

FORMIT



VIS - The Vulnerability of Information Systems and its inter-sectorial, economic and social impacts

European Commission – DG Justice, Freedom and Security (2008-2009)

BACKGROUND

The European Council established in 2007 the specific Programme ***“Prevention Preparedness and Consequence Management of Terrorism and other related Risks”*** to award grants to projects that contribute to the development of the “European Programme for Critical Infrastructure Protection” (EPCIP) as well as policy measures aiming at upholding and guaranteeing security and public order during a crisis situation.

Within the afore-mentioned Programme, FORMIT Foundation was awarded a grant for the research project ***“VIS - The Vulnerability of Information Systems and its inter-sectorial, economic and social impacts”***.

OBJECTIVES

VIS aims at creating a methodology that evaluates the weight of Information Systems on the EU economy, considering in particular the dependence of production and service processes from ICT and the consequences of the ICT breakdowns. The goal of the research study is to measure the impact of ICT breakdowns in the information system, investigating the effects that occur in a firm, in the sector it belongs to, on other sectors and, therefore, on the economy in general.

METHODOLOGY

The VIS project is essentially composed by 4 main research tasks:

- ***Selection of a sample of European Countries.*** A clustering of 27 European Countries (using economic and technological features) has been implemented, thanks to advanced static methods, to identify a sample of 5 Member States to deeply analyse.
- ***Selection of sectors.*** For each identified European Country, sectors are selected on the basis of direct and indirect IT relevance among the productive factors. The most ICT-dependent sectors are taken into account to evaluate the potential worst economic impact because of a complete collapse of Information Systems.
- ***Selection of firms and technological audit.*** For each identified sector, the most representative firms are selected for case study interviews. During the interview, a questionnaire, submitted to ICT and Business Continuity managers, aims at collecting information on the relevance of ICT in the firm processes and on the potential impact of a total ICT breakdown.
- ***Construction of the impact assessment model, running based on macro-data and validation.*** The macroeconomic model, based on the sectorial interdependencies, allows to define the relationship between the ICT sector and all other sectors. The econometric analysis provides estimates and simulations of the severity of the economic impact on each sector and on the production structure at national and European level as consequence of the shortage in the ICT factor supply. Hypothesis of substitution of the ICT factor with the other productive factors and consequent relative price effects let the model identify a ranking of the most vulnerable sectors to ICT breakdowns. Information from case studies interviews allows to validate and refine the sector ranking.

RESULTS

VIS provides a new methodology to assess the impact of Information Systems breakdowns on a specific firm, on the sectors it belongs to and on the whole economy. As final result, the ranking of the most vulnerable sectors to ICT breakdowns represents particular valuable information for policy makers in order to facilitate the implementation of effective protection measures to minimize potential economic damage from unexpected ICT shortage.