The formalization of cross concepts in statistical registers about units and variables: methods and practical applications in Istat

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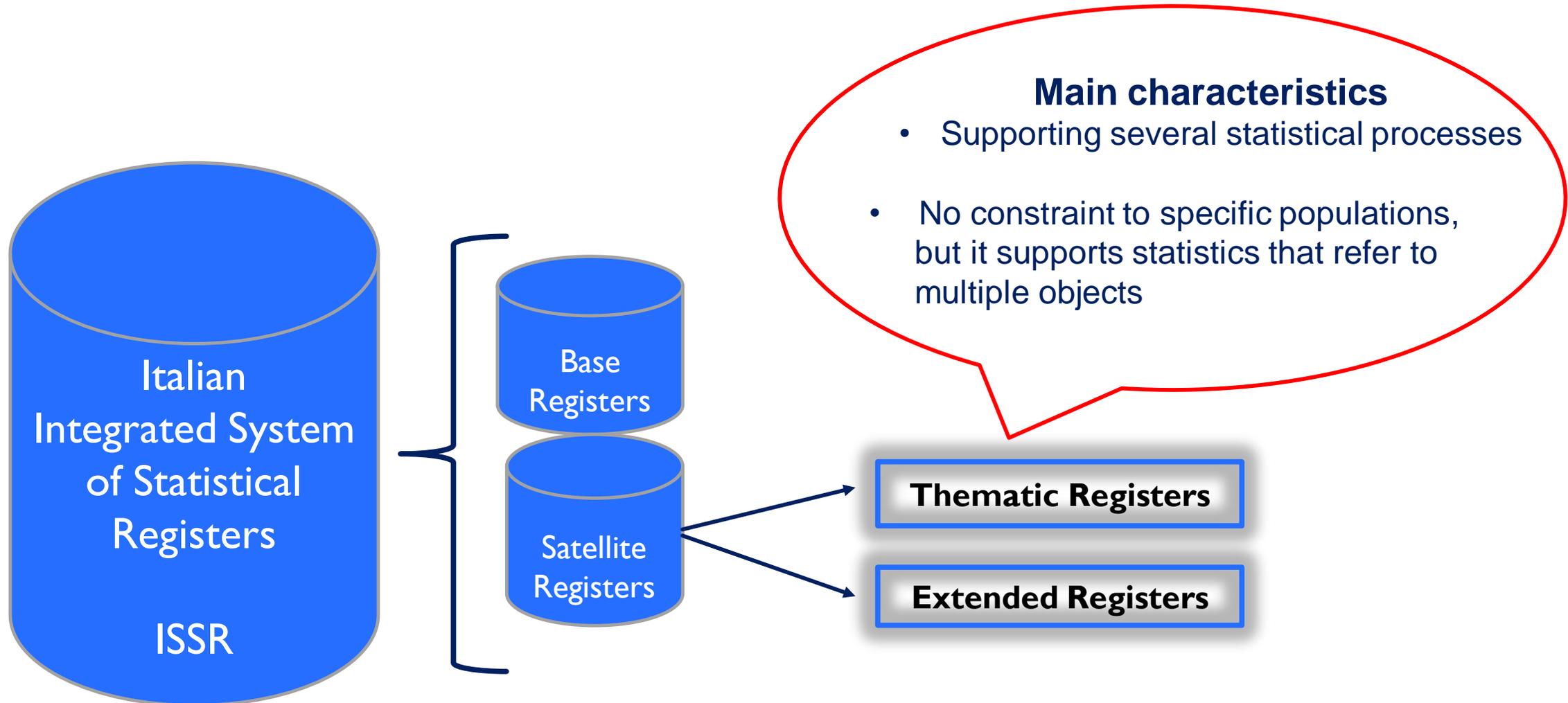
Istat | Italian National Institute of Statistics

