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Digital Transformation and Organizational Agility

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Abstract

The accelerating pace of digital transformation has become a defining feature of modern business management, fundamentally reshaping organizational structures, leadership models, and competitive strategies. This literature review examines recent research on how digital transformation fosters organizational agility, enabling firms to respond rapidly to technological, market, and environmental shifts. Synthesizing findings from peer-reviewed studies published between 2015 and 2025, the review identifies three critical dimensions: (1) the strategic alignment between digital initiatives and business objectives, (2) the influence of leadership and organizational culture on digital adoption, and (3) the mediating role of dynamic capabilities in enhancing agility and innovation. Evidence suggests that while digital technologies - such as AI, big data analytics, and cloud computing - provide the infrastructure for agility, their successful implementation depends heavily on managerial vision, employee adaptability, and a culture of continuous learning. Furthermore, digitally mature organizations tend to outperform competitors in innovation, customer engagement, and crisis resilience. However, challenges remain regarding data governance, change resistance, and skill development. The review concludes that future research should explore industry-specific pathways and long-term sustainability outcomes of digital agility to better inform strategic management practices in an increasingly digitalized economy.

Keywords: Digital transformation, Organizational agility, Business management, Dynamic capabilities, Leadership, Innovation.

Cross-border investigations of the European Public Prosecutor's Office

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[*]*The paper presents output of the research project APVV-18-0421 „The European Public Prosecutor´s Office in Connections of the Constitutional Order of the Slovak Republic as Strengthening of the European Integration through Law"*

Abstract

The European Public Prosecutor's Office (EPPO) is an independent body of the European Union responsible for investigating and prosecuting perpetrators of criminal offences affecting the Union's financial interests. The offences falling within the competence of the EPPO often have a cross-border nature. The investigation of a specific criminal offence is, by decision of the EPPO, entrusted to a European Delegated Prosecutor in the Member State where the offence was committed to the greatest extent. According to Article 31 of the EPPO Regulation, in cases of cross-border offences, the handling European Delegated Prosecutor may cooperate with an assisting European Delegated Prosecutor located in another Member State, with the aim of taking investigative measures within the territory of that State. The execution of these investigative measures may, in certain cases, be subject to judicial authorisation. From a practical perspective, the main difficulty concerning the execution of a delegated measure lies in obtaining judicial authorisation in the Member State of the assisting European Delegated Prosecutor. This issue raises two key questions: the question of duplication of judicial authorisation, where such authorisation for an investigative measure has already been granted by a court in the Member State of the handling European Delegated Prosecutor; and the question of the scope of judicial review, that is, which specific conditions the judge in the Member State of the assisting European Delegated Prosecutor may examine when deciding whether to grant authorisation for the investigative measure.

Keywords: EPPO, EPPO Regulation, Article 31, delegated investigation measures, judicial authorisation

Interactive Biomechanics in the Web Browser: Open-source Solutions for Education and Research

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Abstract

Advances in web technologies now enable complex scientific computations and interactive simulations to run directly in a standard web browser. This paper introduces WebAssembly and JupyterLite based open-source platform for interactive applications in education, research, and practice. WebAssembly allows near-native execution of code from languages such as Python or C++ within the browser, while JupyterLite extends the familiar Jupyter environment into a serverless, browser-based laboratory. Together, they support accessible, cross-platform tools that require no installation and function even offline. Examples from Biomechanics are presented where smartphones act as measuring units, with data processed and visualized in JupyterLite interactive notebooks. Such approaches lower entry barriers for students and practitioners, enhance reproducibility, and enable mobile "labs in the browser."

Keywords: biomechanics, WebAssembly, JupyterLite, education, open-source, smartphone sensors.

A Methodology for the Allocation of Social Housing in Slovenia Aligned with Transit-Oriented Development Principles

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Abstract

This study presents a methodology, developed using the Slovenian context, for identifying affordable, buildable land suitable for high-density residential development. The focus is on physically deteriorated sites located in close proximity to public transport stops. Such locations offer potential for delivering affordable social housing, reducing the environmental impact of private car usage, and addressing transport poverty.
The methodology was implemented in two stages within a GIS environment. In the first stage, spatial data on public transport corridors, daily commuting flows, and brownfield areas were overlaid across the entire territory of Slovenia. In the second stage, a detailed analysis was conducted on 31 sites identified in the first phase, all located within a 1,000-meter radius of public transport stops. Each site was evaluated based on the availability of publicly or state-owned land, access to essential services in the surrounding area, and its overall suitability for residential development. Based on this analysis, five suitable sites were identified across different regions of Slovenia, totalling approximately 50 hectares.

Keywords: urban studies, Slovenia, affordable social housing, allocation, Transit-Oriented Development (TOD)

Piezography in implant-supported dentures: narrative literature review.

