**, Creative Commons Atıf-Aynı Paylaşım 4.0 Uluslararası Lisansı ile lisanslanmıştır)*

Journal of International Architectural Sciences

JIArcS, 2025, 2 (1)

e-ISSN: 3062-1399

Journal homepage:

https://mimarlikbilimleri.com/ojs/index.php/architecturalsciences

DERGİ HAKKINDA	ABOUT THE JOURNAL
• 2024 yılında yayın hayatına başlayan ***"Journal of International Architectural Sciences* (JIArcS)"** online ve açık erişimli olarak yayımlanan uluslararası, bilimsel, hakemli ve E-dergidir.	• ***"Journal of International Architectural Sciences* (JIArcS)"**, which started its publication life in 2024, is an international, scientific, and peer-reviewed e-journal published online and with open access.
• Yazım dili İngilizce ve Türkçe'dir.	• Literary language is English and Turkish.
• Yılda iki sayı olarak yayımlanmaktadır.	• It is published twice a year.
• Dergiye gönderilen makalelerden herhangi bir değerlendirme ve başvuru ücreti alınmamaktadır	• No evaluation and application fee is charged from the articles sent to the journal.
• Dergide çift taraflı kör hakemlik sürecini (en az 2 hakem) kullanılmaktadır.	• A double-blind peer-review process (at least 2 referees) is used in the journal.
• Dergide yayınlanan bütün eserlerin "YÖK Bilimsel Araştırma ve Yayın Etiği Yönergesi" hükümlerine ve ilgili mevzuata ve Yayın Etiği Komitesi (COPE) tarafından yayınlanan etik ilkelere uyulmaktadır. Dergide yayımlanacak makalelerde 2020 yılında başlayan yayınlar için ETİK KURUL İZNİ zorunludur.	• All works published in the journal comply with the provisions of the "YÖK Scientific Research and Publication Ethics Directive" and the relevant legislation and ethical principles published by the Publication Ethics Committee (COPE). ETHICS COMMITTEE PERMISSION is required for articles to be published in the journal starting in 2020.
• Orijinal araştırma makalelerine (özellikle İngilizce dilinde tam metin makalelere) öncelik verilmektedir.	• Original research English papers (especially full-text articles in English) are given priority.
• "Her bir makaleye DOI numarası atanmaktadır.	• Each article is assigned a DOI number.
• TURNITIN programı (https://www.turnitin.com/tr) kullanılarak maksimum %20 "Benzerlik Oranı" gerekmektedir.	• A maximum of 20% "Similarity Rate" is required using the TURNITIN program (https://www.turnitin.com/tr).
(JIArcS), Creative Commons Atıf-Aynı Paylaşım 4.0 Uluslararası Lisansı ile lisanslanmıştır.	**(JIArcS)** is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Indexed in:

Journal of International Architectural Sciences

JIArcS, 2025, 2 (1)
e-ISSN: 3062-1399
Journal homepage:
https://mimarlikbilimleri.com/ojs/index.php/architecturalsciences

EDITORIAL BOARD

	Editoring in Chief	Address
1	**Prof. Dr. Ümit ARPACIOĞLU**	Mimar Sinan Fine Arts University, Department of Architecture, İstanbul-Türkiye
2	**Neriman Gül ÇELEBİ**	Mimar Sinan Fine Arts University, Graduate School, Department of Architecture, İstanbul-Türkiye