Reference framework

Italian Integrated System of Statistical Registers (ISSR) is a **core element** of the Istat Modernization Program
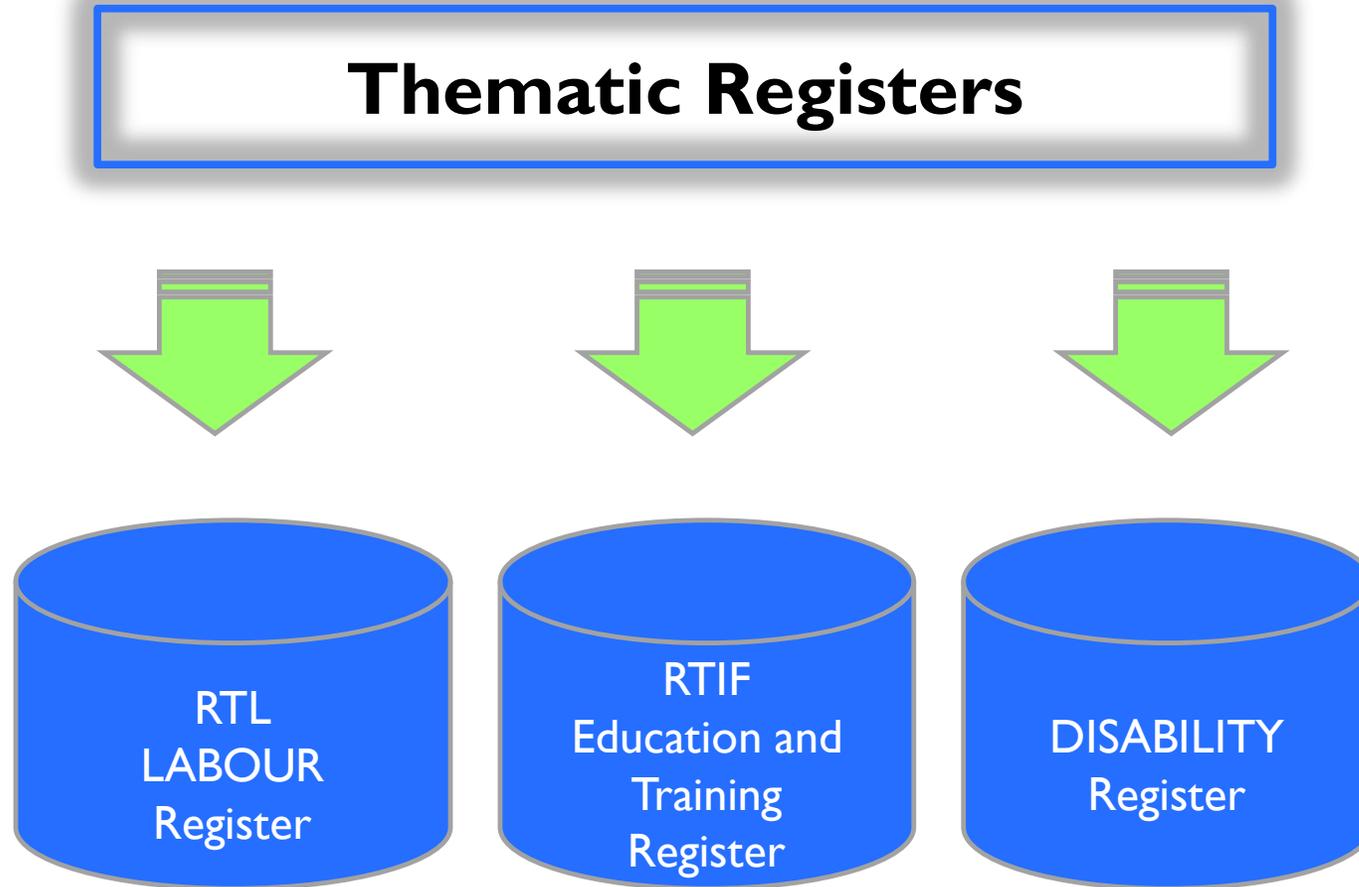
Goals:

➢ **Supporting** the **consistency** of statistical production processes

➢ **Improving** the **quality** of information for users

➢ **Promote** the **centralization** of activities

➢ **Give up** a «**silos**» model of production process

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ISSR organization

Italian Integrated System of Statistical Registers

ISSR

Base Registers

Satellite Registers

Thematic Registers

Extended Registers

Main characteristics
- Supporting several statistical processes
- No constraint to specific populations, but it supports statistics that refer to multiple objects

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Registers actually considered

Thematic Registers

RTL
LABOUR
Register

RTIF
Education and
Training
Register

DISABILITY
Register

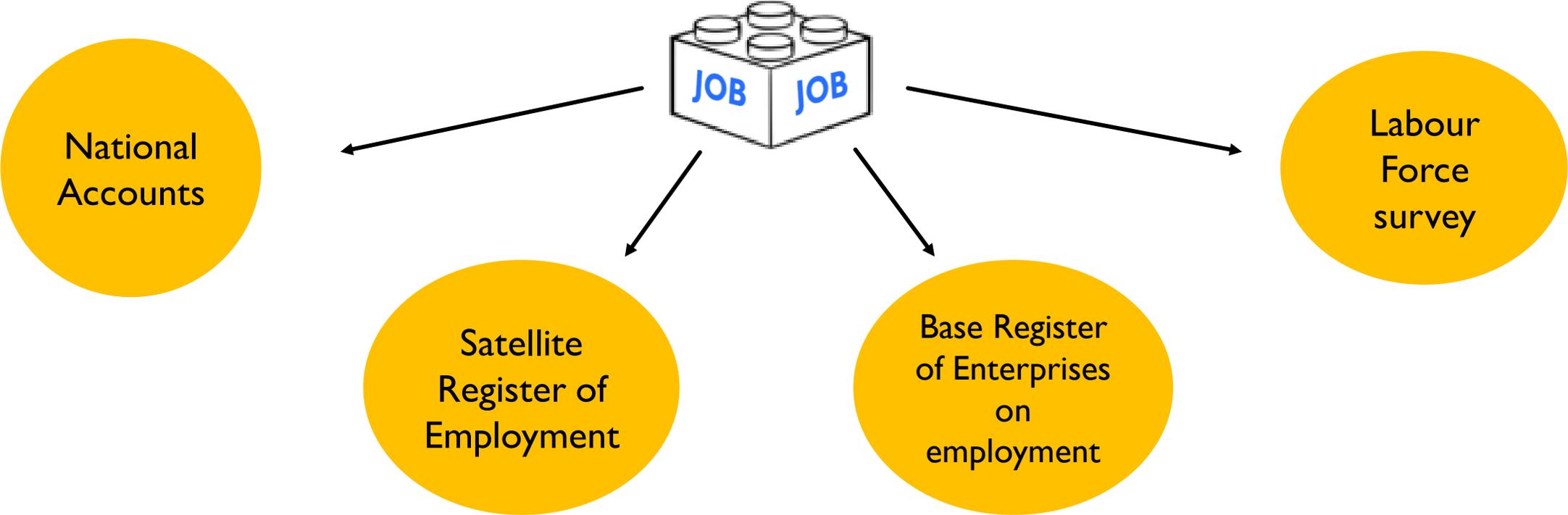Istat

Formalization's steps of cross concepts

1° step: Fix the elementary units (the GSIM conceptual ones) that correspond to the main actors for the register under study

2° step: Fix the main variables with an enumerated value domain that are able to create the populations of interest for each statistical process related to the register

3° Step: Fix the starting time of the relationship between the units of step one

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Use case in the Thematic Labour Registry RTL

The base concept of RTL

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Job in the Thematic Labour Registry RTL

Regulation EU 549/2013 (National Accounts)

A job is defined as an explicit or implicit contract between a person and a resident institutional unit to perform work in return for compensation for a defined period or until further notice