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Extended Abstract

Introduction. There are several treatment options for a completely edentulous patient: removable complete denture, implant-supported fixed dentures, and implant-supported overdentures. Implant-supported prostheses have improved retention, chewing efficiency, and patient satisfaction. However, even with implants, prosthetic stability and patient comfort may be compromised if the design interferes with oral musculature. The neutral zone is the area where the forces applied by the muscles surrounding the edentulous area are balanced. By respecting the neutral zone, muscles do not displace the denture. It is important to position the implants in a neutral zone where there is a balance of the peri-prosthetic muscles**.** The study aimed to evaluate the current literature regarding the piezography technique in implant-supported dentures. **Methodology**. A narrative review of published literature was done, analyzing the use of the piezography technique in implant prosthodontics. The following search terms were used: *piezography, neutral zone technique, neutral zone impression, third impression, functional impression AND implant-supported denture, implant prosthodontics, implant overdenture*, dental implant overdenture. **Discussions and Results**. Frascaria et al. (2019) showed that in the cases where the piezography technique was used in the computer-guided implant planning, it optimizes implant positioning inside the neutral zone, reducing involvement of oral soft tissues, and enhances prosthetic functionality. In their study, Cebi Gul et al compared patient satisfaction through OHIP EDENT in two groups of patients: in the first group were included patients who received conventional implant-supported overdentures, and in the second group, patients who had been treated with implant-supported overdentures respecting the neutral zone. Although the two groups had an improvement in their quality of life, no significant difference was found between the two groups. Darwish et al. (2015) also found no statistical advantage of the use of the neutral zone technique in preventing marginal bone loss around implants, in a study that lasted 18 months. Kokubo et al. (2002) described a case of mandibular reconstruction where conventional prosthesis caused soft tissue trauma, which was resolved only after tooth arrangement within the neutral zone. Longhini et al. (2017) reported successful rehabilitation of a retrognathic patient with an implant-supported mandibular denture fabricated using neutral zone principles, improving their comfort, phonetics, and retention. Based on the results, the recording of the neutral zone does not show significant advantages in implant overdenture outcomes. This is a technique which may be recommended in difficult clinical cases with a complex anatomy, such as in post-surgical reconstruction and in cases with high resorption of the residual ridge, in patients with neuromuscular disease, etc. **Conclusion**. The neutral zone concept is a valuable tool in implant prosthodontics, which harmonizes the dentures' construction within the neuromuscular environment. Although current evidence shows that there is no significant difference in the prosthetic outcome and in the patient satisfaction, the record of neutral zone in implant dentures might give advantages, especially in difficult clinical cases. Future research is recommended with a larger number of patients and a longer period of follow-up, in order to understand the benefits of this technique in the implant prosthodontic field. **Acknowledgement and Funding**: This presentation is part of the project funded by the National Agency for Scientific Research and Innovation (NASRI), Albania. We gratefully acknowledge NASRI for their support.

Keywords: Piezography, implant-supported dentures, neutral zone, third impression.

The piezography technique in partial removable dentures.

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Abstract

Introduction. Removable partial denture remains an important treatment option, especially in cases where implant prosthetic procedures are not possible because of economic or anatomic reasons. The piezography technique, or the registration of the neutral zone, is a procedure that is used for the construction of prosthetic restorations with increased stability and retention. Generally, it is used in complete removable dentures, but it has also been used in the construction of partial removable dentures, especially in the difficult clinical cases with severe ridge resorption, post-surgical conditions, etc. This review aims to analyze the current literature on the use of the piezography technique in the construction of partial removable dentures, their clinical application, the advantages, and the limitations of this technique. **Methodology and Results**. An electronic search was done in the following databases: PubMed and Google Scholar, with the following keywords: piezography, neutral zone techniques, functional impression, and removable partial dentures, RPD. Articles in English with the use of piezography in the construction of RPD were included. After further evaluation, only 4 articles were found. The piezography technique has been used in the construction of the partial removable dentures in patients after surgical interventions such as partial mandibulectomy, partial glossectomy, after surgical reconstruction of the mandible, in patients who are neurologically compromised, in patients with neuro-muscular incoordination. Through the position of the artificial teeth in the neutral zone, the muscles that surround the periprosthetic area do not dislodge the denture during function. In the neutral zone, the forces applied by the cheek and lips are balanced by the forces applied by the tongue. The registration of the third surface of the denture, the external one, is important as muscles leave their impression during function. **Conclusions**. There is a limited number of articles related to the use of piezography in the construction of partial removable dentures. Further clinical studies, including comparative and randomized trials, are necessary in order to strengthen the evidence for its use in RPD. Anyway, current evidence suggests that this is a technique that improves the parameters of the RPD, especially in difficult clinical cases. **Acknowledgment and Funding.** This presentation is in the framework of a broader research project entitled *"The Evaluation of Total Removable Dentures Constructed Using the Third Impression Versus the Conventional Method."* The project was financially supported by the **National Agency for Scientific Research and Innovation (NASRI), Albania**.

Keywords: Piezography, removable partial denture, neutral zone, stability, retention.