

The Emergence of Personal Data Markets

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Abstract. The almost universal adoption of mobile phones, the exponential increase in the use of Internet services and social media platforms, and the proliferation of wearable devices and connected objects have resulted in a massive collection of personal data that represents an invaluable resource for designing and building systems able to understand the needs and activities of both individuals and communities - so as to provide personalized, context-aware services. Hence, many public services of societal interest (e.g. emergency response, city planning, etc.) are dependent on this data. At the same time, many commercial services require sensitive data such as location, purchase, or browsing history. However, this scenario raises unprecedented privacy challenges derived from the collection, storage and usage of vast amounts of personal data. The core problem is how can an individual share sensitive data for a public service or a desired commercial service and be sure that the data will only be used for the intended purpose? This question implicitly recognizes the risks in terms not only of possible abuses in the usage of the personal data but also of the “missed chance for innovation” that is inherent to the current dominant paradigm of siloed data collection, management, and exploitation, which precludes participation to a wide range of actors, most notably the very producers of personal data (i.e. the users). Recently, new user-centric models for personal data management have been proposed, in order to provide individuals with more control of their own data’s life-cycle. To this end, researchers and companies are developing repositories which implement medium-grained access control to different kinds of personally identifiable information (PII). Previous work has also introduced the concept of personal data markets in which individuals sell their own personal data to entities interested in buying it. While personal data markets might be the next natural step in designing technology to support a transparent and privacy-preserving use of personal data, they are still at a research stage due to a number of technological and regulatory challenges. In order to implement a market, it is necessary to connect potential buyers (demand) with sellers (offer) and provide a trustworthy mechanism for the exchange of goods or value between buyers and sellers. In a personal data market, the sellers are individuals (who own their personal data), the buyers are corporations, researchers, governments, etc., and the mechanism for the exchange of “goods” is still to be defined. In my talk, I provide a possible answer to such issue describing recent efforts to develop a user-centric Personal Data Market approach, coupled with cryptographic guarantees on data access and usage.