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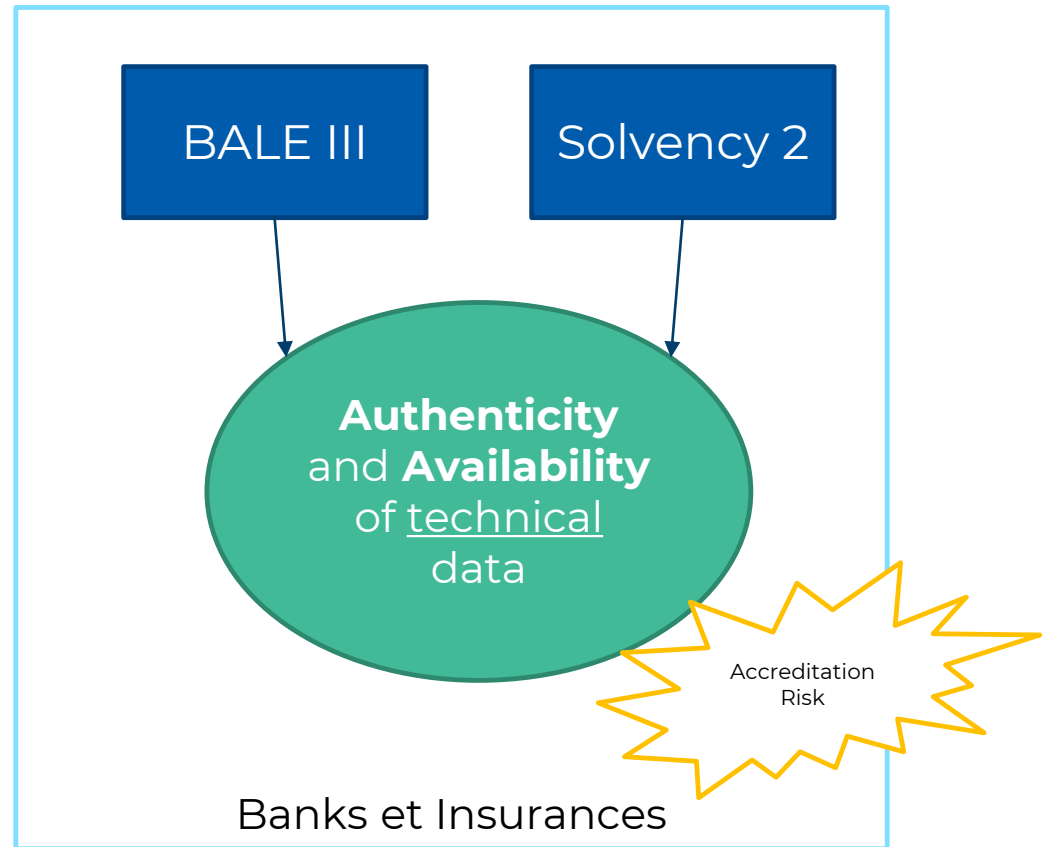
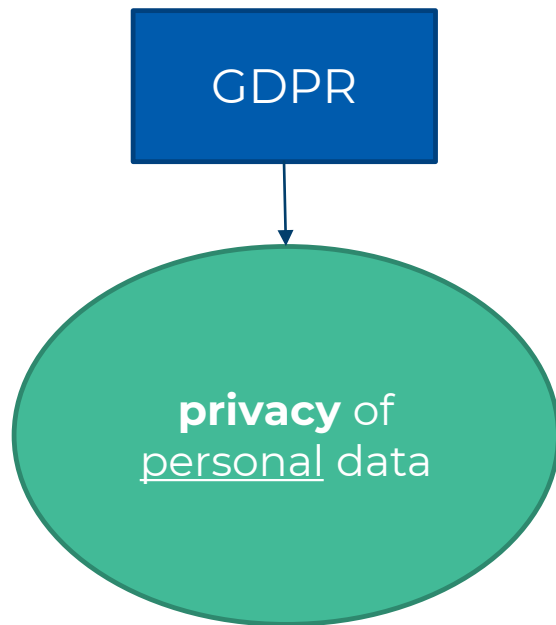
# ESSEC 03/05/2018

