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Dipartimento di Studi Sociali

Methodologies to integrate subjective and objective information to build well-being indicators

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Introdution

Measuring social phenomena

⇩

different conceptual frameworks

⇩

based upon a comprehensive approach

⇩

integration between

objective and **subjective** information is needed

Introdution

Each aspect → reduction of the reality

Necessity to integrate the two “realities”

Integration requires definition of:

- **a proper conceptual framework**
- **a proper measurement model**
- **a consistent approach to manage the complexity**

Defining the conceptual framework

Defining the measurement model

Managing the complexity of the model

1.

Defining the conceptual framework

Defining the measurement model

Managing the complexity

Defining the conceptual framework

Objective dimensions

Micro level	**Demographic and socio-economic characteristics**	- **sex** - **age** - **civil/marital status** - **household** - **educational qualification**	- **occupation** - **geographical mobility (birthplace / residence / domicile)** - **social mobility (original family status)**
	Observable acquired knowledge	- **skills** - **cognition**	- **know-how** - **competences**
	Individual living conditions (resources)	- **standards of living** - **financial resources (income)** - **housing**	- **working and professional conditions and status** - **state of health**
	Social capital	- **social relationships** - **freedom to choose one's lifestyle**	
	Observable behaviours and life style	- **activities (work, hobby, vacation, volunteering, sport, shopping, etc.)**	
		- **engagements (familiar, working, social, etc.)**	
		- **habits (schedule, using of public transport and of means of communication, diet, etc.)**	
		- **public life (participation, voting, etc)**	

Defining the conceptual framework

Objective dimensions

Macro level	**Structure of societies**	**Social conditions**	**Social exclusion**	**Disparities, equalities/inequalities, opportunities**
			Social inclusion	**Informal networks, associations and organisations and role of societal institutions**
		Political setting	**Human rights, democracy, freedom of information, etc.**	
		Institutional setting	**Educational system**	
			Health system	
			Energy system	
		Economical setting	**Income distribution, etc.**	
	Environmental conditions			
	Decisional and institutional processes			

Defining the conceptual framework

Subjective dimensions

Micro level	**Abilities / capacities**	**intellectual**	- **verbal comprehension and fluency** - **numerical facility** - **reasoning (deductive and inductive)** - **ability to seeing relationships**	- **memory (rote, visual, meaningful, etc.)** - **special orientation** - **perceptual speed**
		special	- **mechanical skills** - **artistic pursuits**	- **physical adroitness**
	Personality traits	- **social traits** - **motives**	- **personal conceptions** - **adjustment**	- **personality dynamics**
	Sentiments	**Interests and preference**		
		Values		
		Attitudes	**cognitive → evaluations (beliefs, evaluations opinions)**	
			affective → perceptions (satisfaction and emotional states – i.e., happiness)	
			behavioural intentions	

Defining the conceptual framework

Relationships between subjective and objective components

(A)

Objective → descriptive / background components
Subjective → evaluative

Defining the conceptual framework

Relationships between subjective and objective components

"Comparison" approach

Subjective well-being

↓

comparison between individual conditions and actual or ideal standards

- the smaller the perceived gap
- the higher the subjective well-being

- **through** different comparators
- **with reference** to different ambits (housing, work, family, friends, etc.).

Defining the conceptual framework

Relationships between subjective and objective components

Multiple discrepancies approach

Subjective well-being

↓

perceived gap between

what one has wants

what

others have

one has had in the past

one expected to have

one expected to deserve

expected with reference to needs

happiness → not dependent on living conditions

Defining the conceptual framework

Relationships between subjective and objective components

(B)

Disposition approach

Subjective well-being

↓

stable individual characteristics

(personality traits)

Defining the conceptual framework

Relationships between subjective and objective components

(C)

Causal approach

Subjective well-being → "reactive state" to the environment

↓

bottom-up

The sum of the reactive measures for the defined ambits allows subjective well-being to be quantified

Defining the conceptual framework

Relationships between subjective and objective components

(C)

Causal approach

Subjective well-being → depends on individual stable traits

↓

top-down

Defining the conceptual framework

Relationships between subjective and objective components

(C)

Causal approach

Subjective well-being

↓

Two components :

- a long-period component (top-down effect),
- a short-period component (bottom-up effect)

↓

up-down

2.

