# Location analysis and GIS: Emerging opportunities and continuing (?) challenges

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Geographic information systems (GIS) have long been used by researchers and especially practitioners to support decisions related to location analysis. Following the rapid advances in technology over the last two decades, the links between Location Analysis and GIS have progressed far beyond the initial loosely coupled systems where GIS were mostly employed for managing data and visualizing results. The ever-advancing shift towards a digitized society has resulted in a huge amount of spatial data that is currently available in various formats and platforms and has changed the way people access and exploit this data [1].

In this talk we will discuss the implications that these trends have on the functionality of GIS as well as their impact on Location Analysis from the point of view of research opportunities as well as application domains. More specifically, we will describe how the recent capabilities of GIS have facilitated the formulation of new models and the development of algorithms for solving certain Location Analysis problems. We will also present some of the related routines available within current GIS and comment on their applicability (see [2]). On a different note, we will consider privacy and ethics issues in using spatial data and discuss how the need to address these concerns may result in the formulation of new models in Location Analysis.

Finally, we will outline some of the challenges that GIS developers and Location Analysts still need to consider in the effort to further consolidate the links between the two disciplines.

# References

[1] Bozkaya, B., G. Bruno and I. Giannikos. *Location and Geographic Information Systems*. In Location Science (eds. G. Laporte, S. Nickel and F. Saldanha da Gama), Springer, 2020.

[2] Murray, A., J. Xu, Z. Wang and R. Church. *Commercial GIS location analytics: capabilities and performance*. International Journal of Geographical Information Science 33, 2019.