**Project Objectives**

Starting from the requirements derived by the current regulation and legal debate, we intend to develop formal models and technical tools to enforce the intertwined personal rights of non-discrimination and individual privacy.

On the legal perspective, our objective consists of a systematic and critical review of the existing regulations, and in the design of quantitative measures of the notions of anonymity, privacy and discrimination that are adequate for enforcing such personal rights.

On the computer science perspective, we aim at designing legally-grounded technical solutions for discovering and preventing discrimination in Decision Support Systems (DSS) and for preserving and enforcing privacy in Location Based Systems (LBS).

We aim at a new approach in the development of ICT tools consisting in the native integration of legal norms and resulting in a technical standard which is legally recommendable and socially trustworthy.

**Main Papers**


**Tools Developed**

- **DCUBE**: Discrimination Discovery in Databases. Supports the discovery of discriminatory practices in a dataset of past decision records.
- **PCUBE**: Privacy Preserving Proximity. A location-aware app that alerts users about the proximity of friends without acquiring location data.
- **BF-P2KA**: a tool for anonymizing sequence data.

---

**COMPUTER SCIENCE AND LEGAL METHODS FOR ENFORCING THE PERSONAL RIGHTS OF NON-DISCRIMINATION AND PRIVACY IN ICT SYSTEMS**

A FIRB (Italian Fund for Basic Research) Project Call “Future in Research 2008”

1 December 2010 - 1 March 2014

[http://enforce.di.unipi.it](http://enforce.di.unipi.it)

Dipartimento di Scienze Giuridiche
Università di Bologna, Italy

Dipartimento di Informatica
Università di Milano, Italy

Dipartimento di Informatica
Università di Pisa, Italy
**ICT Pervasiveness**

ICT services are provided based on personal data collected at extreme detail and at mass level.

**ICT Threats**

While on one side the use of ICT technologies brings great benefit to everybody, on the other side the massive collection of our personal data poses new challenges to enforce the fundamental rights of privacy and non-discrimination.

---

**PRIVACY**

People have the right to control the processing of their personal data.

Who collects our personal information and how? Are the regulations in force a sufficient protection, or technical solutions needs to be applied?

Is privacy a human right that risks to become a chimera in the digital era?

---

**Sample privacy threat**

User’s identity and sensitive information could be discovered from the locations reported to ICT services.

Location reported by a user

---

**FAIRNESS**

People have the right not to be subject to unfair or discriminatory decisions based on their personal data.

How is our personal information used? Can negative effects of automated decisions be prevented? Is discrimination an illegal behavior that risks to become a hidden feature of ICT systems?

---

**Sample discrimination threat**

ICT services for automated credit scoring could use residence as a proxy for race or gender to deny credit to minorities.

City residents by race