# CYBER RISKS AND BIG DATA

FROM DATA BREACH TO ALGORITHMS



# REGULATORY: RISKS OF SANCTION



# STANDARDS AND VALUES

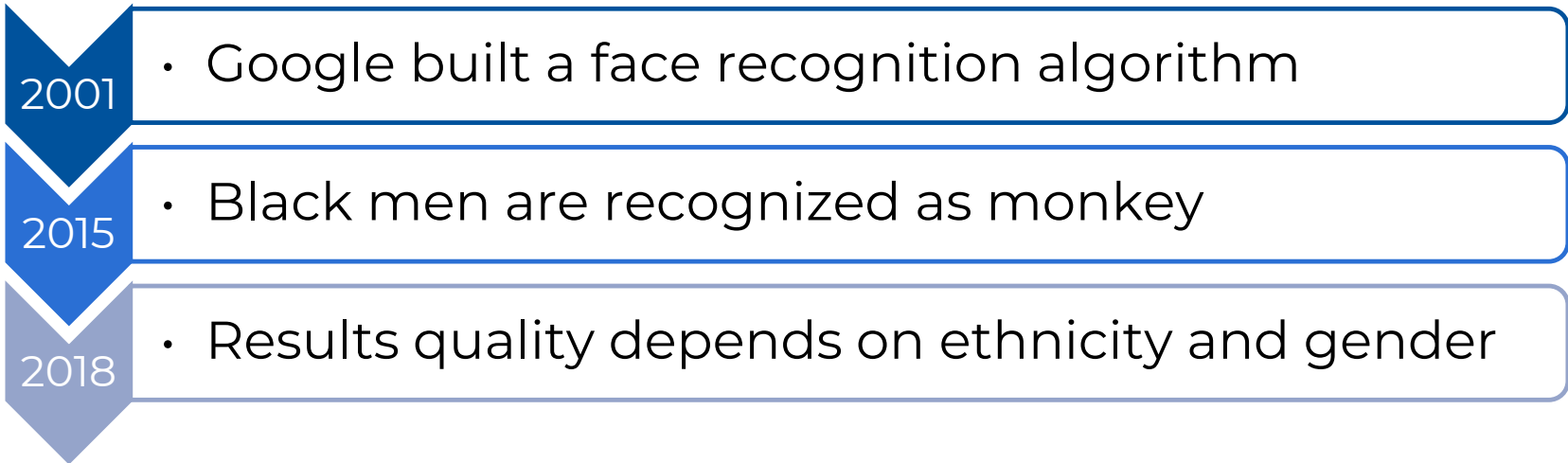
NPA5 (institut des  
actuares)

