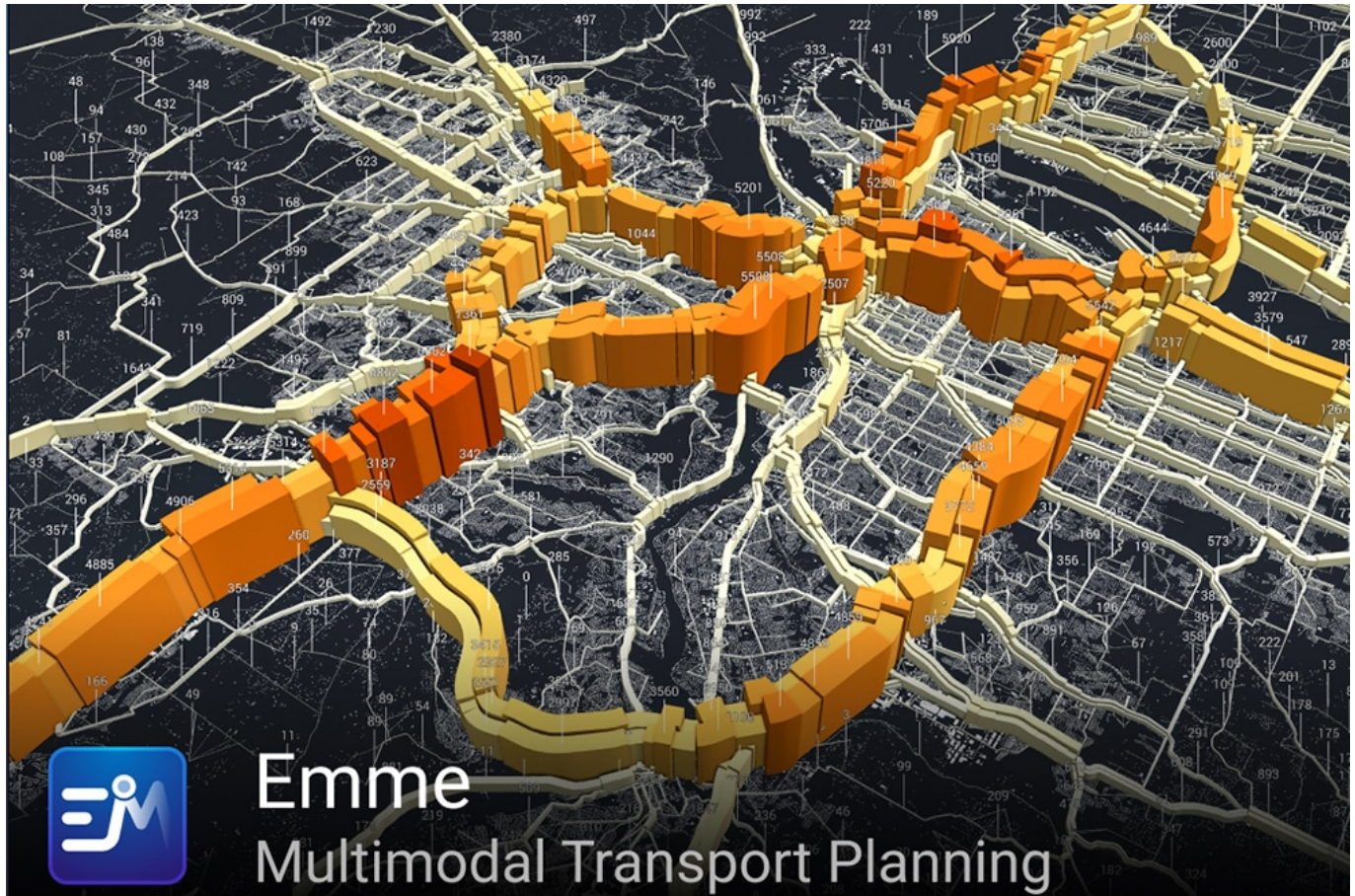# Bentley Systems Announces Acquisition of Mobility Simulation Leader INRO

April 15, 2021

Bentley Systems, Incorporated, the infrastructure engineering software company, has announced the acquisition of INRO Software, a global leader in multimodal transportation planning, traffic simulation, and mobility visualisation software.

