

# Developing practices for supporting EIA with Multi-Criteria Decision Analysis (MCDA)

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# IMPERIA Project

"Improving environmental assessment by adopting good practices and tools of MCDA"

This presentation:  
"Opportunities of MCDA to support EIA"



# Premises of the IMPERIA Project

**Practitioners**

**Need to  
improve  
consistency and  
transparency  
of EIA**



**MCDA Experts**

**Structured  
approach of  
MCDA**

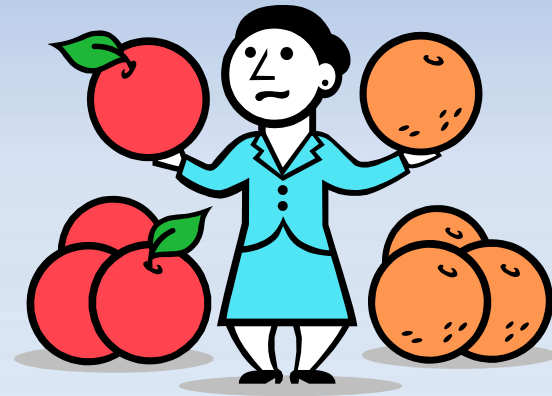
# Structured view with MCDA model

Facts

Values



+






# Traditional holistic comparison



Criteria: Price, color, speed, ...

# Structured analysis of MCDA

Criteria			
Price	\$35k	\$25k	\$30k
Color	Good	Bad	Very good
Speed	150mph	100mph	130mph
⋮			
Overall Score	93	87	96

# Advantages of MCDA

Learning of the  
problem

Identification of trade-offs  
of different stakeholders

Systematic structuring  
of objectives

Transparent assessment  
of alternatives

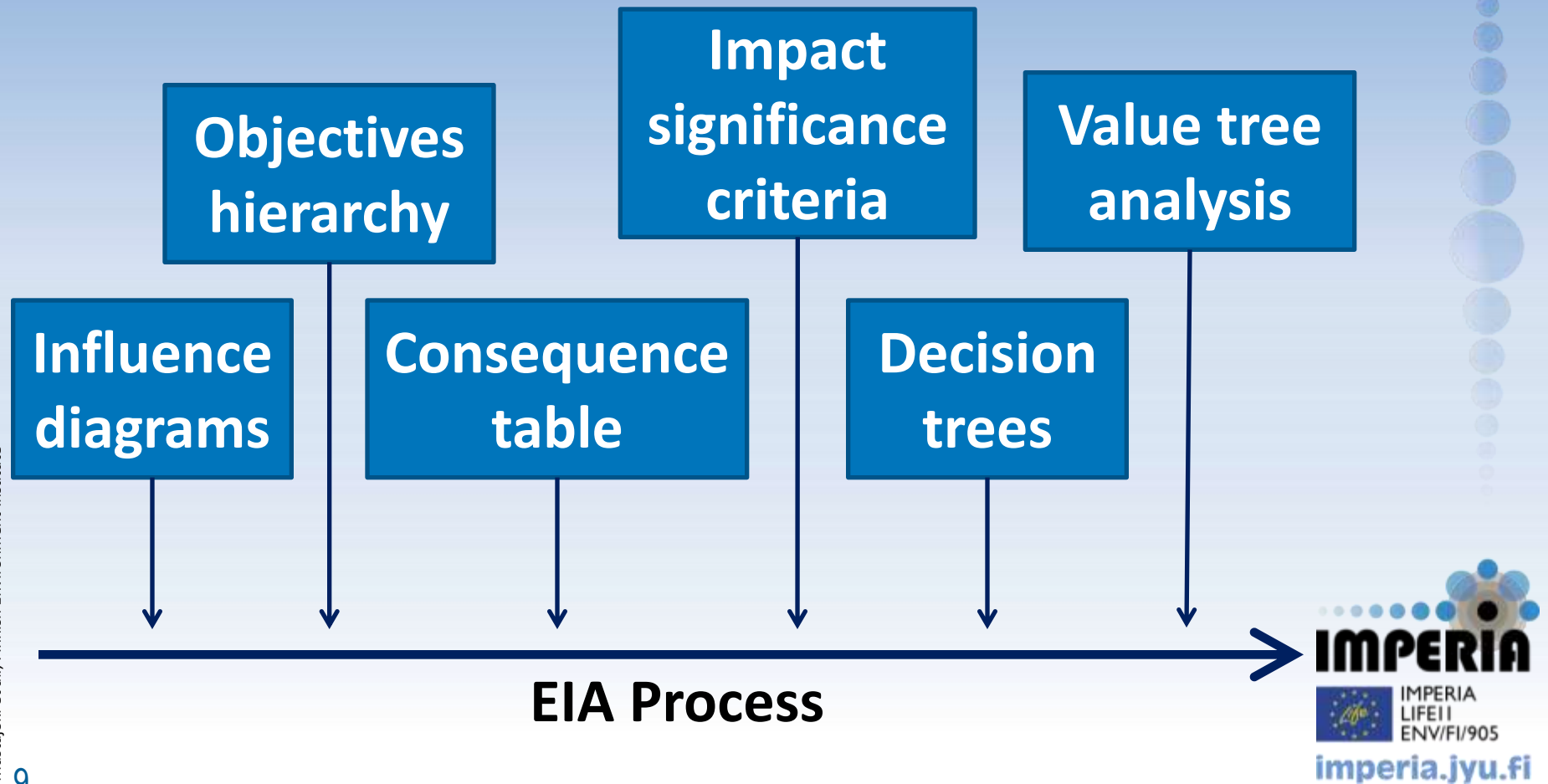
Accommodation of  
incommensurable effects