Defining the conceptual framework

Defining the measurement model: developing indicators

Managing the complexity of the model

Developing the indicators

HIERARCHICAL DESIGN

CONCEPTUAL MODEL

↓

AREAS TO BE INVESTIGATED

↓

LATENT VARIABLES

↓

ELEMENTARY INDICATORS

Developing the indicators

COMPONENT	THE QUESTION TO BE ANSWERED	DEFINITION OF THE COMPONENT
CONCEPTUAL MODEL	Phenomena to be studied	defines the **phenomenon** to be studied, the domains and the general aspects characterizing the phenomenon ↓ **Process of abstraction**
↓ **AREAS/PILLARS TO BE INVESTIGATED**		
↓ **LATENT VARIABLES**		
↓ **ELEMENTARY INDICATORS (E.I.)**		

Developing the indicators

COMPONENT	THE QUESTION TO BE ANSWERED	DEFINITION OF THE COMPONENT
CONCEPTUAL MODEL		
↓		
AREAS/PILLARS TO BE INVESTIGATED	⇨ Aspects defining the phenomenon	⇨ Each area represents each **aspect** allowing the phenomenon to be specified consistently with the conceptual model
↓		
LATENT VARIABLES		
↓		
ELEMENTARY INDICATORS (E.I.)		

Developing the indicators

COMPONENT	THE QUESTION TO BE ANSWERED	DEFINITION OF THE COMPONENT
CONCEPTUAL MODEL		
↓		
AREAS/PILLARS TO BE INVESTIGATED		
↓		
LATENT VARIABLES	⇨ Elements to be observed	⇨ Each variable represents each **element** that has to be observed in order to define the corresponding area. The variable is named **latent** since is not observable directly
↓		
ELEMENTARY INDICATORS (E.I.)		

Their definition requires:

