The BIRO System

1st EUBIROD Annual Meeting,

Dasman Centre, Kuwait City

BIRO Academy
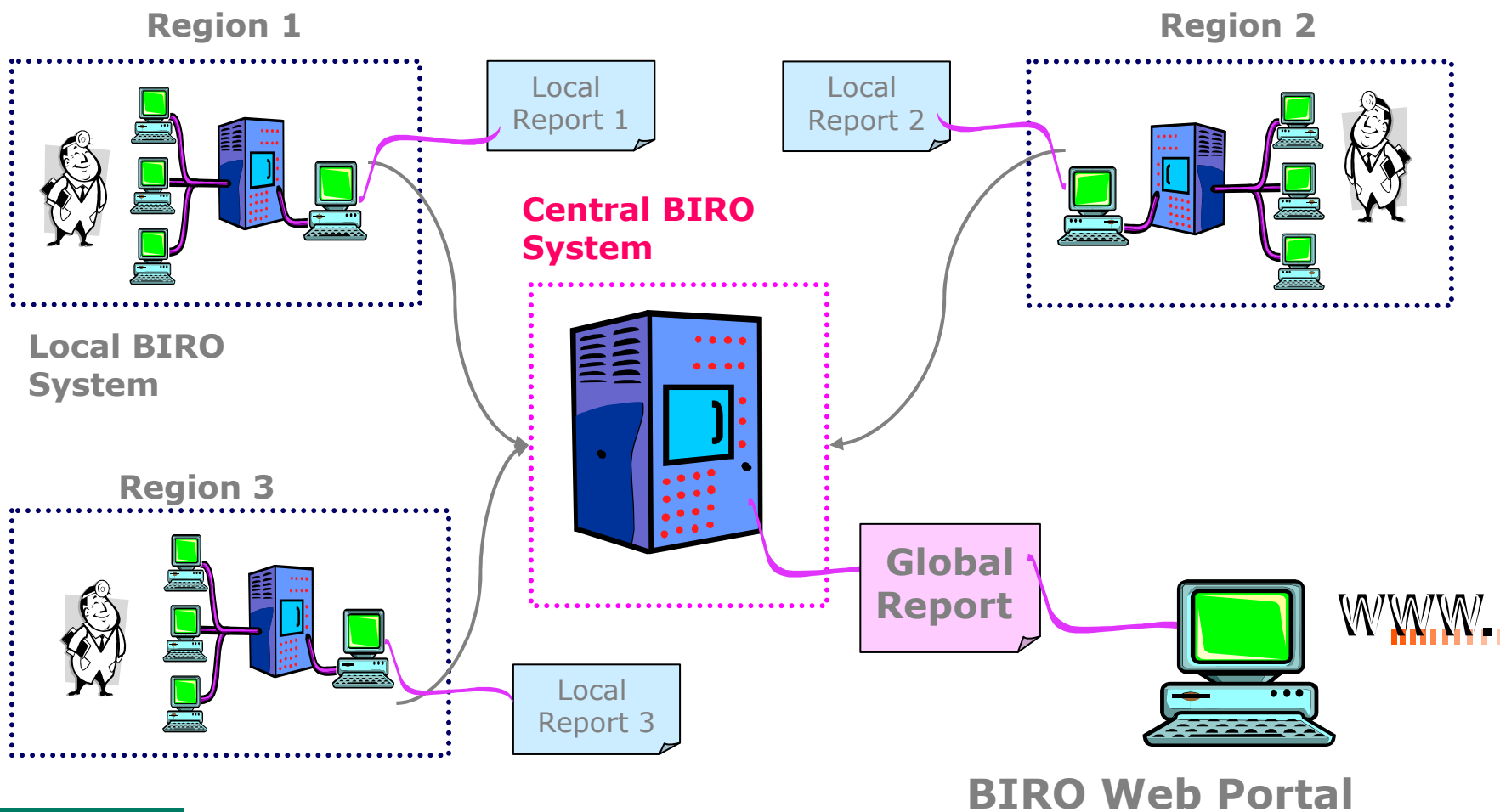
EUBIROD

Executive Agency for Health and Consumer

The BIRO system

➢ BIRO system aims to be a viable solution towards the construction of a common infrastructure for standardized information exchange in diabetes care at the lowest cost through the active involvement of regional networks