	Section Editors	Address
1	**Prof. Dr. Asena SOYLUK**	Gazi University, Faculty of Architecture, Department of Architecture, Ankara-Türkiye
2	**Prof. Dr. Ayfer Aybike KARADAĞ -**	Düzce University, Faculty of Forestry, Department of Landscape Architecture, Düzce- Türkiye
3	**Prof. Dr. Ertan DÜZGÜNEŞ**	Karadeniz Technical University, Faculty of Forestry, Department of Landscape Architecture, Trabzon -Türkiye
4	**Prof. Dr. S. Gül GÜNEŞ**	Selçuk Üniversity, Faculty of Tourism/ Department of Recreation Management, Konya- Türkiye
5	**Prof. Dr. Kağan GÜNÇE**	Eastern Mediterranean University, Faculty of Architecture, Gazimağusa, TRNC
6	**Prof. Dr. Murat AKTEN**	Süleyman Demirel Üniversity, Faculty of Architecture, The Department of Landscape Architecture, Isparta-Türkiye
7	**Prof. Dr. Niyazi Uğur KOÇKAL**	Akdeniz University, Faculty of Engineer, Department of Civil Engineering, Antalya- Türkiye
8	**Prof. Dr. Öner DEMİREL**	Kırıkkale University, Faculty of Fine Arts, Department of Landscape Architecture, Kırıkkale-Türkiye
9	**Prof. Dr. Ömer ATABEYOĞLU**	Ordu University, Faculty of Agriculture, Department of Landscape Architecture, Ordu-Türkiye
10	**Prof. Dr. Sedef DOGANER**	Wentworth Institute of Technology, School of Architecture & Design, United State
11	**Prof. Dr. Şebnem ERTAŞ BEŞİR**	Akdeniz University, Faculty of Architecture, Department of Interior Architecture, Antalya -Türkiye
12	**Prof. Dr. Tendü Hilal GÖKTUĞ**	Aydın Adnan Menderes University, Faculty of Agriculture/ Department of Landscape Planning, Aydın-TURKEY
13	**Assoc. Prof. Dr. Elif SÖNMEZ**	Altınbaş University, Faculty of Engineering and Natural Sciences, Department of Interior Architecture and Environmental Design, İstanbul- Türkiye
14	**Assoc. Prof. Dr. Emine Seda ARSLAN**	Süleyman Demirel University, Faculty of Architecture, Department of Landscape Architecture, Isparta- Türkiye

Journal of International Architectural Sciences

JIArcS, 2025, 2 (1)

e-ISSN: 3062-1399

Journal homepage:

https://mimarlikbilimleri.com/ojs/index.php/architecturalsciences

15	**Assoc. Prof. Dr. Hayriye Hale KOZLU**	Erciyes University, Faculty of Architecture, Department of Architecture, Kayseri- Türkiye
16	**Assoc. Prof. Dr. Sultan Sevinç KURT KONAKOĞLU**	Amasya University, Faculty of Architecture, Department of Urban Design and Landscape Architecture, Amasya-Türkiye.
17	**Assoc. Prof. Dr. Şirin Gülcen EREN**	Süleyman Demirel University, Faculty of Architecture, Department of City and Regional Planning, Isparta- Türkiye
18	**Assoc. Prof. Dr. Vibhavari JANHI**	Kansas State University, College of Architecture, Planning, and Design, Department of Interior Architecture & Product Design, USA
19	**Assoc. Prof. Dr. Meryem Bihter BİNGÜL BULUT**	Kırıkkale University, Faculty of Fine Arts, Department of Landscape Architecture, Kırıkkale- Türkiye
20	**Assist. Prof. Dr Ahmet FİDAN**	Ordu University, Department of Marine Transportation Management Engineering, Ordu-Türkiye
21	**Assist. Prof. Dr. Mert ÇAKIR**	Süleyman Demirel University, Faculty of Architecture, Department of Landscape Architecture, Isparta-Türkiye
22	**Assist. Prof. Floriana ZUCARO**	University of Naples Federico II, Department of Civil, Architectural and Environmental Engineering, Naples- Italy
23	**Assist. Prof. Pelin KARAÇAR**	Istanbul Medipol University, Faculty of Fine Arts Design and Architecture, Department of Architecture, İstanbul-Türkiye.
24	**Dr. Gerardo CARPENTERİ**	University of Naples Federico II, Department of Civil, Architectural and Environmental Engineering, Naples, Italy

	Publishing and Layout Editors	Address
1	**Assoc. Prof. Dr. Ahmet Erkan METİN**	Uşak University, Banaz Vocational School, Forestry and Forest Products Program, Uşak-Türkiye
2	**Assoc. Prof. Dr. Berk TÜRKER**	Uşak University, Faculty of Architecture and Design, Department of City and Regional Planning, Uşak-Türkiye
3	**Assist. Prof. Dr.Gizem DİNÇ**	Süleyman Demirel University, Faculty of Architecture, Department of Landscape Architecture, Isparta-Türkiye
4	**Dr. Pelin FIRAT ÖRS**	Çanakkale Onsekiz Mart University, Faculty of Architecture and Design, Department of Architecture, Çanakkale- Türkiye
5	**Dr. Sibel AKTEN**	Isparta University of Applied Sciences, Department of Park and Horticulture, Isparta-Türkiye
6	**Dr. Çağla AYDEMİR**	Süleyman Demirel University, Faculty of Architecture, Department of Landscape Architecture, Isparta- Türkiye
7	**Halime GÖZLÜKAYA**	Süleyman Demirel University, Faculty of Architecture, Department of City and Regional Planning, Isparta- Türkiye
8	**İskender Emre GÜL**	Akdeniz University, Science Institute, Department of Civil Engineering, Antalya-Türkiye