- theoretical assumptions (dimensionality)
- empirical statements

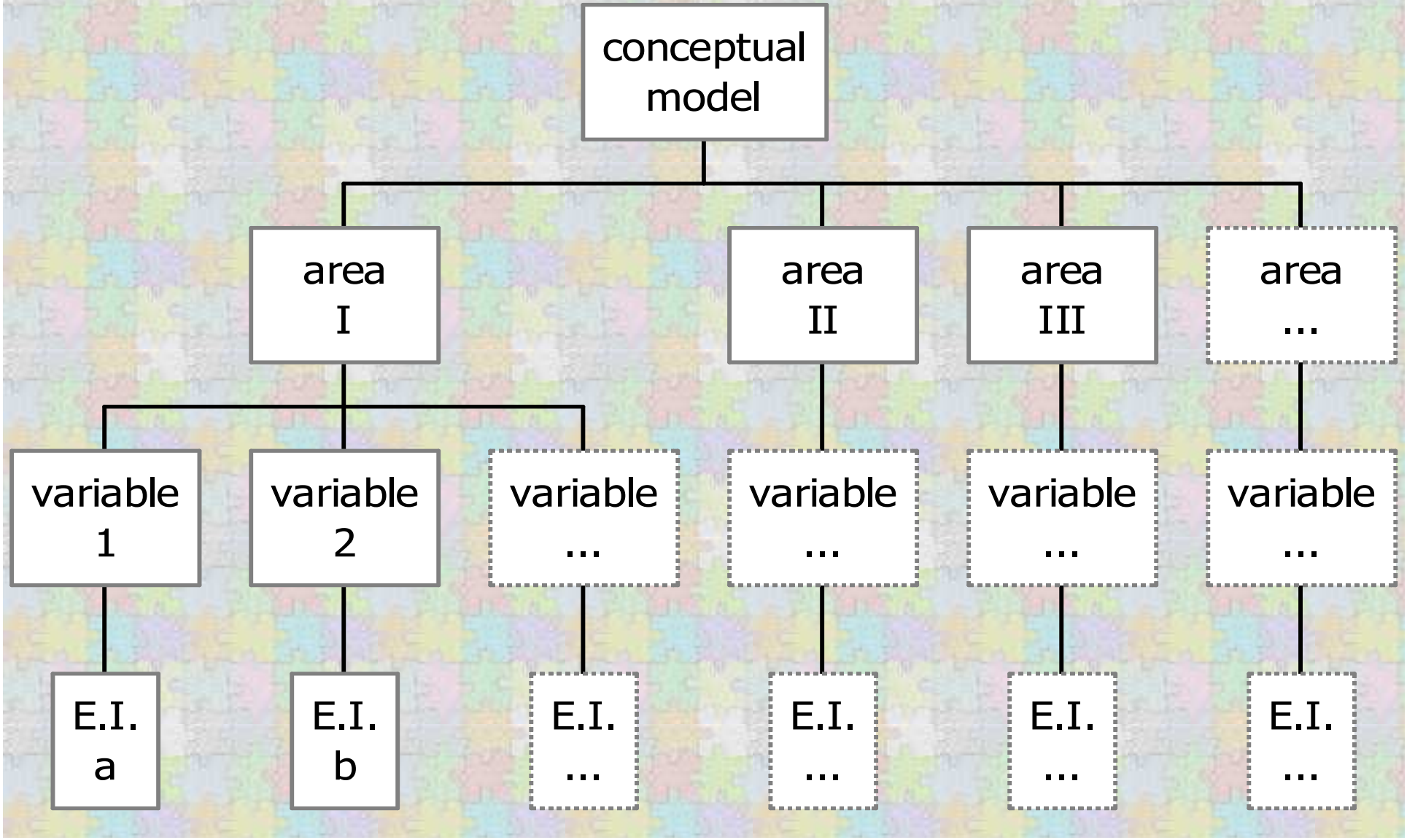
Developing the indicators

COMPONENT	THE QUESTION TO BE ANSWERED	DEFINITION OF THE COMPONENT
CONCEPTUAL MODEL		
↓		
AREAS/PILLARS TO BE INVESTIGATED		
↓		
LATENT VARIABLES		
↓		
ELEMENTARY INDICATORS (E.I.) ⇨	In which way each element has to be measured ⇨	Each indicator (item, in subjective measurement) represents **what is actually measured** in order to investigate each variable.

They are defined by:

- appropriate techniques
- a system allowing observed values to be interpreted and evaluated

Developing the indicators



Developing the indicators

Definition of relationships between

- latent variables and corresponding indicators ⇒ **model of measurement**
- latent variables

Developing the indicators

Two different conceptual approaches:

- models with **reflective** indicators
- models with **formative** indicators

Developing the indicators

Models with reflective indicators

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indicators → ***functions of the latent variable***

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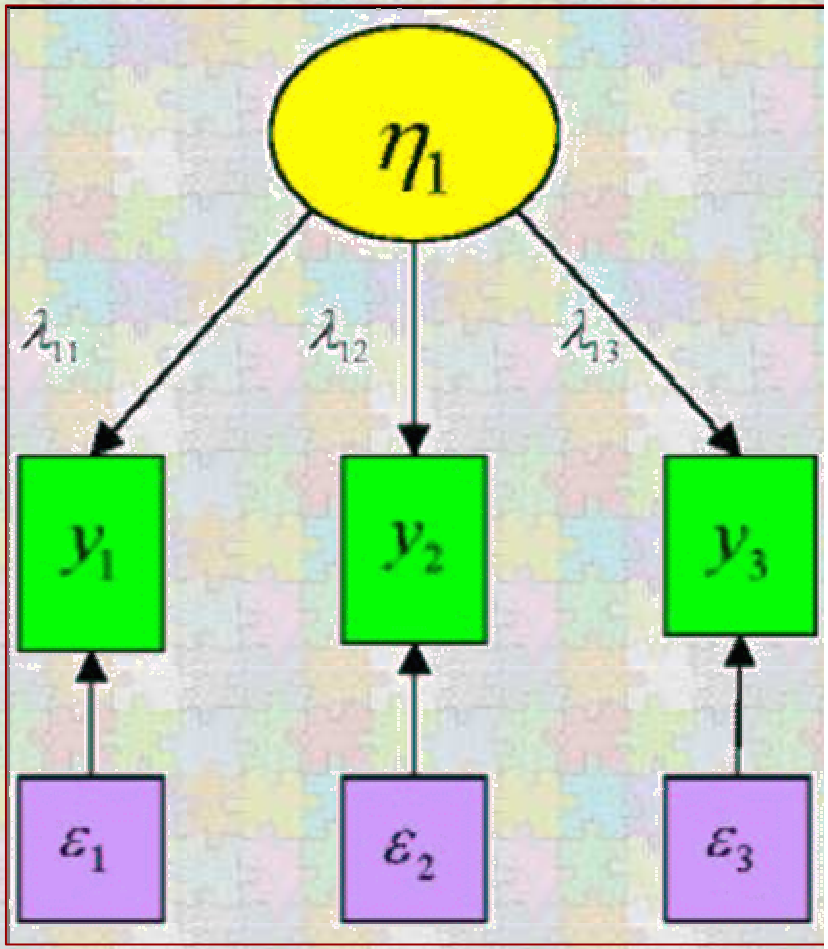
changes in the latent variable are reflected in changes in the observable indicators



top-down explanatory approach

Developing the indicators

Models with formative indicators

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indicators → ***causal in nature***

