CURRICULUM VITAE(CV)

Position Title and No.	*GIS Specialist*
Name of Expert:	*Dr. Konsta Mikael Sirvio*
Date of Birth:	*May 9, 1975*
Country of Citizenship/Residence	*Finland*

Education:

2017, D.Sc. Degree, Aalto University of Information Technology, Finland. Title of the thesis "Advances in predictive maintenance planning of roads using empirical models"

2001, M. Soc. Sc. Degree in Economic and Social History and Economics, University of Helsinki, Finland

2000, M.Sc. Degree in Industrial Management (System Analysis and Logistics), Helsinki University of Technology, Finland

Period	Employing organization and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
01/2004-Present	**Sirway Ltd.** Consultant and team leader in the road, transport and environmental sector	Finland	Institutional development and improvement of road asset management, road maintenance planning in the road sector. Design, implementation, testing and training of IT and GIS systems in the road, transport and environmental sector. Creation of road management systems, integration between systems, utilisation of the systems for road maintenance and investment planning in performance-based maintenance schemes.
04/2013-06/2015	**Weegos Ltd.** Financial Director and Chief Operations Officer	Finland	Development of economically viable car sharing and peer-to-peer car rental service in Finland. Responsible for financial management, business development and web-based mobile application development.

09/2001-02/2003	**LT Consultants Ltd. (WSP Group)** Senior Designer in the field of transport and logistics Responsible designer and researcher in national and international consultation projects mainly in the field of transport and logistics.	Various	International projects included European Union funded research project, City Freight with the objective to improve the state of logistical operations in urban areas. The consortium included partners from 7 countries. Responsibility covered collection of data from Finland and the Baltic countries.
02/1999-07/1999	**Continent, France** Accounting Expert and Business Controller Assistant	France	Responsible for installing a budgeting software for a group of groceries with the total yearly turnover approximately 10 millions of Euros. Hyperion Pillar software was selected, the budgeting rules programmed and the data transferred from the previous system.

Membership in Professional Associations and Publications:

Finnish Information Processing Association

World Road Association, PIARC, Road Asset Management Technical Committee,

WCTR Session Track Organiser

2014, Sirvio, Konsta; Hollmén, Jaakko. Multi-Step Ahead Network-Level Forecasting of Road Condition with Radial Basis Functions and Support Vector Regression. ESANN 2014 proceedings, European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning. Bruges (Belgium), 23-25 April 2014

2013, Sirvio, Konsta. Roads for Energy: Maintenance of Papua-New-Guinean Oil Palm Roads. WCTR 13th World Conference on Transport Research, July 15-17th, 2013, Rio de Janeiro, Brazil.

2011 Sirvio, Konsta; Hollmén, Jaakko. Forecasting road condition after maintenance works by linear methods and radial basis function networks . International Conference on Artificial Neural Networks, June 14-17th, 2011, Espoo, Finland.

2010 Sirvio, Konsta; Hollmén, Jaakko. Multi-year network level road maintenance programming by genetic algorithms and variable neighbourhood search . 13th

International IEEE Conference on Intelligent Transportation Systems (ITSC2010) Workshop Madeira Island, Portugal, 19 – 22 September 2010.

2010 WCTR Lisbon 12th World Conference on Transport Research: Software tool and model for economic, environmental and social impact assessment of road projects.

2010 WCTR Lisbon 12th World Conference on Transport Research: Implementation of the Road Assets Management System in Sindh Province of Pakistan.

2010 IRF Lisbon 16th World Meeting: Road Management System Development in Bulgaria.

2008 HAIS 08, 3rd Workshop on Hybrid Artificial Intelligence Systems: Spatio-Temporal Road Condition Forecasting with Markov Chains and Artificial Neural Networks

2007 PIARC Paris 23rd World Road Congress: Exploratory Analysis of Road Accidents with the Self-Organising Map
2005 IRF Bangkok 15 th World Meeting: Road Asset Management System of Papua New Guinea⌷2003 17th International Environmental Conference in Cottbus:
Intelligent Waste Management⌷
1998 Internal publication of Finnish Road Administration 38/1998: Development of the internal efficiency during the years 1975-1997.

Language Skills (indicate only languages in which you can work):

Language	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Finnish	Excellent	Excellent	Excellent
French	Good	Good	Good
Spanish	Good	Good	Good
Russian	Working Knowledge	Working Knowledge	Working Knowledge
Portuguese	Working Knowledge	Working Knowledge	Working Knowledge

