Protection of the scientific potential and technology of the Nation: Utopia or Reality
Finding the right balance : foster innovation, protect knowledge

- The research potential of an laboratory gives a strategic character to the protection of the most sensitive scientific and technical assets.
- The security breaches can easily affect scientific or technological data as well as their scientific, technical or human potential.
- The laboratory often lives in a complex environment by the diversity of its guardianship and the diversification of its resources, while being confronted with an increasing scientific competition.

Rules for the Protection of the Scientific and Technical Heritage of the Nation, edicted by the Government should be followed, but without hampering research, competitiveness, international exchanges and cooperation:
an appropriate balance has to be found.

Information Systems Security

Laboratories: Their equipments, their scientific and technical production, their know-how and their information system (IS) are targets.

- Information systems present vulnerabilities connected to diverse threats which can be environmental, intrinsic, human, etc.
- Consequences are varied, sometimes dramatic, preventing the pursuit of activities

Scientific Heritage

- Equipment, software, etc.
- Databases, strategic data
- Industrial and government contracts
- Know-how of researchers, etc
- Patents pending, current publications
- Current and future projects
- Research and experience
- Reputation and image

Threats

- External or internal
- Passive or Active
- Physical, electronic
- Organizational, human
- Industrial espionage
- Cyber spying and hacking
- Interference with persons or property
- Fraudulent use of computer resources
- Legal risks

A failure of the security of the information system can affect all activities and assets of the laboratory

Loss of

- Credibility
- Degradation of the image
- Trust of partners
- Market share
- Confidentiality, Availability, Integrity of IS
- Disappearance of scientific advantages,
- Recognition of peers
- Reputation of the laboratory

Issues

Security criteria to minimize the impact

- IS Confidentiality, IS availability, IS integrity
- Authenticity of identities (human, machine, etc.)
- Protection of sensitive data
- Legal protection
- Ownership
- Responsibility
- Use

Purpose of protection of the scientific and technical heritage

Applications

Ideally
Researchers must have a strategy of protection of both their knowledge and their know-how

- Members are implied in the valuation of their work, but precautions are necessary
- The raising awareness and training of all the researchers for a good level of safety and confidence

But the everyday world is quite different,
Constraints lived as an infringement on the freedom of research

- Classification in protected Sectors and Restrictive Access Zones
- Contradiction with the ethics of the public research
- Rules of confidentiality, thesis defense, etc.
- Impossibility of respecting submission deadlines if authorization is required
- Hardening of access permissions (PhD and postdoctoral students, visitors, foreign researchers, etc.)
- Additional work due to new management procedures
- Loss of PhD students due to Ministerial delays

Striking a balance between the spreading of knowledge, exchanges and international cooperations on one side, and the security constraints on the other

- The adopted measures should not hamper the research and the competitiveness
- Simple and common sense solutions for the whole laboratory
- Communication, training and demonstrations to find the best way to limit constraints
- Take into account professional needs in order to find necessary measures and not the reverse
- But don't forget simple security and pragmatic measures

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