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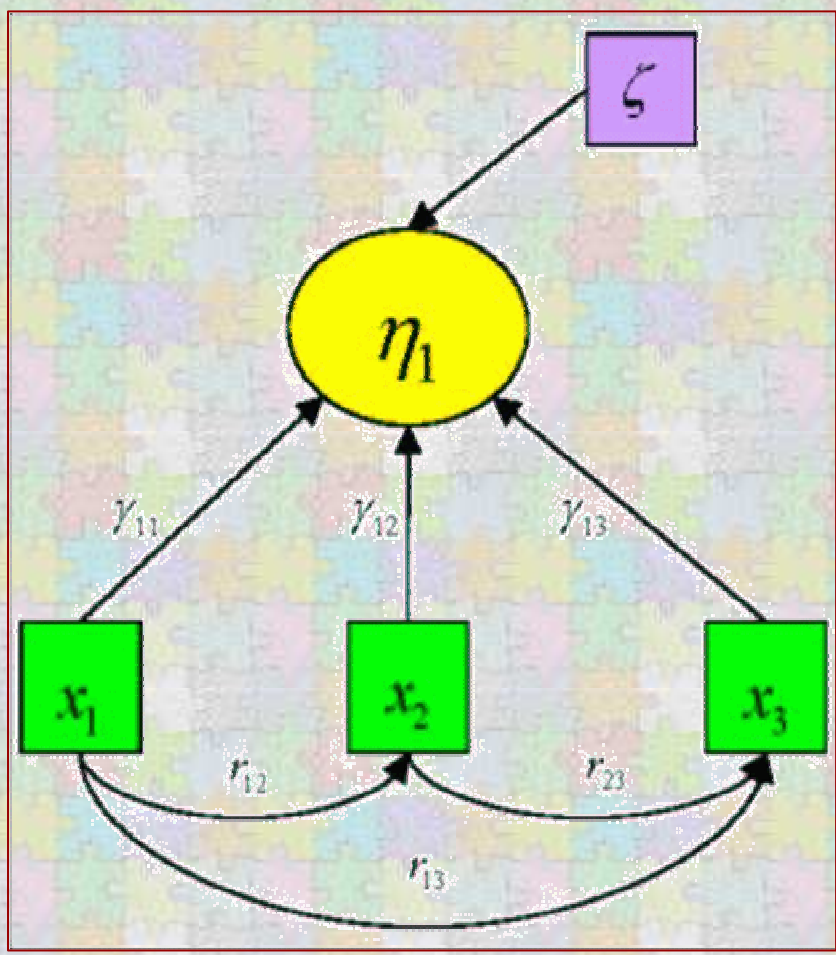
changes in the indicators determine changes in the definition / value of the latent variable

bottom-up explanatory approach



3.

Defining the conceptual framework

Defining the measurement model

Managing the complexity of the model

Managing the complexity

Consistent application of the hierarchical design produces a **complex** data structure.

The complexity refers to

three data dimensions

to be managed

Managing the complexity

- ***Elementary Indicators***

  (several indicators for each variables)

- observed ***Cases/Units***

  (several units for each observation)

- ***Variables***

  (several variables are defined)

Managing the complexity

each data dimension may require a particular treatment

⇩

strategy to manage the complexity

⇩

***multi-stage multi-technique* approach**

Managing the complexity

GOALS

A. Reducing data structure by

i. ***construction of synthetic indicators*** **(aggregating elementary indicators)**

