

# Chapter 13

## Connecting the Dots: Harnessing OpenStreetMap for Big Data Analytics and Market Insights

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### ABSTRACT

*OpenStreetMap (OSM) emerges as a dynamic asset for market intelligence, opening a plethora of possibilities for businesses and organizations to enrich their strategies and decision-making processes. By tapping into the geospatial wealth offered by OSM, enterprises can glean valuable insights into market dynamics, consumer preferences, and competitive landscapes. This information can equip them to refine supply chain logistics, make well-informed choices about expansion initiatives, and seamlessly amalgamate diverse data sources to gain a holistic market perspective. OSM's utility can be extended to analyzing market share and extracting invaluable consumer behavior insights. Its adaptability can lend itself to tailor-made data amalgamation, facilitating bespoke market intelligence solutions. Additionally, OSM can be proved instrumental in amplifying digital marketing endeavors, fine-tuning SEO tactics, and delivering accessible public datasets, catering to businesses seeking seamless geospatial data integration.*

### INTRODUCTION

In an era dominated by the imperative of data-driven decision-making, the significance of accessible and current geospatial data has evolved into a foundational element for well-informed strategies. OpenStreetMap (OSM), a vibrant Volunteered Geographic Information (VGI) platform, occupies a distinctive position in this landscape, continually evolving as a dynamic repository of geospatial knowledge. The collaborative power of crowdsourcing lies at the heart of OSM, rallying a global community to collectively contribute to creating, organizing, and disseminating geographical data. Its inclusive nature sets OSM apart, embracing both seasoned cartographers and individuals without specialized expertise, fostering widespread engagement in mapping initiatives (Goodchild, 2007).

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Ahmad, (2023) delved into the impact of VGI on community growth and trust-building, while Sarretta et al., (2023) further underscored OpenStreetMap's utility as a data input for official governmental datasets, especially in its integration with the National Summary Database (DBSN) of the Italian Military Geographic Institute (IGM). OSM's Points of Interest (POI) data, as demonstrated by Zhang & Pfoser, (2019), finds application in urban analytics research, facilitating the understanding and modeling of urban change. Additionally, the potential of OSM data for calculating attractiveness in travel demand models is highlighted by Klinkhardt et al., (2021). This emphasizes OpenStreetMap's role as a versatile source of geospatial data with significant implications across various applications, as Wichmann et al., (2023). they are elaborated on in their research on marketing research.

Market intelligence, functioning as a linchpin in today's data-driven landscape, plays a pivotal role in the strategic decision-making processes across various industries. Its essential nature lies in enabling businesses to secure a competitive edge by providing actionable insights derived from a deep understanding of market dynamics, consumer behavior, and industry trends. The ascendance of Geospatial Artificial Intelligence (GeoAI) is deemed vital for organizations seeking a competitive advantage, as highlighted by Ansari & Binninger, (2022). Moreover, the significance of data sources as a catalyst for market-oriented tourism organizations is underscored in the research by Vidal et al., (2023).

Against this backdrop, this chapter offers a comprehensive investigation into OpenStreetMap's status as an invaluable wellspring of geospatial data for extensive market intelligence. The chapter outlines its objectives and boundaries, laying the groundwork for a thorough exploration of OSM's multifaceted applications in market analysis.

## **BACKGROUND**

In this section, fundamental insights concerning market intelligence and OpenStreetMap are presented.

### **Market Intelligence**

Market intelligence forms the very foundation of the marketing philosophy. Ideally, each decision made within an organization pivot on a profound comprehension of how the target markets of that organization are anticipated to respond to diverse value offerings and the configurations of marketing elements (Gebhardt et al., 2019; Kotler & Keller, 2021). Market Intelligence encompasses the vital process of acquiring and analyzing information pertinent to a company's market, playing a pivotal role in aiding organizations to make well-informed decisions and gain a competitive advantage. The roles and significance of market intelligence in the realm of marketing are presented as follows:

#### **Cornerstone of Marketing**

Market intelligence serves as the bedrock upon which modern marketing strategies are built. It encompasses the systematic process of gathering, analyzing, and interpreting a wide spectrum of data. This data includes insights into markets, customer behavior, competitive landscapes, and the broader business environment. The data collected through market intelligence activities is not just an asset; it's an indispensable resource that empowers organizations to formulate and implement effective marketing strategies. Without this foundation of knowledge, marketing decisions would be akin to navigating in the dark.

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