19th International Conference of Labour Statisticians ICLS

A job or work activity is defined as a set of tasks and duties performed, or meant to be performed, by one person for a single economic unit
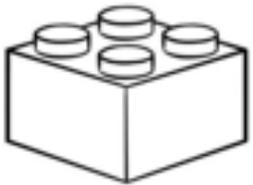
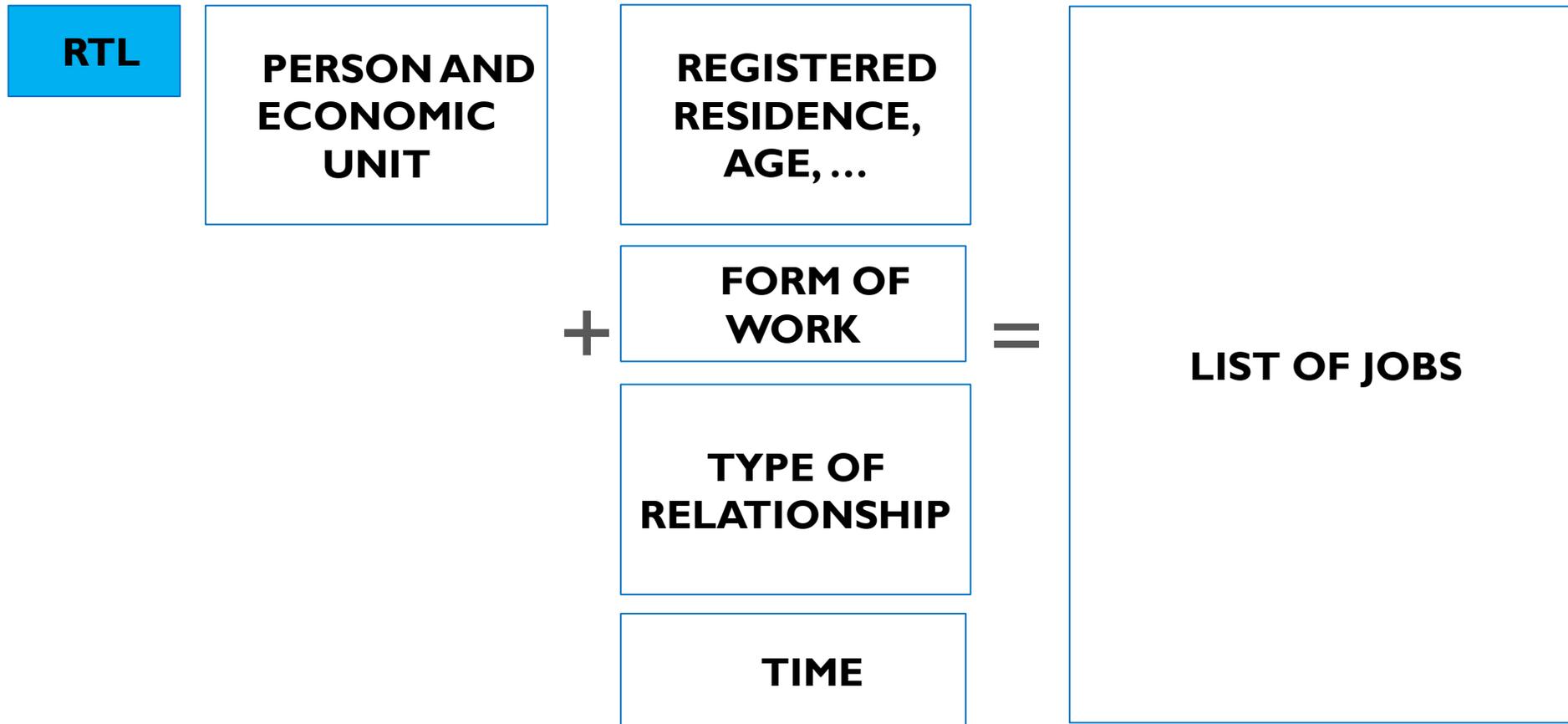**RTL Registry elementary unit: Job**
It is defined as "a relationship between an economic unit and a person having as its object a work activity"

Job in the Thematic Labour Registry RTL

Name	job
Code	POSIZ_LAV
Version	2019
Definition	A relationship between an economic unit and a person having as its object a work activity.
Users	National Accounts Satellite Labour Register RTL Satellite Register of employment Base Register of enterprises on employment (ASIA - Employment) Labor Force Survey
Constraints	The jobs are characterized by the following elements: the subjects involved (person and economic unit), the form of work and the "starting time of the job" (no restrictions are placed on starting time). A further element that differentiates jobs is the regularity or irregularity of the relationship between person and economic unit.