ii. ***definition of macro-units*** **(aggregating micro-units)**

B. Integrating components by

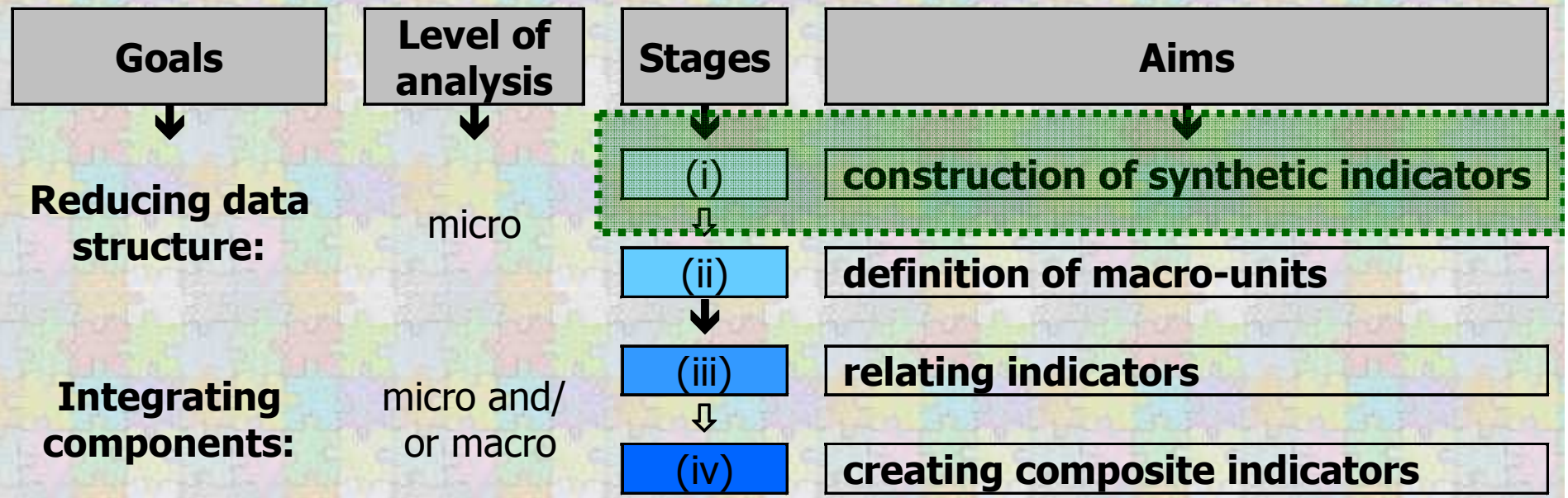
iii. ***relating indicators*** **(proper analytical approaches)**

iv. ***creating composite indicators***

Managing the complexity

Goals	Level of analysis	Stages	Aims	by	Analytical issues
Reducing data structure:	micro	(i)	**construction of synthetic indicators**	aggregating elementary indicators	From elementary indicators to synthetic indicators - Reflective approach - Formative approach
		(ii)	**definition of macro-units**	aggregating observed units	From micro units to macro units, by following - homogeneity criterion - functionality criterion
Integrating component s:	Micro and/ or macro	(iii)	**relating indicators**	proper analytical approaches	Different solutions (consistently with conceptual framework)
		(iv)	**creating composite indicators**	integrating / merging information	Difficulties in merging information very different from each other (e.g. objective and subjective)

