

Transit Decision-Making in Transition?; Past, Present, and Future Perspectives on the Use of ITS Data in North America for Transit Planning and Management and Related Challenges

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ABSTRACT

From the earliest days of the development of Transit Intelligent Transportation Systems (ITS), there was recognition among the most progressive transit systems that the data that would be created by automated systems (e.g. Automatic Vehicle Location (AVL), Automatic Passenger Counting, Advanced Fare Collection, etc.) would be a valuable resource, which could be used to create information to enhance transit planning and management. This data can greatly enhance the ability for managers to improve the effectiveness and efficiency of the services provided by public transport systems. Today, one would refer to the notions of Business Intelligence and/or Data-Driven Decision-Making, and there is increasing evidence of the synergistic benefits to be derived from data fusion and data mining, popularly referred to as "*Big Data*". Suppliers have also started in recent years to offer tools that process the data created by their systems into a number of standardized reports, and with the ever easier access to ITS data, there has been a growing exploration among academics of even more sophisticated uses of data to create Origin-Destination maps or to analyze performance.

However, in practice, the progress has been very slow and the majority of transit systems in North America have not opted, or been able, to fully take advantage of the potential offered by ITS data. They have rather focused most of their efforts in using ITS to enhance real-time operations, and in particular incident management and security; the use of the data that was created remained in most cases an afterthought, and staff often remain perplexed by the volume and complexity of the data and the challenges in using it. In addition, there remains a resistance by transit agencies to review their internal business processes in light of the availability of the data, which would enable them to maximize the benefits they might derive from this potential wealth of information. This bodes poorly for a world of dramatic increases in connected multimodal vehicle data. There would therefore be benefit to review the uses and challenges related to Transit ITS data.

The presenter has a long history of observing and facilitating the use of ITS data in transit planning and management over the last three decades, including organizing a conference on Transit AVL in 1987 for the Canadian Urban Transit Association (CUTA), initiating and managing a CUTA report on the use of AVL data in 1991, and continuous related efforts at the Transportation Research Board, and trade associations in Canada, the U.S.A, and Europe. He has recently prepared a discussion paper for the U.S. Department of Transportation and has organized several discussion workshops over the years with practitioners about the uses and challenges in effectively using the new resource of data. This presentation will provide a historical perspective of the past, present, and future of the use of ITS data in transit decision-making, and the related challenges.