# MCDA in short...

Divide  
and  
conquer



# Various MCDA tools available to support EIA process



# Opportunities of MCDA to support EIA

Potential areas of MCDA identified in **IMPERIA**:

1. Initial scoping of the impacts
2. Impact significance assessment
3. Stakeholder participation
4. Evaluation of alternatives

# 1. Support for initial scoping of the impacts with objectives hierarchy

Wind power example

Impacts to be assessed

Impacts to nature

Impacts to human well-being

Impacts to societal objectives and land use

**Birds**

Other fauna

Flora

**Natura 2000**

Water bodies

Ground and bedrock

**Health values**

**Recreational activities**

**Community economy**

Cultural environment

**CC mitigation objectives**

Land use

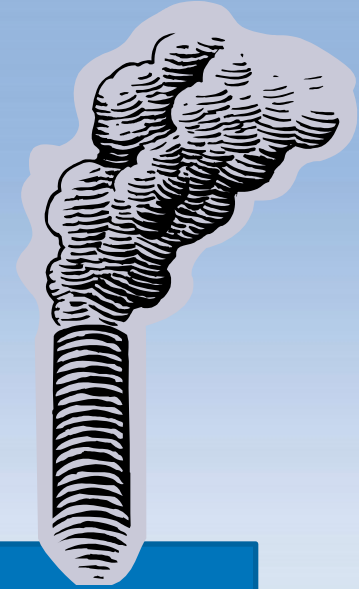
**Image**

**IMPERIA**

IMPERIA  
LIFE11  
ENV/FI/905

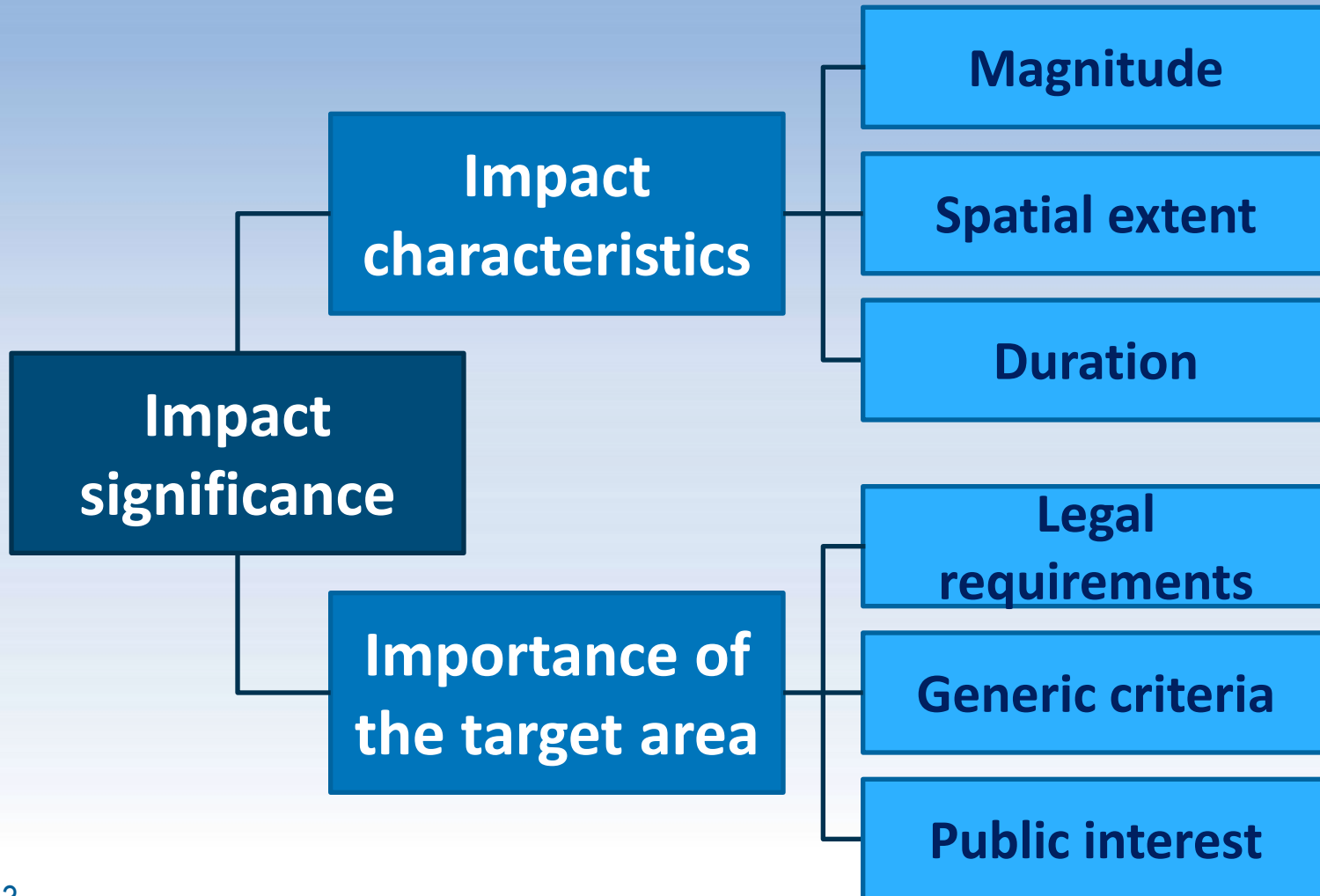
imperia.jyu.fi

## 2. Support for impact significance assessment



“How large impact is significant?”

