

Preface

How to guarantee that a global society without a common legal framework will operate smoothly? If charity and generosity do not arise spontaneously, one might design transactions so that helping others remains the best rational option.

This is precisely the goal of *co-utility*, which can be defined in game-theoretic terms as any interaction between peers in which the best option for a player to maximize her utility is to make sure the other players also get a fair share of utility. Example utilities in the information society transactions are functionality, security, and privacy. A protocol or mechanism designed using the co-utility principle ensures that helping others is the best rational option even if players are selfish.

This contributed book has been written under the umbrella of project *Co-utility: Conciliating individual freedom and common good in the information society*, which was supported by the *Templeton World Charity Foundation*. The first chapters lay the theoretic foundations of co-utility, either when it naturally arises in peer-to-peer interactions or when artificial incentives should be added to compensate the influence of negative utilities. Co-utility is also discussed in the context of the literature on social choice. Then, several applications of co-utility within the information society are presented: anonymous keyword search, digital oblivion, P2P content distribution, ridesharing, and collaborative data anonymization.

However, the applicability of co-utility is not restricted to the above domains investigated within the *Co-utility* project. This book also includes contributions by some of the participants in the *1st Co-utility Workshop*, which took place in Tarragona on March 10 and 11, 2016. In particular, there are chapters exploring the application of co-utility to environmental agreements, business model design, and the collaborative economy.

Tarragona, Catalonia
March 2017

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Co-utility

Theory and Applications

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2018, X, 216 p. 33 illus., 19 illus. in color., Hardcover

ISBN: 978-3-319-60233-2