Journal of International Architectural Sciences

JIArcS, 2025, 2 (1)

e-ISSN: 3062-1399

Journal homepage:

https://mimarlikbilimleri.com/ojs/index.php/architecturalsciences

9	**Tuba Gizem AYDOĞAN**	Kırıkkale University, Faculty of Fine Arts, Department of Landscape Architecture, Kırıkkale- Türkiye
10	**Hatice Eda GÜL**	İzmir Institute of Technology, Design Studies Master's Program, İzmir-Türkiye.

	Statistics Editor	Address
1	**Prof. Dr. Ümit ARPACIOĞLU**	Mimar Sinan Fine Arts University, Department of Architecture, İstanbul-Türkiye

	Spelling and Language Editor	Address
1	**Assoc. Prof. Dr. Ahmet Erkan METİN**	Uşak University, Banaz Vocational School, Forestry and Forest Products Program, Uşak-Türkiye
2	**Assoc. Prof. Dr. Elif TOKDEMİR DEMİREL**	Kırıkkale University, Faculty of Arts and Sciences, Department of Translation and Interpretation, Türkiye
3	**Assoc. Prof. Dr. Şirin Gülcen EREN**	Süleyman Demirel University, Faculty of Architecture, Department of City and Regional Planning, Isparta- Türkiye
4	**Assist. Prof. Dr.Gizem DİNÇ**	Süleyman Demirel University, Faculty of Architecture, Department of Landscape Architecture, Isparta-Türkiye

	Secretary	Address
1	**Seniye Ela GÜL**	Democracy University, Faculty of Architecture, Department of Architecture, İzmir- Türkiye
2	**Hüseyin Batuhan DÜNDAR**	Süleyman Demirel University, Faculty of Architecture, Department of Landscape Architecture, Isparta- Türkiye

	Indexing Editor	Address
	Dr. Orhan ALAV	- Süleyman Demirel University, Isparta- Türkiye

Journal of International Architectural Sciences

JIArcS, 2025, 2 (1)

e-ISSN: 3062-1399

Journal homepage:

https://mimarlikbilimleri.com/ojs/index.php/architecturalsciences

SCIENCE AND ADVISORY BOARD The scientific advisory board was listed in alphabetical order.		
1	**Andjela JAKSİC STOJANOVİC**	Univerzitet Mediteran Podgorica, Montenegro
2	**Afer ELIFOV**	Bakü Engineering University, Faculty of Architecture, Bakü-Azerbaijan
3	**Bader ALATAWNEH**	Department of Architecture, Palestine Polytechnic University, Palestine
4	**Barbara ŻARSKA**	Warsaw University, Poland
5	**Brain KANE**	University of Massachusetts, Department of Environmental Conservation, Amherst, MA 01003, USA
6	**Carmela GARGIULO**	University of Naples Federico II, Department of Civil, Architectural and Environmental Engineering, Naples, Italy
7	**Cengiz YÜCEDAĞ**	Mehmet Akif University, Faculty of Engineering-Architecture, Department of Landscape Architecture, Burdur- Türkiye
8	**Claudia JUROWSKI**	Northern Arizona University, USA
9	**Erdinç ÇAKMAK**	Breda University of Applied Sciences, International Tourism Management Studies, Netherlands.
10	**Federica GAGLIONE**	The University of Sannio, Department of Engineering, Benevento, Italy
11	**Gülçöhre MEMMEDOVA**	Azerbaijan Architecture and Construction University, Baku-Azerbaıjan
12	**Gül GÜNEŞ**	Selçuk Üniversity, Faculty of Tourism, Department of Gastronomy and Culinary Arts, Konya- Türkiye.
13	**Isidora KARAN**	The University of Banja Luka, Faculty of Architecture, Civil Engineering and Geodesy, Republic of Srpska, Bosnia, and Herzegovina
14	**Mehmet TUNCER**	Çankaya University, Department of City and Regional Planning, Çankaya- Turkey
15	**Mete Ünal GİRGEN**	Final International University, School of Tourism & Culinary Arts, TRNC
16	**Ahmet BENLİAY**	Akdeniz University, Faculty of Architecture, Department of Landscape Architecture, Antalya -Türkiye
17	**Murat ZENGİN**	Pamukkale University, Faculty of Architecture ve Design, Department of Architecture, Denizli-Turkey
18	**Mohammad Jafar CHAMANKAR**	The Department of History of Urmia University, İran
19	**Mohammad WAHEEB**	The Hashemite University, Faculty of Tourism and Heritage (QRFTH), Department of Cultural Resource Management (CRM), Queen Rani
20	**Mohammad Arif KAMAL**	Aligarh Muslim University, Architecture Section India
21	**Nafiya GÜDEN**	School of Tourism and Culinary Arts, Final International University, Girne -TRNC
22	**Naif HADDAD**	Department of Conservation Science, Queen Rania Faculty of Tourism and Heritage, Hashemite University, Jordan
23	**Nermeen Adnan DALGAMONİ**	Jordan University of Science and Technology, Department of City Planning and Design, Irbid, Jordan

