

The logo for TRA 2020 Helsinki is a circular emblem composed of multiple concentric, overlapping lines in various colors (green, blue, red, yellow, purple). In the center of the circle, the text "TRA 2020" is written in a bold, sans-serif font, with "TRANSPORT RESEARCH ARENA" in smaller letters underneath. Below this, the word "HELSINKI" is written in a larger, bold, black sans-serif font.

**TRA 2020**  
TRANSPORT RESEARCH ARENA  
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# Proceedings of TRA2020, the 8th Transport Research Arena

Rethinking transport – towards clean  
and inclusive mobility

Toni Lusikka, (ed.)

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Abstract  <p>This publication presents the proceedings of TRA2020, the 8<sup>th</sup> Transport Research Arena, which was planned to be held on 27-30 April 2020 in Helsinki. The physical conference event was cancelled due to the COVID-19 pandemic.</p> <p>All work presented in this Book of Abstracts was peer-reviewed and accepted for the conference. Authors were encouraged to publish their full paper in a repository of their choice with a mention of TRA2020. Authors were invited to provide a link to the full paper to be included in this Book of Abstracts. If the link is not available, please contact the corresponding author to request the full paper.</p> <p>Selection of TRA2020 papers were published in Special Issues of following journals: European Transport Research Review (Vol. 11-12) and Utilities Policy (Vol. 62 &amp; 64).</p> <p>Papers with a TRA VISIONS 2020 senior researcher winner as an author are marked with large yellow stars. Smaller stars stand for papers with an author shortlisted in the TRA VISIONS 2020 competition. The EC has supported the best senior researchers involved in EU projects with the TRA VISIONS awards.</p> <p>The organisers of TRA2020 and the publisher of this document make no representation, express or implied, with regard to the accuracy of the information contained in this document and cannot accept any legal responsibility or liability for any errors or omission that may be made. The document may contain links to services other than the publisher's or organizers' services. The organisers and the publisher are not responsible for the content, availability, accuracy or proprietary or copyright rights of such third-party service providers.</p>			
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Tiivistelmä <p>Tässä julkaisussa esitellään abstraktit niistä konferenssipapereista, jotka oli tarkoitus esittää kahdeksannessa Transport Research Arena -konferenssissa TRA2020 Helsingissä 27.–30.4.2020. Konferenssi peruutettiin COVID-19-pandemian vuoksi.</p> <p>Kaikki tässä abstraktijulkaisussa esitetyt työt on vertaisarvioitu ja hyväksytty konferenssiin. Kirjoittajia on kannustettu julkaisemaan koko paperinsa valitsemassaan tietokannassa ja mainitsemaan siinä yhteydessä TRA2020:n. Kirjoittajilta pyydettiin koko konferenssipaperiin vievä linkki liitettäväksi tähän julkaisuun. Jos linkkiä ei ole käytettävissä, paperia voi pyytää suoraan kirjoittajalta.</p> <p>Valikoituja TRA2020-konferenssipapereita julkaistiin kahden tieteellisen joulun erikoisnumeroissa: European Transport Research Review:ssa (Vol. 11-12) ja Utilities Policyssa (Vol. 62 &amp; 64).</p> <p>Konferenssipaperit, joiden kirjoittajat on palkittu kokeneiden tutkijoiden TRA VISIONS 2020 -kilpailussa, on merkitty suurilla keltaisilla tähdillä. Pienemmillä tähdillä on merkitty paperit, joiden kirjoittajat olivat ehdolla TRA VISIONS 2020 -kilpailussa. Euroopan komissio on tukenut TRA VISIONS -palkinnoilla parhaita kokeneita tutkijoita, jotka ovat mukana EU-hankkeissa.</p> <p>TRA2020:n järjestäjät ja tämän asiakirjan julkaisija eivät vastaa suoraan tai epäsuorasti tämän asiakirjan sisältämien tietojen oikeellisuudesta eikä niillä ole mahdollisiin virheisiin tai poisjättöihin liittyviä oikeudellisia velvollisuuksia tai vastuita. Asiakirjassa voi olla linkkejä muihin kuin julkaisijan tai järjestäjien palveluihin. Järjestäjät ja julkaisija eivät vastaa tällaisten kolmansina osapuolina olevien palveluntarjoajien sisällöstä, saatavuudesta, oikeellisuudesta tai omistus- tai tekijänoikeuksista.</p>			
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Sammandrag Denna skrift innehåller publikationerna från den 8:e Transport Research Arena-konferensen TRA2020, som skulle ha ägt rum 27–30 april 2020 i Helsingfors. Konferensen ställdes in på grund av covid-19-pandemin.  Alla texter i skriften har granskats enligt peer review-förfarande och godkänts för konferensen. Författarna har uppmuntrats att publicera sina fullständiga artiklar i valfritt arkiv och där omnämna TRA2020. De har erbjudits att infoga en länk till den fullständiga artikeln i denna skrift. Kontakta författaren för att be om den fullständiga artikeln om det inte finns någon länk.  Ett urval av TRA2020 artiklar har publicerats i specialutgåvor av följande tidskrifter: European Transport Research Review (Vol. 11-12) och Utilities Policy (Vol. 62 & 64)  Artiklar av seniorforskare som vunnit TRA VISIONS 2020 -tävlingen är markerade med stora gula stjärnor. Mindre stjärnor står för artiklar av författare som var kandidater i TRA VISIONS 2020 -tävlingen. Den Europeiska kommissionen har understött de bästa seniorforskarna inom EU projekt genom TRA VISIONS -tävlingen.  Organisatörerna av TRA2020 och utgivaren av denna skrift ger inga uttryckliga eller underförstådda garantier vad gäller riktigheten av informationen i skriften och frånsäger sig allt ansvar för eventuella fel eller utelämnanden. Skriften kan innehålla länkar till andra tjänster än utgivarens och organisatörens. Organisatörerna och utgivaren ansvarar inte för innehåll, tillgänglighet, riktighet, äganderätt eller copyright vad gäller sådana tredjepartstjänster.			
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integrating owners, users and societal costs related to different whole life cycle options, developed in this project and applied on a case study of a bridge in the Port of Rotterdam in the Netherlands.

