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Nota di contenuto	Chapter 1. Introduction to the Data for Refugees Challenge on Mobility of Syrian Refugees in Turkey -- Chapter 2. Call Detail Records to Obtain Estimates of Forcibly Displaced Populations -- Chapter 3. Measuring Fine-Grained Multidimensional Integration Using Mobile Phone Metadata: The Case of Syrian Refugees in Turkey -- Chapter 4. Integration of Syrian Refugees: Insights from D4R, Media Events and Housing Market Data -- Chapter 5. Mobile Phone Data for Humanitarian Purposes: Challenges and Opportunities -- Chapter 6. Improve Education Opportunities for Better Integration of Syrian Refugees in Turkey -- Chapter 7. Measuring and Mitigating Behavioural Segregation as an Optimisation Problem -- Chapter 8. The Use of Big

Mobile Data to Gain Multi-layered Insights for Syrian Refugee Crisis -- Chapter 9. Characterizing the Mobile Phone Use Patterns of Refugee Hosting Provinces in Turkey -- Chapter 10. Towards an Understanding of Refugee Segregation, Isolation, Homophily and Ultimately Integration in Turkey Using Call Detail Records -- Chapter 11. Using Call Data and Stigmergic Similarity to Assess the Integration of Syrian Refugees in Turkey Coding Bootcamps for Refugees -- Chapter 12. Quantified Understanding of Syrian Refugee Integration in Turkey -- Chapter 13. Refugees in Undeclared Employment - A Case Study in Turkey -- Chapter 14. Assessing Refugees' Onward Mobility with Mobile Phone Data - A Case Study of (Syrian) Refugees in Turkey -- Chapter 15. Optimizing the Access to Healthcare Services in Dense Refugee Hosting Urban Areas: A Case for Istanbul -- Chapter 16. A Review of Syrian Refugee Integration in Turkey: Evidence from Call Detail Records -- Chapter 17. Conclusions and Lessons Learned.

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## Sommario/riassunto

After the start of the Syrian Civil War in 2011–12, increasing numbers of civilians sought refuge in neighboring countries. By May 2017, Turkey had received over 3 million refugees — the largest refugee population in the world. Some lived in government-run camps near the Syrian border, but many have moved to cities looking for work and better living conditions. They faced problems of integration, income, welfare, employment, health, education, language, social tension, and discrimination. In order to develop sound policies to solve these interlinked problems, a good understanding of refugee dynamics is necessary. This book summarizes the most important findings of the Data for Refugees (D4R) Challenge, which was a non-profit project initiated to improve the conditions of the Syrian refugees in Turkey by providing a database for the scientific community to enable research on urgent problems concerning refugees. The database, based on anonymized mobile call detail records (CDRs) of phone calls and SMS messages of one million Turk Telekom customers, indicates the broad activity and mobility patterns of refugees and citizens in Turkey for the year 1 January to 31 December 2017. Over 100 teams from around the globe applied to take part in the challenge, and 61 teams were granted access to the data. This book describes the challenge, and presents selected and revised project reports on the five major themes: unemployment, health, education, social integration, and safety, respectively. These are complemented by additional invited chapters describing related projects from international governmental organizations, technological infrastructure, as well as ethical aspects. The last chapter includes policy recommendations, based on the lessons learned. The book will serve as a guideline for creating innovative data-centered collaborations between industry, academia, government, and non-profit humanitarian agencies to deal with complex problems in refugee scenarios. It illustrates the possibilities of big data analytics in coping with refugee crises and humanitarian responses, by showcasing innovative approaches drawing on multiple data sources, information visualization, pattern analysis, and statistical analysis. It will also provide researchers and students working with mobility data with an excellent coverage across data science, economics, sociology, urban computing, education, migration studies, and more.

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