➢ The BIRO architecture consists of two different modules: Local BIRO System and Central BIRO System

➢ The Local BIRO System should be implemented by each participating centre and allows standardized processing of local data and production of a comparable statistical reports for selected BIRO indicators

➢ The Central BIRO System collects and compiles data sent by local modules to derive an overall statistical report
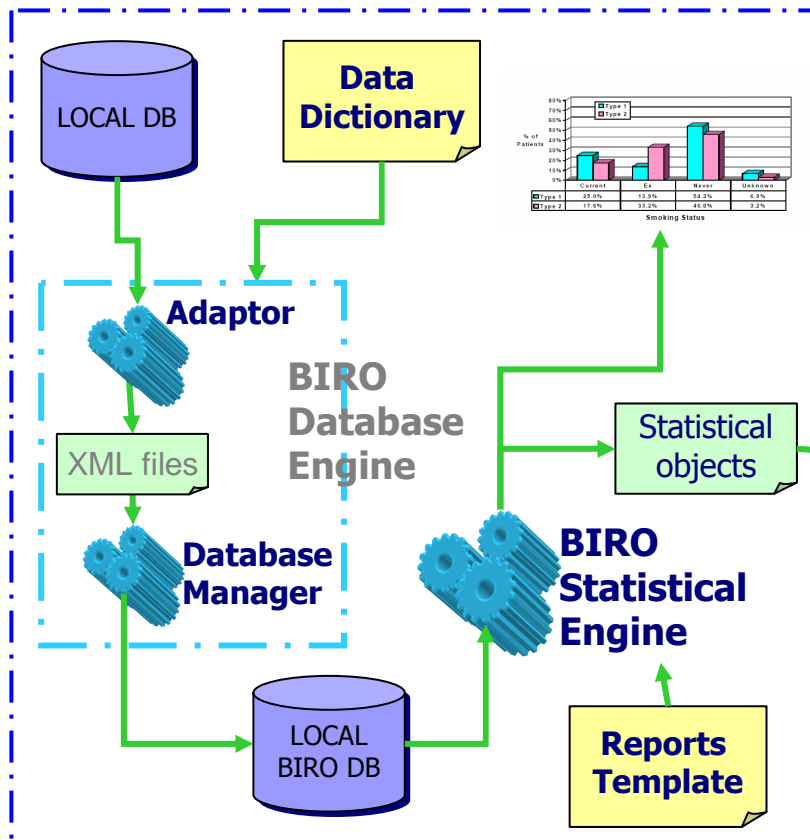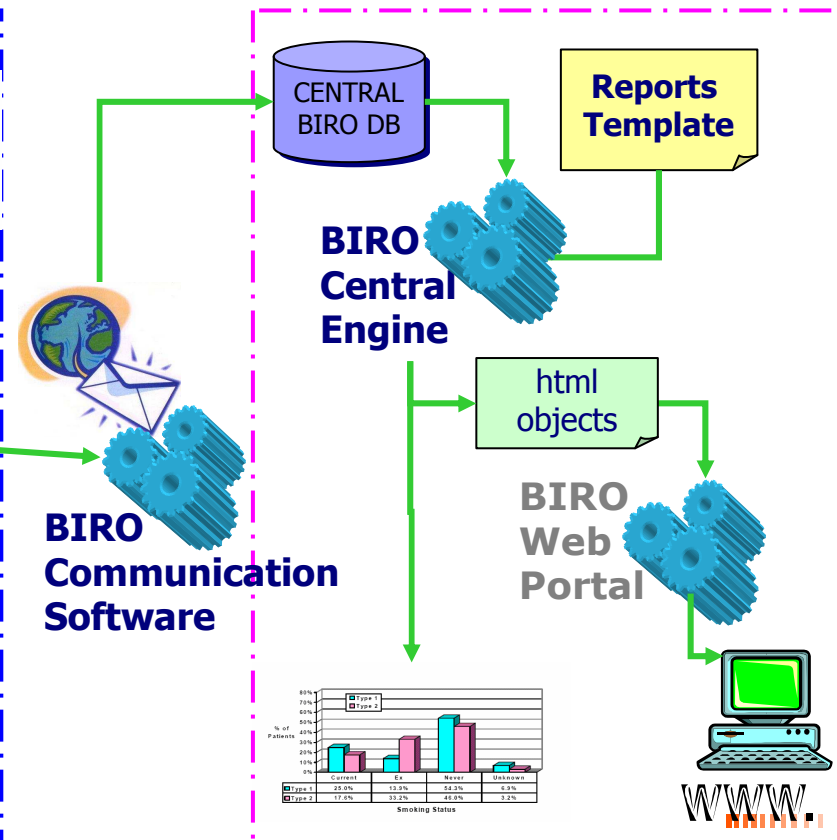
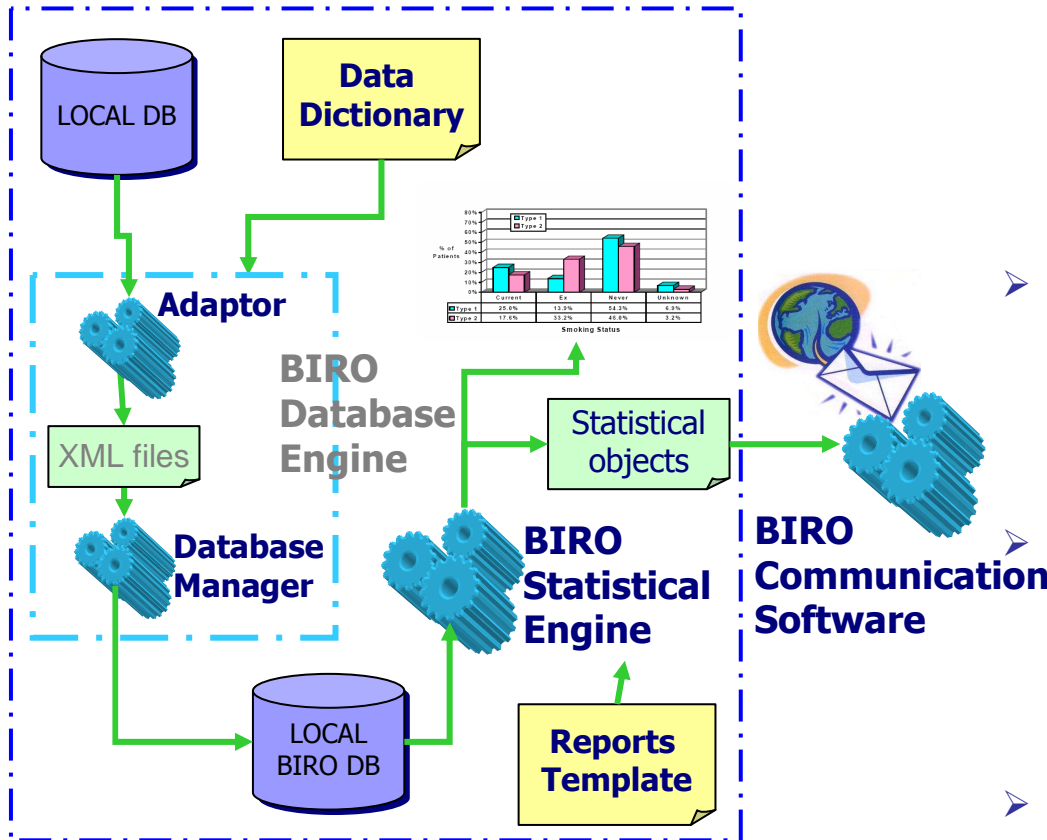# BIRO architecture