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From UNIT to POPULATIONS through the VARIABLES

ELEMENTARY UNITS	+	VARIABLES	=	JOB

RTL

PERSON AND ECONOMIC UNIT	+	REGISTERED RESIDENCE, AGE, … FORM OF WORK TYPE OF RELATIONSHIP TIME	=	LIST OF JOBS

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Diversification of Job in different processes

National Accounts
- *Person*: residents and non-residents persons who work for economic units regardless other characteristics (i.e. age, citizenship, residence)
- *Economic units*: resident institutional units
- *Regularity*: both regular and irregular jobs
- *Form of work*: occupational job (i.e. unpaid trainee work, volunteer work, scholarship are excluded)

Satellite Labour Register RTL
- *Person*: no restrictions on residence or age
- *Economic units*: no restrictions
- *Regularity*: regular jobs
- *Form of work*: occupational job

Satellite Register of employment
- *Person*: resident and non-resident persons who have carried out an activity on national territory (also temporary labor activities)
- *Economic units*: both resident and non-resident economic units
- *Regularity*: the aim of the register is to estimate the individual's employment status (probability of working) regardless of the relationship is regular or irregular.
- *Form of work*: all type of job

Base Register of enterprises on employment (ASIA - Employment)
- *Person*: both residents and non-residents who work for enterprises, non-profit institutions, public institutions, agricultural companies active in the reference year are considered regardless of other characteristics of the people
- *Economic units*: subset of institutional units defined by enterprises, non-profit institutions, public institutions, agricultural companies, active in the reference year
- *Regularity*: regular jobs deriving from administrative sources.
- *Form of work*: all type of job

Labour Force Survey
- *Person*: persons aged 16 and over belonging to families resident in Italy, (therefore cohabitations are excluded).
- *Economic units*: the economic units are all those with which the persons of the reference universe have a working relationship. They can be both residents and non-residents.
- *Regularity*: both regular and irregular jobs
- *Form of work*: all types of job that provide remuneration in cash or in-kind (i.e. unpaid trainee work, volunteer work, scholarship are excluded).

Guide lines	Each process adapts the concept of JOB according to its needs by defining constraints

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The approach in the Thematic Register of Education and Training (RTIF)

Also in this register a specific base reference unit has been modeled starting from two different units put into relationship. Those units are "person" and "institution that provides training and education". They are defined in a very high level to allow each process to customize it according with its own information needs.
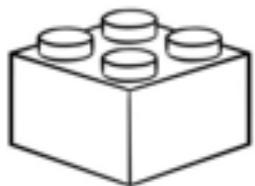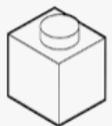
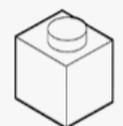**RTIF Registry elementary unit :** Training position
It is defined as "relationship that is established between a person, an institution that provides education and training program over a period of time"
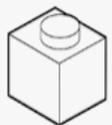
Students
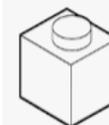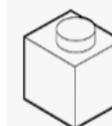
Students in a primary school

Graduate
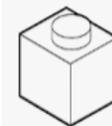
School

University

Course

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Phases of the formalisation process

Identification and selection of the set of concepts for formalisation

Sources analysis and comparison's activities for achieving the meaning that the same concept can have in different context

Finalization of a shared metadata between different experts

Validation and dissemination of the concepts

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Benefits and critical issues

👍 Components valuable for different users and different processes

👍 Unique and shared place with structured information

👍 Standard-aligned conceptualization

👍 Reusability of the information

⚠️ Time-consuming harmonisation process

⚠️ Burden on the production processes involved

⚠️ Big effort in passing the «metadata culture»

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Thank you for attention

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