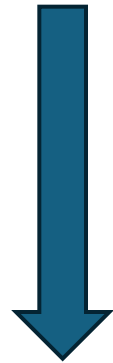


- Data Warehouse = Historical data about events (sells, exports, life-course).
- It has three main design & modelling phases: conceptual design, logical design, physical design (at the database, for implementation purposes).
- Conceptual design of DW is an excellent methodology to conceptualize & design the SPSS.
- Summary of the DW conceptual design (steps to build data marts):
 - 1) Define indicators
Then identify the following elements that allow generate those indicators:
 - 2) Measures
 - 3) Dimensions
 - 4) Granularity
 - 5) Business rules
- Proposal: use the DW conceptual design methodology from the Data Management discipline as tool to conceptualize the SPSS

	Category	Education	Health	Employment & Income	Housing & Living Conditions	Well-being
Conceptual design	Social Outcome	Greater access and equity in education	Improved access and outcomes in health	Labor inclusion and reduction of inequalities	Improved housing quality and access to services	Higher subjective well-being and social cohesion
	Indicators	<ul style="list-style-type: none"> • Net enrollment rate in primary and secondary education • % of youth (15–24) completing secondary • Average years of schooling (25+) 	<ul style="list-style-type: none"> • Infant mortality rate • Vaccination coverage (children under 5) • % of women with ≥4 prenatal checkups 	<ul style="list-style-type: none"> • Labor force participation rate by sex/age • Youth unemployment rate (15–24) • Average monthly household income by quintile 	<ul style="list-style-type: none"> • % of households with access to piped water • % of households in overcrowding (>3 persons/room) • % of dwellings with adequate wall material 	<ul style="list-style-type: none"> • Mean life satisfaction (0–10) • % high life satisfaction (≥7/10) • % reporting frequent loneliness • % with strong social support • Time-use balance index (leisure/care/work hours) • % with poor mental health (screening scale threshold)
	Facts (atomic events/records)	<ul style="list-style-type: none"> • Enrollment of a student in a school year • Completion of a specific education level 	<ul style="list-style-type: none"> • A live birth • An infant death • A vaccination administered • A prenatal checkup 	<ul style="list-style-type: none"> • A person’s labor force status in a reference week (employed, unemployed, inactive) • Reported monthly household income 	<ul style="list-style-type: none"> • A dwelling observed in census/survey • A household’s access to water, electricity, internet • Room count vs. household members (for overcrowding) 	<ul style="list-style-type: none"> • Completed well-being survey response (module/wave) • Time-use diary day for an individual • Social participation event (attendance/association) • Mental-health screening response (e.g., WHO-5/PHQ-2)
	PT<u>E</u>L approach	<ul style="list-style-type: none"> • Educational attainment of an individual 				
	Measures	<ul style="list-style-type: none"> • Number of enrolled persons • Number completing education • Average years of schooling 	<ul style="list-style-type: none"> • Number of infant deaths • Number of children vaccinated • Number of prenatal visits 	<ul style="list-style-type: none"> • Number of employed/unemployed persons • Number in labor force • Total household income 	<ul style="list-style-type: none"> • Number of households with service access • Number of overcrowded households • Number of dwellings by wall material 	<ul style="list-style-type: none"> • Life satisfaction score (0–10) • High-LS flag (0/1, ≥7) • Loneliness flag (0/1 per instrument rule) • Social support score/index • Hours in activities (work/leisure/care) per day • Poor mental-health flag (0/1 by scale cutoff)
	Dimensions	<ul style="list-style-type: none"> • Time (year, quarter) • Age group • Sex 	<ul style="list-style-type: none"> • Time (year, month) • Age group • Sex 	<ul style="list-style-type: none"> • Time (year, quarter, month) • Age group • Sex 	<ul style="list-style-type: none"> • Time (year) • Geographic location (Dept./Locality) • Dwelling type • Service type (water, electricity, internet) • Household size 	<ul style="list-style-type: none"> • Time (year, wave, diary date) • Geography (Dept./Locality) • Age group, Sex • Household type • Socioeconomic quintile • Survey instrument/wave • Activity category (time-use) • Participation type
	PT<u>E</u>L approach	<ul style="list-style-type: none"> • Geographic location (Dept./Locality) • Education level 	<ul style="list-style-type: none"> • Geographic location • Health event type (birth, death, consultation) 	<ul style="list-style-type: none"> • Geographic location • Economic activity status • Income quintile 		
Granularity	Individual person by school year and education level in a given locality	Individual (child/mother) with health event recorded per year and location	Individual in working-age population with labor status in reference period	Individual dwelling/household with characteristics at locality level	Person-response per survey wave (and person-day for time-use), tied to residence locality	
Business Rules	<ul style="list-style-type: none"> • Age groups in 5-year bands (0–4, 5–9, ..., 80+) • Education level based on ISCED classification • Enrollment defined by official school records 	<ul style="list-style-type: none"> • Infant mortality: deaths <1 year per 1,000 live births • Vaccination = full schedule by national calendar • Prenatal coverage = ≥4 visits during pregnancy 	<ul style="list-style-type: none"> • Employment/unemployment defined by ILO standards • Income expressed in local currency, adjusted for inflation • Youth = 15–24 years old 	<ul style="list-style-type: none"> • Overcrowding = >3 persons per bedroom • Access to services = formal connection (meter/contract) • Adequate wall material defined by census classification 	<ul style="list-style-type: none"> • Life satisfaction 0–10; high LS ≥7 unless otherwise stated • Loneliness “often/always” (harmonized to binary) • Social support per instrument (e.g., ESS/Gallup) normalized to 0–100 • Poor mental health per scale cutoff (e.g., WHO-5 ≤50) • Reference pop: persons 15+ unless specified • Apply survey weights & nonresponse adjustments; suppress small cells; document instrument versions for comparability 	
Physical design	Dimension and fact tables	Not included into the CF-SPSS				



Category	Education
Social Outcome	Greater access and equity in education
Indicators	<ul style="list-style-type: none">• Net enrollment rate in primary and secondary education• % of youth (15–24) completing secondary• Average years of schooling (25+)
Facts (atomic events/records)	<ul style="list-style-type: none">• Enrollment of a student in a school year• Completion of a specific education level
PT<u>E</u>L approach	<ul style="list-style-type: none">• Educational attainment of an individual
Measures	<ul style="list-style-type: none">• Number of enrolled persons• Number completing education• Average years of schooling
Dimensions	<ul style="list-style-type: none">• Time (year, quarter)• Age group• Sex
PT<u>E</u>L approach	<ul style="list-style-type: none">• Geographic location (Dept./Locality)• Education level
Granularity	Individual person by school year and education level in a given locality
Business Rules	<ul style="list-style-type: none">• Age groups in 5-year bands (0–4, 5–9, ..., 80+)• Education level based on ISCED classification• Enrollment defined by official school records