Managing the complexity



Managing the complexity

two different criteria

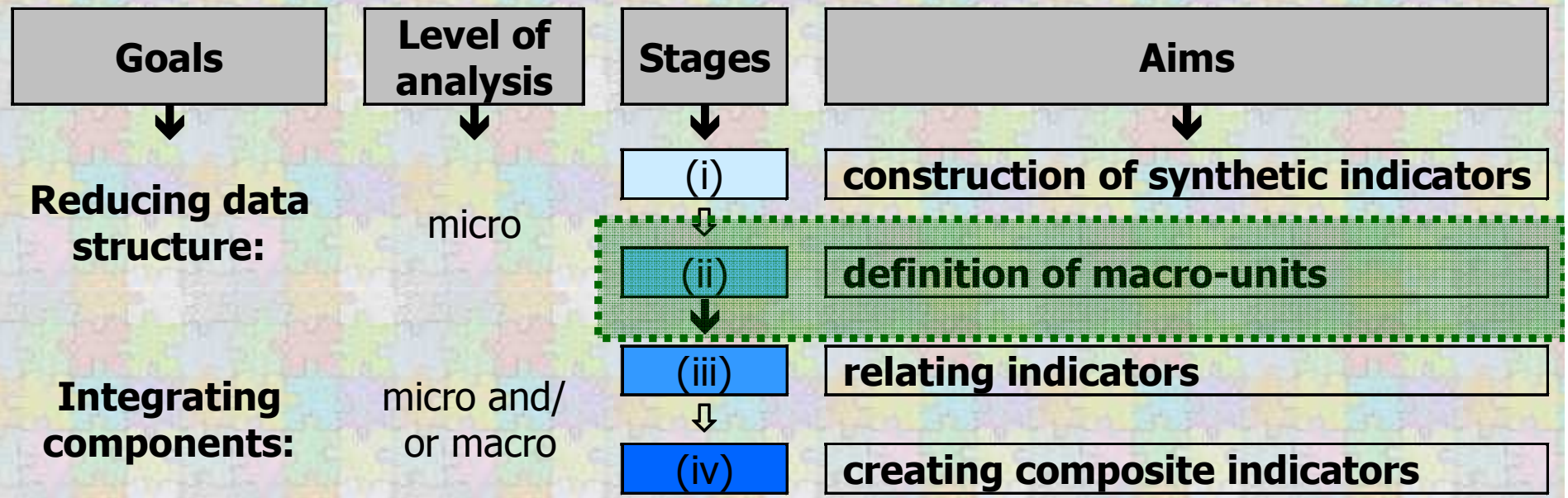
reflective ⟷ formative

analytical reference

↓ ↓

common factor analysis ⟷ principal component analysis

Managing the complexity



Managing the complexity

Aggregation of cases/units is required in order to lead information to be analysed at the same level

		LEVEL of observation	
		Micro	Macro
INFORMATION	objective	individual living conditions	population or territory information
	subjective	subjective well-being	*aggregation*

Managing the complexity

Objective information

a. **Compositional**

e.g. proportion of people living in poverty

b. **Contextual**

not observable at individual level

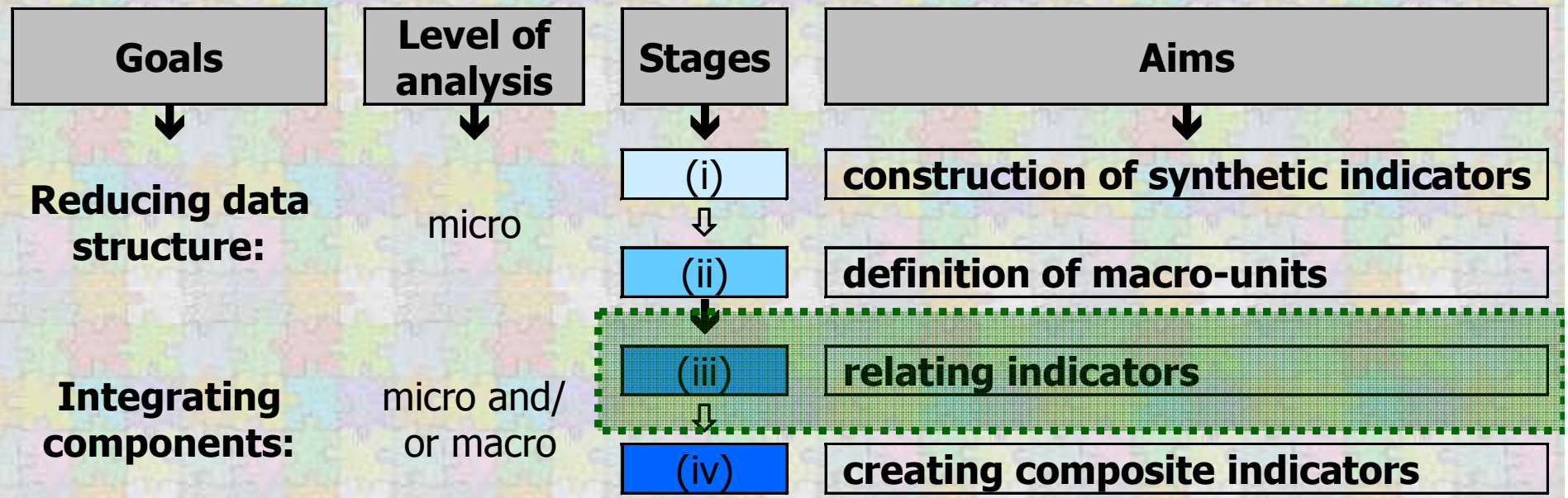
Managing the complexity

- **Subjective information**

a. Aggregation through **homogeneity** criterion (typologies) ⇒ analytical approaches

b. Aggregation through **functionality** criterion (areas, …) ⇒ analytical approaches?

Managing the complexity



Managing the complexity

- Structural models approach
- Multi-level approach
- Life-course perspective
- Bayesian networks approach
- …
- ???