Keywords: multimodal transport, smart infrastructure, risk, bridge, life cycle cost model

### 1.43 Scientific and technical session 43: Gender neutrality and special groups needs

#### 250 Structuring the evaluation of the inclusion of women within the transport sector: A use case study based on the inclusion diamond model

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#### Abstract

The transport sector is a sector dominated by men. Social norms and conducts have hindered the development of women under equal opportunities. Women have dealt with discrimination in recruitment procedures in job positions that have been historically developed by men or have suffered more sexual harassment in public transport than men. Women participate in different roles within the transport sector. In this paper, a series of goals and fairness variables for women's inclusion are defined according to the DIAMOND methodology for four different real-world scenarios: as users of public transport infrastructure, as users of autonomous vehicles, as users of bicycle sharing services, and as workers in railway companies and freight transport companies. Further developments will focus on the analysis of gathered data, the definition of inclusion factors, and the assessment of the other vertices and layers of the inclusion diamond model.

Keywords: women, transport system, inclusive transport, gender, fairness, inclusion diamond

Full paper: <http://aitec-intl.com/articulo/61/structuring-the-evaluation-of-the-inclusion-of-women-within-the-transp/>

#### 407 Modeling female employees' ability to telecommute in Kuala Lumpur

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#### Abstract

Telecommuting is considered to be most apt for female workforce due to their added responsibilities to balance both work and family matters. This paper models the

ability of female employees to telecommute in the selected business organizations in Kuala Lumpur, Malaysia. Four job categories namely "clerical workers", "professionals", "associate professionals", and "managers" were selected to ascertain their perceptions on telecommuting through a questionnaire survey. A binary and an ordinal logistic regression model were used to evaluate the effects of the explanatory variables on the ability to telecommute. The results of the model reveal that 'prior experience working from home and 'increased frequency of telephone usage' almost doubles the ability to telecommute, whereas 'time spent working with others' and the 'usage of the photocopier' reduces it. Managers, Associate Professionals, Professionals were 3.5, 2.3 and 1.5 times more likely to be able to telecommute more frequently than Clerical workers.

Keywords: telecommuting; female workforce; binary logistic model; ordinal logistic model; Kuala Lumpur; Malaysia

### 635 Gender-related contemporary challenges in the transport ecosystem and women's mobility needs TInnGO (special session on "Women in Transport - EU Projects for Change")

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#### Abstract

TInnGO addresses contemporary challenges in employment, education and male-domination, through an intersectional analysis applied to examine inequality and privilege in transport and mobility. The European transport sector is marred by strong, persistent biases, which produce gender and other inequalities, permeating the sector whilst having wider repercussions in relation to quality of life, accessibility and inclusivity. The TInnGO project will create a framework and promote mechanisms for sustainable change in gender and diversity sensitive smart mobility through the development of a Pan European TInnGO observatory. This will lead, coordinate, and be fed by hubs across EU (UK, France, Germany, Greece, Spain, Portugal, Romania, Baltic states, Denmark/Sweden, Italy) providing leadership, innovation and critique of smart mobility innovations. The ambition is to become a template for further observatories monitoring and addressing barriers to women's mobility through gendered, culturally sensitive smart mobility innovations. This paper provides an overview of the concepts and initial results.

Keywords: Europe, co and participatory design, gender mainstreaming, gender and diversity sensitive, smart mobility

### 636 Elderly drivers with brain disorders: Is their driving behavior the same before and after an unexpected incident?

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