BIRO Academy

Region 1

Local Report 1

Central BIRO System

Local BIRO System

Region 3

Local Report 3

Local Report 2

Region 2

Global Report

www.

BIRO Web Portal

EU B.I.R. D

BIRO architecture

Local BIRO System

LOCAL DB

Data Dictionary

Adaptor

BIRO Database Engine

XML files

Database Manager

LOCAL BIRO DB

BIRO Statistical Engine

Statistical objects

Reports Template

BIRO Communication Software

Central BIRO System

CENTRAL BIRO DB

Reports Template

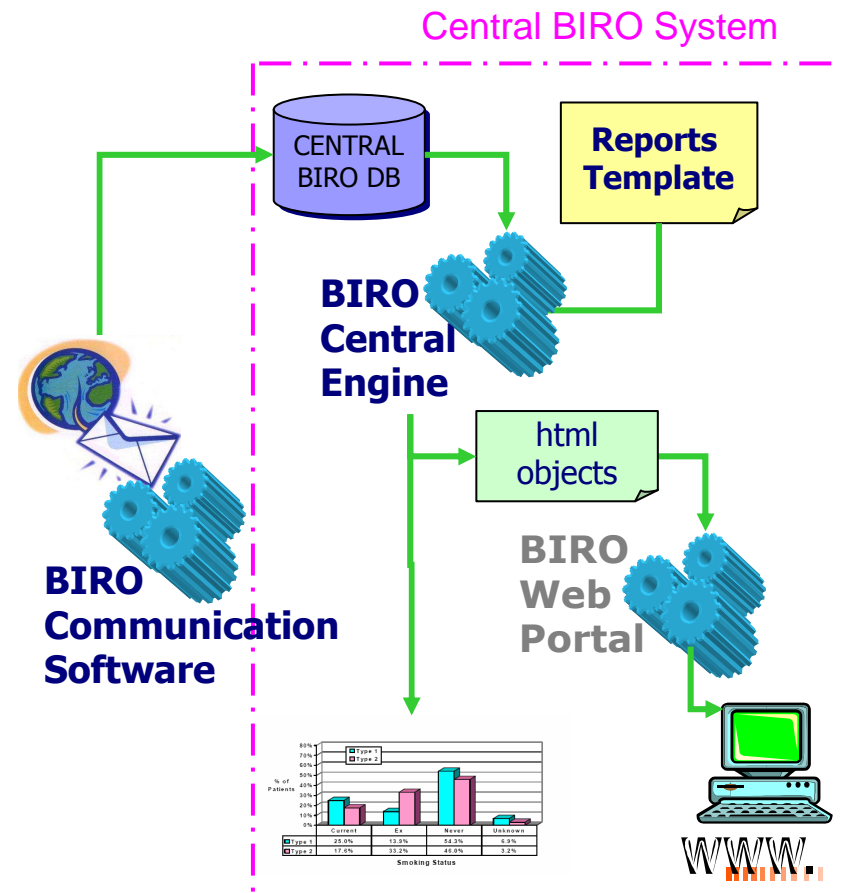**BIRO Central Engine**

html objects

BIRO Web Portal

WWW.

BIRO local system

- ➢ Adaptor establishes a connection with local data source, extracts data and maps them according to Common Dataset. The output is a set of XML files containing all data concerning a single patient clustered by episode date.

- ➢ Extracted data are stored into a BIRO Local DB through the Database Manager in order to provide the following statistical routines with a standard data structure.

- ➢ Statistical Engine uses R and LATEX to produce a PDF local report formatted according Report Template and a set of Statistical Objects to be sent to the Central System.

- ➢ Communication Software sends statistical objects over a secure network which ensures confidentiality, data integrity, authentication

Kuwait City, 2nd-4th May 2009

BIRO central system

Central BIRO System

➤ At the central level Communication Software stores the statistical objects (CSV files) coming from multiple centres into a Central Database

➤ The Central Engine has the same architecture of Statistical Engine but it is able to process aggregated data instead of individual data

➤ As output of the Central Engine we get an overall statistical PDF report compliant with the Reports Template specification

➤ A set of html objects representing tables, maps, histograms etc. is also produced to be published within the BIRO Web Portal

CENTRAL BIRO DB

Reports Template

BIRO Central Engine

html objects

BIRO Communication Software

BIRO Web Portal

WWW.

BIRO system strenghts

➢ **secure** ➔ according to PIA no sensitive individual data are transferred out of the boundaries of the local system but only aggregated data. Communication Software provides all fundamentals of information-security: confidentiality, integrity, authentication

➢ **inexpensive** ➔ only open source tools, Java and R as a main programming languages have been chosen to produce a cost effective solution

➢ **non-invasive**➔ the use of the local BIRO System does not require any change in the way data are gathered locally

➢ **scalable** ➔ it can be potentially used recursively to organize the same network within countries and/or regions