Journal of International Architectural Sciences
JIArcS, 2025, 2 (1)
e-ISSN: 3062-1399
Journal homepage:
https://mimarlikbilimleri.com/ojs/index.php/architecturalsciences

24	**Oleksandr ZINENKO**	V. Karazin Kharkiv National University, Kharkiv, 61022, Ukraine
25	**Piyush SHARMA**	Amity University, Hindistan/ Prof. Dr., Amity University, Hindistan
26	**Rosa Anna LA ROCCA**	The University of Naples Federico II, Department of Civil, Architectural and Environmental Engineering, Napoli, Italy
27	**Sadia FAROOQ**	University of Home Economics, Lahore, PAKISTAN
28	**Seden TURAMBERK ÖZERDEN**	Final International University, Girne -TRNC
29	**Seema Mehra PARIHAR**	University of Delhi, Department of Geography, Kirori Mal College, , India
30	**Sevgi YILMAZ**	Atatürk University, Faculty of Architecture ve Design, Department of Architecture, Erzurum-Turkey
31	**Silvia ROSSETTI**	The University of Parma, Department of Engineering and Architecture, Parma Italy
32	**Swetha MADHUSUDANAN**	MGR University, School of Architecture, Chennai, INDIA
33	**Taner ÖZDİL**	The University of Texas, College of Architecture, Planning and Landscape Architecture, Arlington-USA
34	**Yasin XƏLİLOV**	Baku Engineering University, Baku- Azerbaijan
35	**Zeidan KAFAFI**	Emeritus of Archaeology of Yarmouk University, Jordan

Journal of International Architectural Sciences

JIArcS, 2025, 2 (1)
e-ISSN: 3062-1399
Journal homepage:
https://mimarlikbilimleri.com/ojs/index.php/architecturalsciences

CONTENTS

	Research Articles	Page
1	**Functional Mapping of Industry 4.0 Technologies in Construction Project Management** *(İnşaat Proje Yönetiminde Endüstri 4.0 Teknolojilerinin Fonksiyonel Eşlemesi)* **Tayibe SEYMAN GÜRAY**	**01-08**
2	**Determination of Quality Criteria and Performance of Urban Parks; The Case of Söke Urban Park** *(Kent Parklarının Kalite Ölçütleri ve Performansının Belirlenmesi; Söke Kent Parkı Örneği)* **Esra ÇELMELİ & Atila GÜL**	**09-36**
3	**A Proposed Model for Site Selection of Private Dormitory Investment in the Ataşehir District in the Post-Pandemic Period** *(Pandemi Sonrası Ataşehir İlçesi'nde Özel Yurt Yatırımı İçin Yer Belirleme Modeli Önerisi)* **Güler BAYRAK & Berrin ŞAHİN DİRİ**	**37-59**
4	**State of Tunnel Formwork Technology in Today's Construction Industry: An Assessment** *(Tünel Kalıp Teknolojisinin Günümüz İnşaat Sektöründeki Durumu: Bir Değerlendirme)* **Berrin ŞAHİN DİRİ**	**60-80**
5	**Climate-Resilient Tree Species Selection in Semi-Arid Cities: Strategic Green Infrastructure Planning Under Changing Climate Conditions** *(Yarı Kurak Kentlerde İklim Dayanımlı Ağaç Türü Seçimi: Değişen İklim Koşullarında Stratejik Yeşil Altyapı Planlaması)* **Şevket ALP & Nurbanu ÖZKARTAL**	**81-93**