The acquisition expands Bentley's capabilities in the important growth area of mobility digital twins, just as countries including the US are poised to make a generational investment in infrastructure, and as transportation systems must evolve faster to accommodate both urbanisation and carbon reduction goals, and the transition to electric and autonomous vehicles.

INRO, based in Montreal, Quebec, Canada, has for more than 40 years contributed to the advancement of mobility simulation and modeling for metropolitan, regional, and national transport and transit operators and planning agencies. Users of its multimodal simulation offerings include some of the world's busiest transit systems and metros, such as Transport for London, Transport for New South Wales, the Washington State Department of Transportation, the Swedish Transport Administration Trafikverket, and the public transport system of São Paulo SPTrans.

INRO's products include *Emme*, a multimodal transportation planning system for urban, regional, and national transportation forecasting; *Dynameq*, a vehicle-based traffic simulation platform for city-wide traffic planning; and *CityPhi*, a mobility visualization solution providing data visualization and visual analytics of large-scale mobility and geospatial datasets.

Combining the capabilities of INRO's advanced traffic and vehicle simulation with Bentley's passenger and pedestrian simulation and civil design software, including CUBE, Streetlytics, LEGION, and OpenRoads, places Bentley in a very strong position to deliver comprehensive mobility digital twins of multimodal transportation systems at urban, metropolitan, regional, and national scale.

Advancing Mobility Digital Twins

Urban planners are seeking to understand the ongoing impacts—on transportation system performance, reliability, and accessibility—of the new opportunities and challenges of private and shared mobility, the propensity for cycling or walking, connected autonomous vehicles, and potential congestion charging. With respect to their traditionally circumscribed use of transportation modeling tools in isolation and only on occasion, multiple advantages are now attainable through mobility digital twins, which can be continuously updated with as-operated engineering conditions and with observed traffic data. Mobility digital twins bring these functions together so that infrastructure planning and simulations can be continuously valuable throughout engineering, construction, and operations.

The pandemic experience reinforces the resilience value of sustaining "evergreen" planning and engineering modeling and simulation to maintain fitness for purpose during unanticipated eventualities. With the priority now on "building back better," it is increasingly recognized that the most economical way to augment infrastructure capacity, while accomplishing the needed energy transitions toward climate sustainability, is to optimize the utilization, configuration, and life extension of existing mobility assets, while adding integrated and appealing public transit options.

This requirement now sets the stage for mobility digital twins that need to be multimodal, need detailed dynamic traffic assignment and agent-based methods for veracity, and need to scale up to systemwide and regionwide—uniquely hallmarks of INRO. As the leader in infrastructure digital twins, Bentley's iTwin platform can now bring together—with the best-validated aggregate and individual vehicle and pedestrian simulation—3D/4D continuous surveying and reality modeling, civil engineering and project delivery, and asset and network performance. Ultimately, the opportunity for digital cities is to save their constituents time in their day, while at the same time improving congestion and climate resilience, and safety.

"We are very pleased to welcome INRO to Bentley Systems," said Robert Mankowski, senior vice president, digital cities, Bentley Systems. "Professor Michael Florian and his team led the research of advanced multimodal network modelling methods which helped establish state-of-the-art mobility simulation, and in this next generation his son Dan is leading its software future in our mobility digital twin advancement. With the addition of INRO and its world-class team, Bentley Systems can even better accelerate cities and regions in going digital to 'build back better'!"

Dr Michael Florian, founder of INRO, said, "Bentley is a recognised leader in transportation across the infrastructure lifecycle from planning and design to heavy civil construction and road network

management. My colleagues and I are very excited to join Bentley and to help realise the vision shared by thousands of cities and urban regions throughout the world to improve their sustainability and quality of life."

Photo credit: Image produced with Emme (www.inrosoftware.com/emme) using data from Metro (https://www.oregonmetro.gov/)