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant`s Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
1. **Road asset data management** 2. **GIS Data processing** 3. **Road Asset Management Strategies** 4. **Road Asset Management System Development** 5. **Manual preparations** 6. **Road condition assessments** 7. **Team leadership** 8. **RAMS training** 9. **Maintenance planning** 10. **RAMS operations**	**Team Leader / GIS Specialist for Results-based Road Maintenance and Safety Project (RRMSP)** **Supply and Installation of a** **Road Asset Management System (RAMS) for Albanian Road Authority 2021-Ongoing** • Preparation of procedures and processes for road data collection and management with a manual. • Preparation of road asset management processes with the linkages to the organisation structure and information systems. Road asset management manual was prepared. • Creation of performance management framework. • Implementation of a web-based periodic and routine maintenance planning tool. • Preparation of maintenance plans. • Integration of BMS and RMS. • Setup of RAMS server. • Integration with the existing WEBGIS module
	Team Leader / GIS Specialist for Upgrading Integrated Road Asset Management (IRAM) System at MPWT 2020-Ongoing • Develop IRAM v2 software using software development and testing best practices. • Deploy IRAM v2 software to MPWT server environment. • Create documentation for IRAM v2 software.

	• Upload into IRAM v2 the relevant available road network data on the RMS and the needed historical data available in the current IRAM. • Conduct training of MPWT and other relevant Government staff. • Provide IRAM v2 software maintenance and support. • Define contents of a Road Sector Contracts Management Annual Report. • Develop an implementation plan for the IRAM v2 system.
	GIS Specialist for Consultancy Services to Provide Technical Assistance to Develop Capacity for a Climate Resilient Road Sector, Mozambique, 2019-2020 The main tasks included the following: • Designing a working Road Asset Management System for the whole road network of Mozambique • Preparation of RAMS manuals
	Transport Planner for Developing Capacity for Climate Resilient Road Transport Infrastructure, Rwanda, 2020 Preparation of Building Back Better (BBB) guidelines for bridges.
	Team Leader for Study of Prohibition of trucks overtaking and banning of slow vehicles on 2+2 and 2+1 roads, Estonia, 2019 The objective of the project was to study different methods used in Nordic countries and Austria to prohibit slow vehicles and banning truck overtaking on 2+2 & 2+1 roads. The project included interviews and planning of implementation to local needs in relation to needs of road network in Estonia.
	Team Leader / GIS Specialist for Data collection support and establishing a Road Asset Management System for Kyrgyzstan Republic, Kyrgyzstan, 2018-2021 The main tasks included the following: ➤ 1. Preparation of procedures and processes for road data collection and management with a manual. ➤ 2. Preparation of road asset management processes with the linkages to the organisation structure and information systems. Road asset management manual was prepared. ➤ 3. Supervision and quality control of road and traffic data collection. ➤ 4. Creation of performance management framework. ➤ 5. Implementation of a web-based periodic and routine maintenance planning tool. ➤ 6. Preparation of maintenance plans. ➤ 7. Integration of BMS and RMS. ➤ 8. Setup of RAMS server.

	Team Leader / GIS Specialist for Consultancy Services for Development and Implementation of a GIS based Road Maintenance Management System for Saint Lucia, St Lucia, 2018-2021 Establishment of a computer-based GIS road management information subsystem, including road data base, data entry facilities, data access and reporting facilities, administrative procedures for updating, maintenance and operation of the subsystem and staff training; Establishment of road monitoring procedures, including selection of methods, survey sampling rates and survey frequencies, recommendations on equipment and contracting options, the initial surveys of each type and the training of staff for subsequent surveys; Adaptation, installation and initial application of a model for central preparation of rolling annual programs and budgets of road works, comprising periodic maintenance, rehabilitation and reconstruction and routine maintenance; Adaptation, installation and initial application of a model for the central preparation of a long-term plan of all road expenditures, works and system trends. A 5-year support plan for total adaptation of the system and complete understanding by the client's staff
	Team Leader for ROMI-projects, Neste PLC and TeliaSonera PLC, Finland, 2014-2016. Analysis of data requirements for calculations of return on marketing investments (ROMI), creation of database for marketing –related data, research on regression and relative importance models, selection of methods and calculation of return on marketing investments for B2B and B2C customers for the main product groups for Oil Retail and Telecommunication companies.
	Team Leader, Aalto University, Finland, 2015 - 2016 Team leadership and coordination of a work package in European Union funded project "Streetlife". The goal of the project is the reduction of carbon emissions through a sustainable mobility concept in cities based on ICT. In particular, the aim of the project is to reduce the number of car trips by i) informing commuters about the existing transport alternatives and their real value (in terms of time, cost, carbon footprint), ii) enhancing public transport to meet the needs of the citizens and of the city, iii) promoting the usage of sustainable transports through (virtual or real) incentives.
	Road Asset Management Expert / GIS Specialist Consultancy Services for design of enhanced business processes & change management strategy for institutionalizing Road Asset Management in Nigeria, Federal Ministry of Works / WB, Nigeria/Finland, 2015-2016.