Journal of International Architectural Sciences
JIArcS, 2025, 2 (1): 01-08
Research Article
https://mimarlikbilimleri.com/ojs/index.php/architecturalsciences
E-mail: architecturalsciences@gmail.com
e-ISSN: 3062-1399

Functional Mapping of Industry 4.0 Technologies in Construction Project Management

Tayibe SEYMAN GÜRAY[1]*
ORCID 1: 0000-0001-5692-9669
[1] Fenerbahce University, Architecture and Design Faculty, Department of Int. Architecture and Env.Des., 34758, Istanbul, Türkiye.
** e-mail: tayibe.guray@fbu.edu.tr*

Abstract

The construction industry is undergoing a significant digital transformation driven by Industry 4.0 technologies. Characterized by automation, digital connectivity, and data-driven decision-making, Industry 4.0 presents new opportunities for enhancing construction project management processes. This study aims to examine the functional alignment of five core technologies BIM, VR/AR, AI, Digital Twins, and IoT within key construction project management domains. Using a literature-based methodology, the study identifies the presence and application areas of these technologies across four fundamental project management functions: time, cost, quality and communication. Rather than evaluating the depth of integration, the paper focuses on whether and how each technology is utilized within these domains. The findings provide a structured understanding of current trends and potential applications of Industry 4.0 tools in construction project environments, offering guidance for researchers and practitioners seeking to leverage digital technologies in project planning, execution, and control.

Keywords: *Industry 4.0, Construction project management, BIM, Digital technologies, Functional mapping.*

İnşaat Proje Yönetiminde Endüstri 4.0 Teknolojilerinin Fonksiyonel Eşlemesi

Öz

İnşaat sektörü, Endüstri 4.0 teknolojilerinin yönlendirdiği önemli bir dijital dönüşüm sürecinden geçmektedir. Otomasyon, dijital bağlantı ve veri odaklı karar verme süreçleriyle karakterize edilen Endüstri 4.0, inşaat proje yönetimi uygulamalarını geliştirmek için yeni fırsatlar sunmaktadır. Bu çalışma, Yapı Bilgi Modellemesi (BIM), Sanal ve Artırılmış Gerçeklik (VR/AR), Yapay Zeka (AI), Dijital İkizler ve Nesnelerin İnterneti (IoT) olmak üzere beş temel teknolojinin, inşaat proje yönetiminin ana işlev alanlarıyla olan fonksiyonel ilişkisini incelemeyi amaçlamaktadır. Literatüre dayalı bir yöntemle, bu teknolojilerin zaman, maliyet, kalite ve iletişim olarak dört temel proje yönetimi fonksiyonu kapsamında hangi alanlarda yer aldığı belirlenmiştir. Çalışma, entegrasyon derecesinden ziyade teknolojilerin bu alanlarda kullanılıp kullanılmadığına odaklanmaktadır. Bulgular, mevcut eğilimleri ve gelecekteki potansiyel uygulamaları yapılandırılmış biçimde ortaya koyarak, dijital teknolojilerin planlama, yürütme ve kontrol süreçlerine dahil edilmesi konusunda rehber sunmaktadır.

Anahtar kelimeler: *Endüstri 4.0, İnşaat proje yönetimi, BIM, Dijital teknolojiler, Fonksiyonel eşleme.*

Citation: Seyman Güray, T. (2025). Functional mapping of Industry 4.0 technologies in construction project management. *Journal of International Architectural Sciences***.** 2 (1): 01-08.

DOI: https://doi.org/10.5281/zenodo.15908037

Received: *June 4, 2025 –* ***Accepted:*** *July 4, 2025*