**Developing a Digital Inland Waterway;**

**Technological development of the Saint Lawrence River Corridor**

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**Abstract**

The St. Lawrence River is the most important river of North America flowing to the Atlantic Ocean. With a longitudinal axis oriented Southwest/Northeast, this corridor is linked to the Great Lakes through the St Lawrence Seaway. Reinforced by an important road and rail network, the river is at the heart of a highly urbanized and industrialized region. Several climatic, geographical, hydrological, regulatory and safety factors however impose limitations to commercial shipping along its 1197 km in length.

Over time, many interventions have been made to mitigate these conditions in order to facilitate trade and commerce. Up until the late 1960s the most significant improvements involved capital investments in navigation aids, such as light houses, canals, and dredging, as well as the construction of port facilities. Other improvements took the form of navigation charts and the provision of pilots. Since the 1970s, improvements in shipping, notably the deployment of ice-reinforced ships and the development of containers have augmented the capacity of shipping that has resulted in traffic growth. These developments have led to a new round of navigation issues including the need to inform shipping of ice conditions and water levels in real time. More recent navigation issues involve the protection of marine mammals and the need to provide the port community and its users with accurate information on vessel arrival and departures and to track and trace individual shipments to enhance supply chain logistics. These are problems that require information technology solutions.

The goal of this paper is to examine the digitalization of the St Lawrence corridor. It examines the range of information technologies that are being employed in the inland waterway, and what agencies, public and private, are initiating their development. The sheer scale of the corridor results that in different sections very different technological solutions are applied. The paper goes on to assess the effectiveness of information technologies in addressing the safety, security, fluidity and connectivity of the St Lawrence River as an intelligent corridor. Are the technologies cost effective? What challenges remain ahead?