Managing the complexity

Structural models approach

OBJECTIVE → testing and estimating causal relationships using a combination of statistical data and qualitative causal assumptions

PROS → estimation of reliability of measurement and, consequently, structural relations between latent variables

CONS → strong acceptance of the direction of the relation between objective and subjective indicators is required

Managing the complexity

Multi-level approach

OBJECTIVE → simultaneous analysis of outcomes in relation to determinants measured at different levels

PROS → description of relationships between subjective well-being ("outcome" variable), individual objective characteristics (micro-level living conditions), and territorial characteristics (macro-level living conditions)

CONS → strong assumption is required: people living in the same territory share the same macro-level living conditions that contributes - together with the micro-level living conditions - to subjective well-being

Managing the complexity

Life-course perspective

OBJECTIVE → status at any given individual state (age, sex, marital status) not only reflecting contemporary conditions but also embodying prior living circumstances

PROS → possibility to study people's developmental trajectories (environmental and social) over time, by considering also the historical period in which they live, in reference to their society's social, economic, political, and ecological context

CONS → difficulty to obtain detailed and consistent individual longitudinal data and by the complexity of managing, analysing, and modelling this kind of data

Managing the complexity

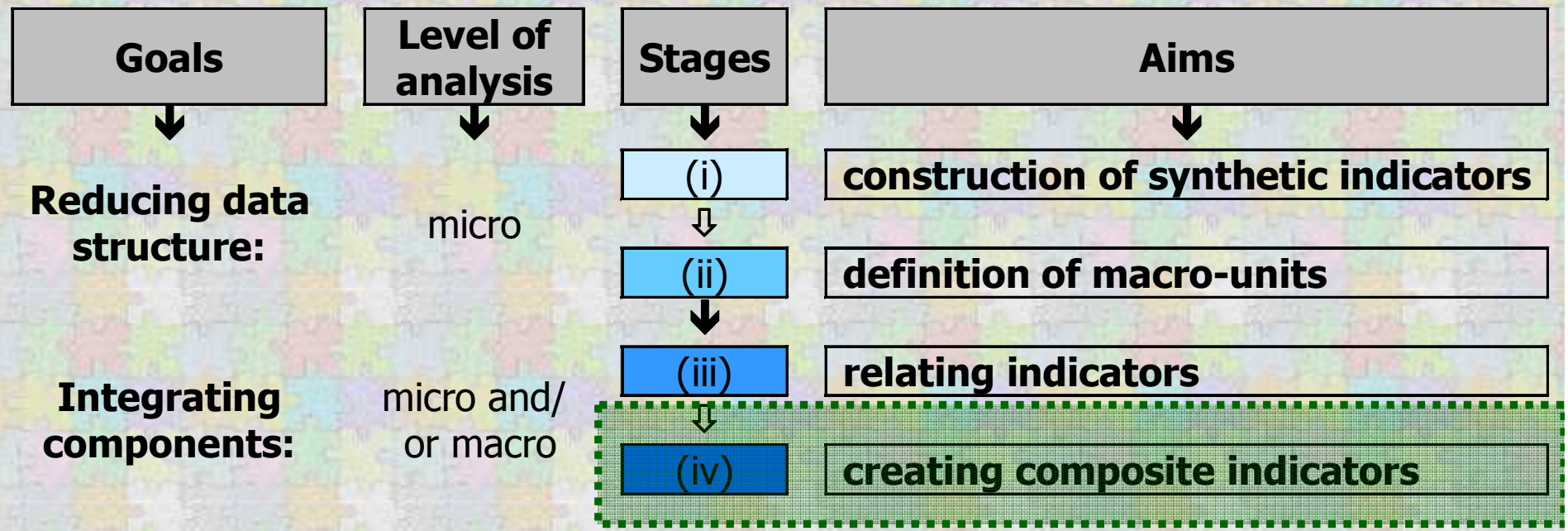
Bayesian networks approach

OBJECTIVE → …

PROS → …

CONS → …

Managing the complexity



Managing the complexity

OBJECTIVE → aggregation of different indicators in a unique value referring to each unit of interest

PROS → manageability of the obtained results

CONS → conceptual, interpretative and analytical problems of the obtained aggregation

Managing the complexity

The construction requires techniques aimed at

1. verifying the **dimensionality** of elementary indicators (***dimensional analysis***)
2. defining the **importance** of elementary indicators (***weighting criteria***)
3. identifying the **aggregating technique** (***aggregating-over-indicators techniques***)

Managing the complexity

The construction requires techniques aimed at

4. assessing the **robustness** of the synthetic indicator → correct and stable measures (***uncertainty analysis, sensitivity analysis***)
5. assessing the **discriminant capacity** of the synthetic indicator (*ascertainment of selectivity* and *identification of* ***cut-point*** *or* ***cut-off*** *values*)

Conclusion

Integrating objective and subjective information is an **important** issue from

- ✓ the conceptual perspective
- ✓ the methodological perspective
- ✓ the policy perspective

