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	Sommario/riassunto	The main interest of this research has been in understanding and characterizing large networks of human interactions as continuously changing objects. In fact, although many real social networks are dynamic networks whose elements and properties continuously change over time, traditional approaches to social network analysis are essentially static, thus neglecting all temporal aspects. Specifically, we have investigated the role that temporal patterns of human interaction play in three main fields of social network analysis and data mining: characterization of time (or attention) allocation in social networks, prediction of link decay/persistence, and information spreading. In order to address this we analyzed large anonymized data sets of phone call communication traces over long periods of time. Access to these observations was granted by Telefonica Research, Spain. The findings that emerge from our research indicate that the observed heterogeneities and correlations of human temporal patterns of interaction significantly affect the traditional view of social networks, shifting from a very steady to a highly complex entity. Since structure

and dynamics are tightly coupled, they cannot be disentangled in the analysis and modeling of human behavior, though traditional models seek to do so. Our results impact not only the way in which social network are traditionally characterized, but more importantly also the understanding and modeling phenomena such as group formation, spread of epidemics, and the dissemination of ideas, opinions and information.