	Requirement analysis, Conceptual System Design of Road Asset Management System, Architectural Design of RAMS, Development of Asset Location Reference System of Nigeria. Delivery of 3 training workshops with 120 participants in total
	Team Leader for Provision of Consultancy Service on Public Private Partnerships with Case Study of the Transport Sector for Ministry of Finance, MoF, Tanzania, 2015-2016. Evaluation of potential infrastructure projects for Public Private Partnership financing in Tanzania. Delivery of 2 workshops with 45 participants in total.
	Team Leader / GIS Specialist for Implementation of Road Management System in Angola, Roadscanners Ltd., Angola/Finland, 2015. Requirement analysis, design and implementation of the road management system with road database for paved roads of Angola, survey data processing, integration with HDM-4 and GIS and training the 4 users.
	Road Asset Management Expert, Ministry of Construction, Myanmar, 2014-2015. Development and implementation of the Road Asset Management System with user training and workshopping. The assignment included design and implementation of the system and using it for road maintenance planning with estimated vehicle weights. Training of the 15 users.
	Road Asset Management Expert / Data Management Specialist for Reoperationalisation of Road Asset Management System, RIA / WB, Bulgaria, 2013. Independent consultancy for the World Bank to reoperationalise the Road Asset Management System of RIA and linkage with the GIS. Delivery of a training workshop with 30 participants.
	Team Leader for Weegos Ltd., Finland, 2013 - 2015 Business development and financial management of the startup company. Responsibility for conceptual design of the data model and Cloud Server –based mobile web application for fleet sharing. Decision-making on technological strategies for the web application development of the server and client side. Recruitement of the technical staff.
	GIS Specialist for Automatic Average Speed Control Project, Estonian Road Administration, Estonia, 2013. Analysis of various investment scenarios for the Estonian Road Administration to implement Automatic Average Speed Control (ASSC) system. Data collection of road condition, traffic speeds and accidents for pilot location selection and cost-benefit analysis of the possible systems with special focus on heavy traffic and axle load control.

	Team Leader in the World Bank funded project of monitoring and evaluation consultancy of Smallholder Agriculture Development Project of Oil Palm Industry Corporation, Papua New Guinea, 2011-2012. Formulation of the framework for evaluation of baseline and impact study for oil palm households. Investments cover road maintenance, education and infill planting. The interview information of 800 households were imported in the database that was created during the project. A user interface for data import, export, analysis and reporting was developed. An overall framework of Management Information Systems was developed and collected data analysed.
	Road Engineer and Transport Planner in EBRD funded project of Implementation of Corporate Plan in AzerRoadService, Azerbaijan, 2007-2010. Pilot survey of current conditions of three road maintenance units in Azerbaijan including road and bridge condition, management practices, traffic and accidents. Creation of a calculation model of unit maintenance costs and calculation of maintenance costs for a pilot unit. Preparation of maintenance scenarios and annual performance-based maintenance planning. Preparation of workshop material and maps of the current situation and preferred situation. Delivery of workshops for 35 people.
	Road Asset Management System Expert / GIS Specialist in ADB funded project for AzerRoadService for improving Road Asset Management System, Azerbaijan, 2009-2010. The Road Asset Management System was upgraded. The Relational Database Management System was changed, road database was extended to include additional information. The road management system was programmed to include additional features. The GIS and PMS were upgraded to newer versions.
	Road Asset Management Expert for Road Department of the Ministry of Economic Development, Georgia, 2007-2008. Evaluation of the current management information systems and proposals for improvements. Training workshops on management information systems, budgeting and financial management for 20 people.
	Accounting and Financial Expert in projects for The Ministry of Finance of the Kyrgyz Republic and Kazakh road, 2006-2007. Home-office work of preparation of a training package on budgeting and budgeting processes in the road sector for the

	Kyrgyz Republic and calculation of toll-road scenarios for Kazakh Road.
	GIS Specialist in a World Bank funded project of Development of the Road Asset Management System for National Road Infrastructure Agency, Bulgaria, 2009-2010. Development of road asset management system with road and bridge databases and software tools for managing infrastructure data and interfacing with other information systems as well as preparation of maintenance plan. The systems included a comprehensive road database including traffic and accident information, road management system, Geographic Information System and Pavement Management System.
	Road Asset Management Expert in Development of Road Asset Management System project funded by the World Bank for National Highway Authority in Pakistan, 2005-2008. The main tasks were to develop a Road Asset Management System (RAMS) using MySQL database for road inventory, condition, traffic, accident, project and road furniture data including historical information. Additionally, a user interface was created by C++ with raw data importing, exporting, HDM-4 exporting, data viewing, editing, addition and deletion capabilities among other things. System and process development included integration RAMS with the Bridge Management System, Geographic Information System ArcView 9.0 and HDM-4 as well as compiling manuals, supervising local consultants in road network digitisation and condition surveys as well as training the future users.

Expert´s contact information (e-mail: konsta.sirvio@sirway.fi, +358 40 8233890)

Certification:
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by ZPPA.

Konsta Sirvio   10/09/2022

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Name of Expert   Signature   Date