***1.Introduction***

* 1. ***Purpose***

***1.1.1 General Purpose***

*TrackMe is a company that wants to offer some software-based services and this document’s purpose is to deeply describe all the proposed applications and support all the stakeholders.*

*TrackMe wants to offer the possibility to third parties to monitor the health status and position of users through the Data4Help service. The application has to acquire the users’ data in some way (ex: through a smartwatch) and offer the possibility to third parties to access them. Data can be queried in a specific way or in an aggregate way: in the first case the request must be accepted by the user. Third parties can make specific requests or ask to access to data as soon as they are recorded by the application. TrackMe wants to ensures also that the access to data let them anonymous: Data4Help will make data available only if anonymity can be granted.*

*TrackMe also wills to exploit the possibility of recording users’ data to offer an other service: AutomatedSOS. Its aim is to support third parties in monitoring health status of the applications’ subscribed customers acquiring their vital signs through some device (as for Data4Help). This service is thought for elderly people and is thought to automatically activate the emergency services (ex: departure of ambulance) of third parties guaranteeing a reaction time of less than 5 seconds from the moment in which the parameters go out of certain bounds.*

*Finally TrackMe wants to offer a service to track athletes participating to a run (both professional or not). This service is called Track4Run and, in this case, TrackMe doesn’t act as an intermediary, but is exploited in the same way from all the customer that, though, have to specify their role: the application allow to organizers to set up a run defining its path, to athletes to enroll for a run and offers the possibility to follow the run to every user tracking runners’ position during the manifestation.*

***1.1.2 Goals***

* *G1: Allow third parties to monitor location and health status of individuals and groups*
* *G2: The data related to the users must be accurately treated and anonymized*
* *G3: Track in real time the users' parameters*
* *G4: The system must guarantee a reaction time of less than 5 seconds from the time the parameters are below the threshold*
* *G5: The system allows users who want to organize a run to define the path of the latter*
* *G6: Allow participants to enroll to the run*
* *G7: Allow spectators to see on a map the position of all runners during the run*

***1.2 Scope***

*The Data4Help service is offered to third parties that want to acquire data (health status and location) about their customers, so it is thought for companies that have to be supported in the IT management that maybe don’t have the appropriate competences internally: the service stands in the middle. So, Data4Help supports companies in the analysis of the mentioned types of users’ data and allow them, for example, to fragment their clients according to their habits, their mobility, the places they visit etc. The user can accept or refuse the data acquistion’s request by the third party and, in case of consent, an application is installed on his device to register his data. It must be assumed that users’ devices are capable of acquiring the mentioned data (sensors + GPS). The authorized personnel of the third party can access the data logging in on the system installed by TrackMe on the computer systems of the company. Data can be queried in two ways: user can make a request to the system to retrieve health status’ or location’s data of a single customer or he can ask for aggregate data on the base of some parameter (ex: data of all customers with a certain age, with certain body measures, of all customers that work in a certain area etc.). The personnel user can also request to the system to receive users’ data in a live way, as soon as they are produced without the necessity to make a query. The request through the Data4Help applicative is handled directly by TrackMe that provide an answer only if data can be provided in an anonymous way: TrackMe make data available only if the query is satisfied by at least 1000 users’ data. So, the request for data arrives to the system from the environment, but is observed by the system that provide the appropriate answer after some internal computation (ex: control on the number of individuals that satisfy an aggregate query to verify that anonymity is guaranteed).*

*To offer the AutomatedSOS service the user directly agree to his data processing when installing the application on its device. In this case the service monitors the users’ data and automatically signals the emergency to the third party that has installed the applicative when certain health’s parameters go below or over certain thresholds so that an ambulance is sent to the customer’s location to help him (this responsibility is left to the third party exploiting AutomatedSOS service). In this case it must be assumed that the users’ device send data almost in real time to guarantee a right functioning of the service . The system provide the encoding of the call to the ambulance, the location of the person and, eventually, some informations that the person manage to send as a reaction to the person’s health problem that belongs completely to the environment. This service is thought to be exploited especially for public authorities’ that, installing such system, want to protect citizens’ health status.*

*For what concerns the Track4Run application in this case TrackMe offers a service that can be exploited by an organizer of a run to arrange a run and its path, by the participants to a run to enroll for the competition and by the simple users just to follow the evolution of the run. The system offer the possibility to organize both professional and non-professional runs. Each user must authenticate himself when using the application and, in case of a professional run, if he is an organizer or a runner, he has to prove it through a certificate, while for amateur runs this is not necessary.*

*Obviously both AutomatedSOS and Track4Run rely on the assumptions made for Data4Help, for example it is clear that the user’s location must be assumed to be correct.*

***1.4 Definitions, acronysms, and abbreviation***

***1.5 Reference documents***

***1.6 Overview***