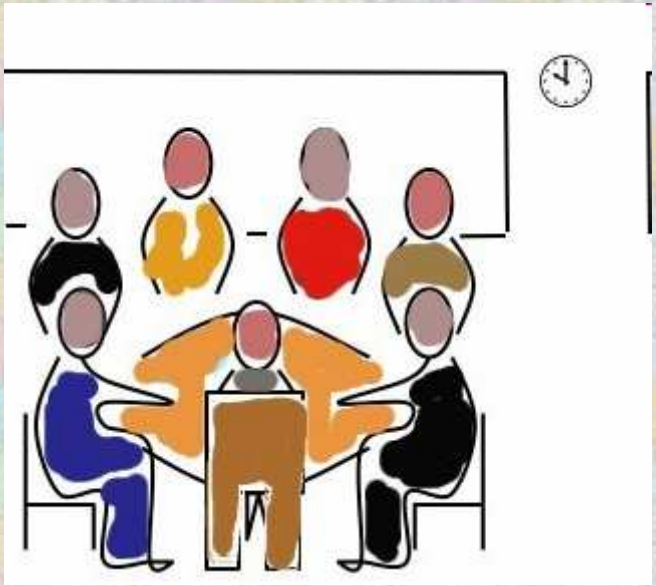
Conclusion

Integrating objective and subjective information is an **difficult** issue

- ✓ from the conceptual point of view
- ✓ from the methodological point of view
- ✓ because of data availability at different levels

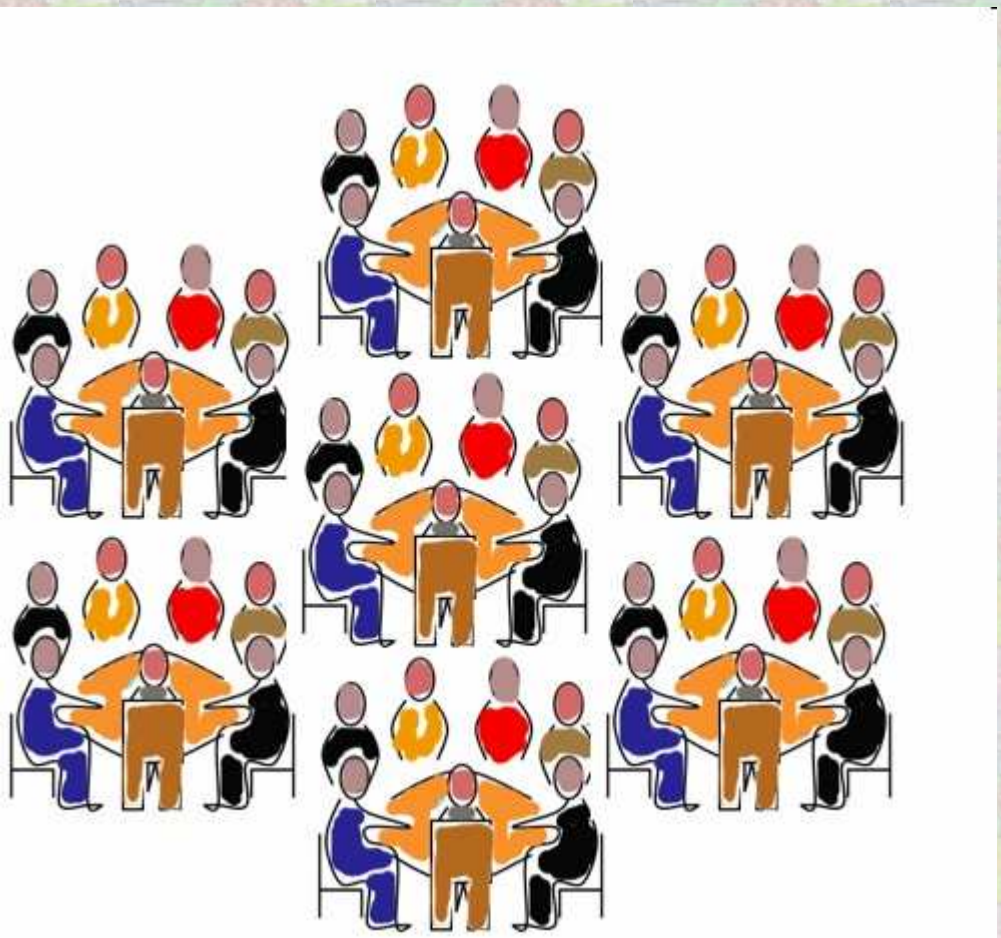
Conclusion

Need of more work ….



Conclusion

Need of more work ….



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Thank you for your attention