Algorithm use and data  
retention best practice

Reputational  
risk

**Actuary or data scientist have the  
interpretation responsibility**

# VALUES AND REGULATION



The need to understand  
discrimination by algorithm

Ethnic statistics on learning  
database

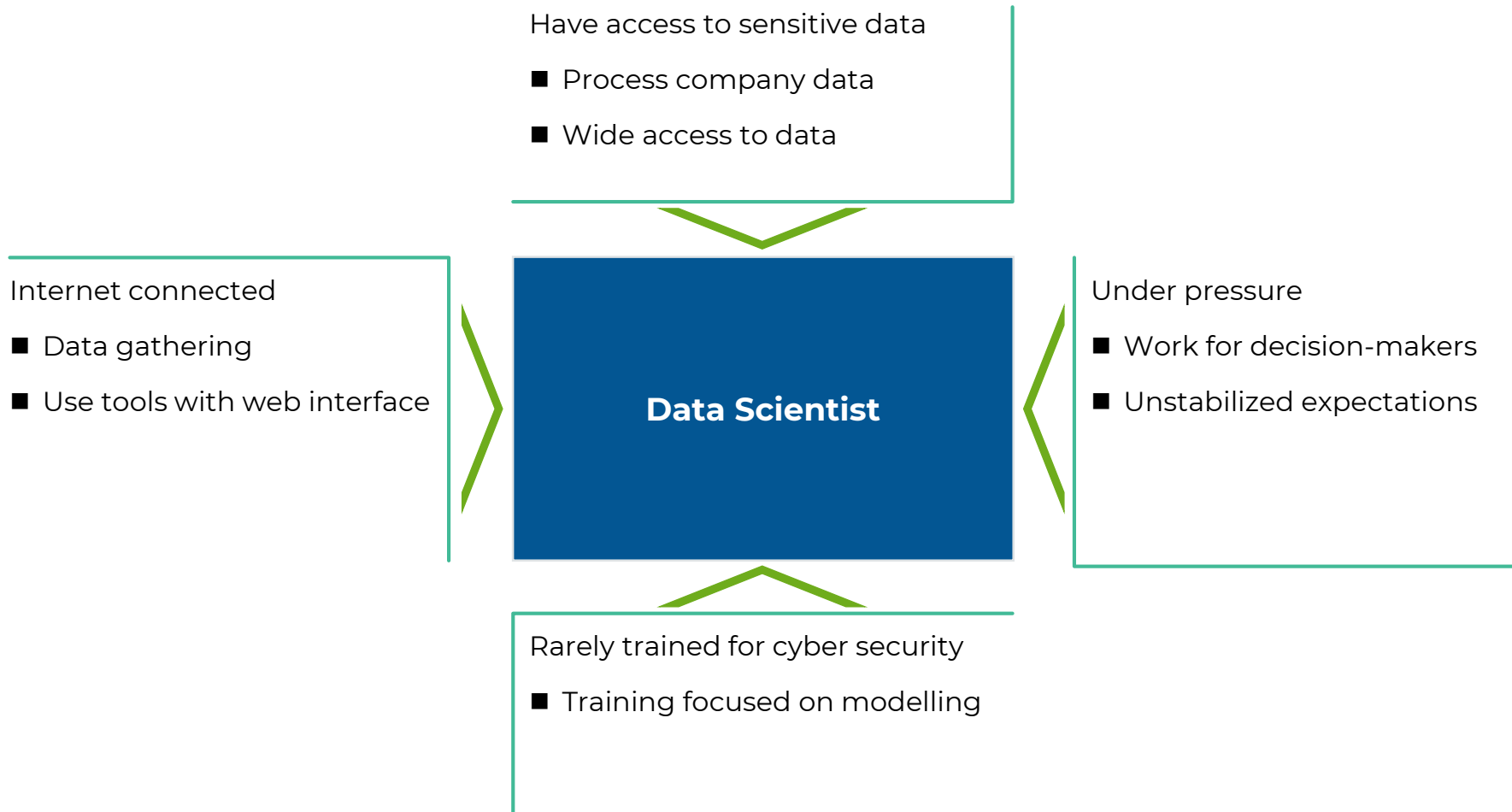
Values

Regulation

Ethnic statistics are forbidden

Study of ethnical unbalanced  
database is forbidden

# DATA SCIENTIST: A SOURCE OF RISK



# EXAMPLE 1: BUFFER OVERFLOW

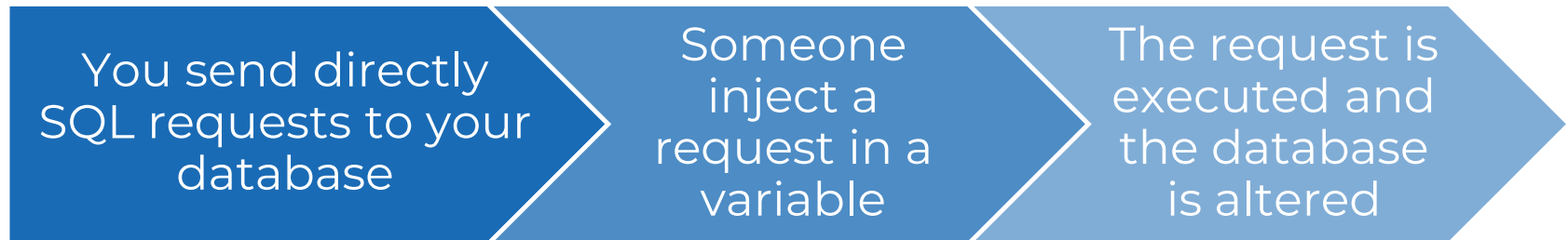


**How to protect yourself ?**

**Use high-level language like Python or R which are natively protected.**

# EXAMPLE 2: SQL INJECTION

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**How to protect yourself ?**

**Use a high-level library to manage your SQL queries.**

# EXAMPLE 3: BREACH OF A DATABASE

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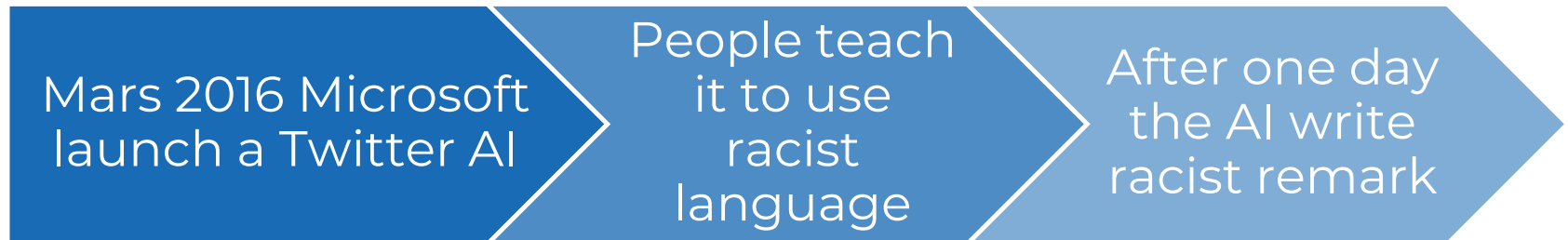


**How to protect yourself ?**

**Delete local copy and save results in a secured space.**



# EXAMPLE 4: ALGORITHM MANIPULATION



**A new threat**

**The actuary is in charge and for now no best practice could prevent this type of threat**

Note: recognition for this example is easy