The increasing availability of digital data on human activities has led to the emergence of computational social science, a research field at the interface of computer science, mathematical modelling and social sciences. Among the concepts that have attracted much attention, we find "success". The premise of a science of success rests on observing that a difference exists between performance and success: Performance, representing the totality of objectively measurable achievements in a certain domain of activity, like the publication record of a scientist or the winning record of an athlete or a team, captures the actions of an individual entity. In contrast, success, captured by fame, celebrity, popularity, impact or visibility, is a collective measure, representing a community's reaction to and acceptance of an individual entity's performance. The link between these two measures, while often taken for granted, is actually far from being understood and often controversial.

Success is itself an ambiguous term, as each of us will have its own subjective view on what a successful life is. Yet if we acknowledge its collective nature, there are many situations when a successful outcome can be quantified, which motivates the search for mechanisms, or the lack of them, that might explain what makes something successful. Take a football team, the prototype of a complex system, which is more than the sum of its players and is defined by the collective quality emerging from their individual skills. Is it possible to exploit the data explosion with sports to identify factors favoring success and hence to guide sport managers? In science, likewise, the recent decades have seen the popularization of metrics to measure the output of researchers and scientific teams. Yet, a successful outcome (in this case, for instance, a highly cited paper) arises due to a combination of chance, of the Matthew effect and of intrinsic quality. It is thus of paramount importance to understand, by means of empirical studies, modelling works or a combination of the two, how these factors may affect metrics of success and limit the ability to predict future individual success. Take Twitter for instance. It is true that a highly retweeted individual has a higher chance of being retweeted in the future than a random individual, but the distribution of the number of retweets are so skewed that observations of single realizations of the process are often inconclusive.

The "science of success" is a recent endeavor, which involves a range of methodological, data-driven challenges. The purpose of this special issue is to take the time to look at different aspects of the problem. In "Talent vs Luck: the role of randomness in success and failure", Biondo et al. aim at understanding the respective roles of talent and chance in success. Based on agent-based simulations, the authors observe that chance is a critical ingredient for an individual to be highly successful. This interplay between chance and intrinsic quality is at the heart of most works in this issue. In "On-Chart Success Dynamics of Popular Songs" by Shin and Park, for instance, the authors analyze a large-scale data set of nearly 7000 songs from Gaon Chart, a major weekly Korean Pop (K-Pop) chart, and develop a framework to characterize the cycle of prosperity and decline of a song and the mechanisms, deterministic or not, that may explain the resulting popularity dynamics. Two papers focus on the study of success within sport analytics and, in particular, soccer. In "Quantifying the relation between performance and success in soccer", Luca Pappalardo analyzes a large corpus of games and events, and discovers a strong correlation between the ranking of a team and a measure of performance based on technical features extracted from the soccer data. In "Effectiveness Analytics in Soccer", Cakmak et al. focus on patterns of passes between players during a game. The authors define a measure of effectiveness of a pass, associated to its level of risk and gain, whose outcome is validated by domain experts, with the potential to rank players not only in terms of their number of passes but their number of effective passes. In the last paper of this issue, "Gender Disparities in Science? Dropout, Productivity, Collaborations and Success of Male and Female Computer Scientists" by Jadidi et al, the authors consider a large database of scientific productivity in computer science, and aim at understanding statistical difference in behavior and recognition between male and female authors, providing empirical

evidence for the so-called Matilda effect.

This last work echoes the seminal works of Polya, Merton and Simon on cumulative advantage and rich-gets-richer mechanism. These relations emphasize that the search for reasons why certain things are successful, and others not, is an old-standing, fascinating problem. We live in a time when the availability of empirical data provides us with ways to test these ideas and to develop new ones. This is, we hope you will agree, a wonderful research opportunity.

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