# Structured MCDA framework for impact significance assessment

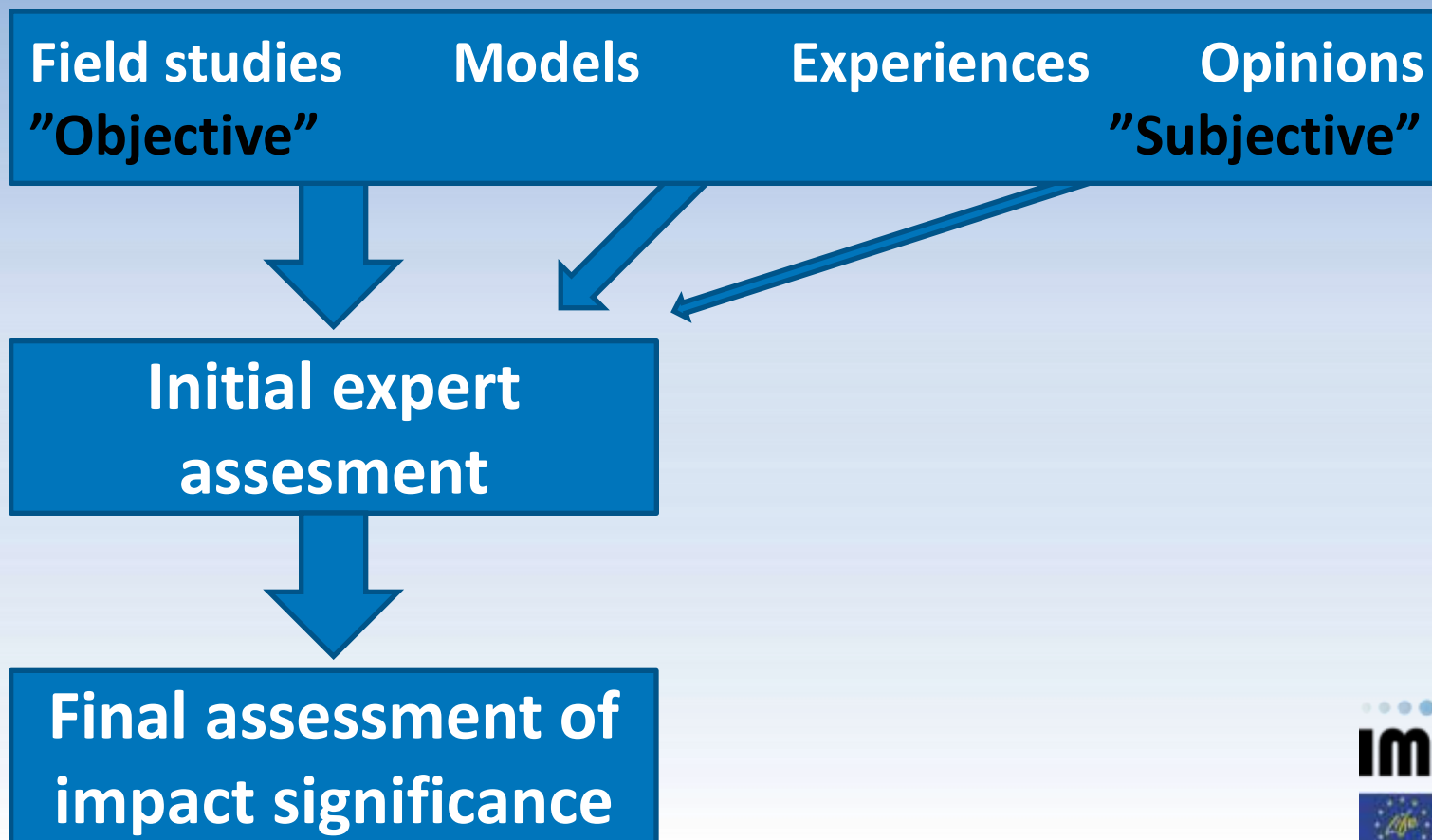


# IMPERIA tool for impact significance assessment

		Alternative 1									
		Significance			Direction	Impact magnitude		Hide		Magnitude	Spatial e
		Overall estimate	Suggestion	Estimate		Suggestion					
8	<b>Impacts on nature</b>						Small - - - - - Large				
9	Birds	- Small	- Small	↓	- Small	█ _ _ _			Small	Local	
10	Local										
11	Migratory										
19	Mammals	-- Medium	-- Medium	↓	--- Large	█ █ █ █ █			Large	National	
20	Game										
21	Other										
23	Plants	- Small	- Small	↓	- Small	█ █ █ █ █ _ _			Small	Areal	
24	Natura 2000										

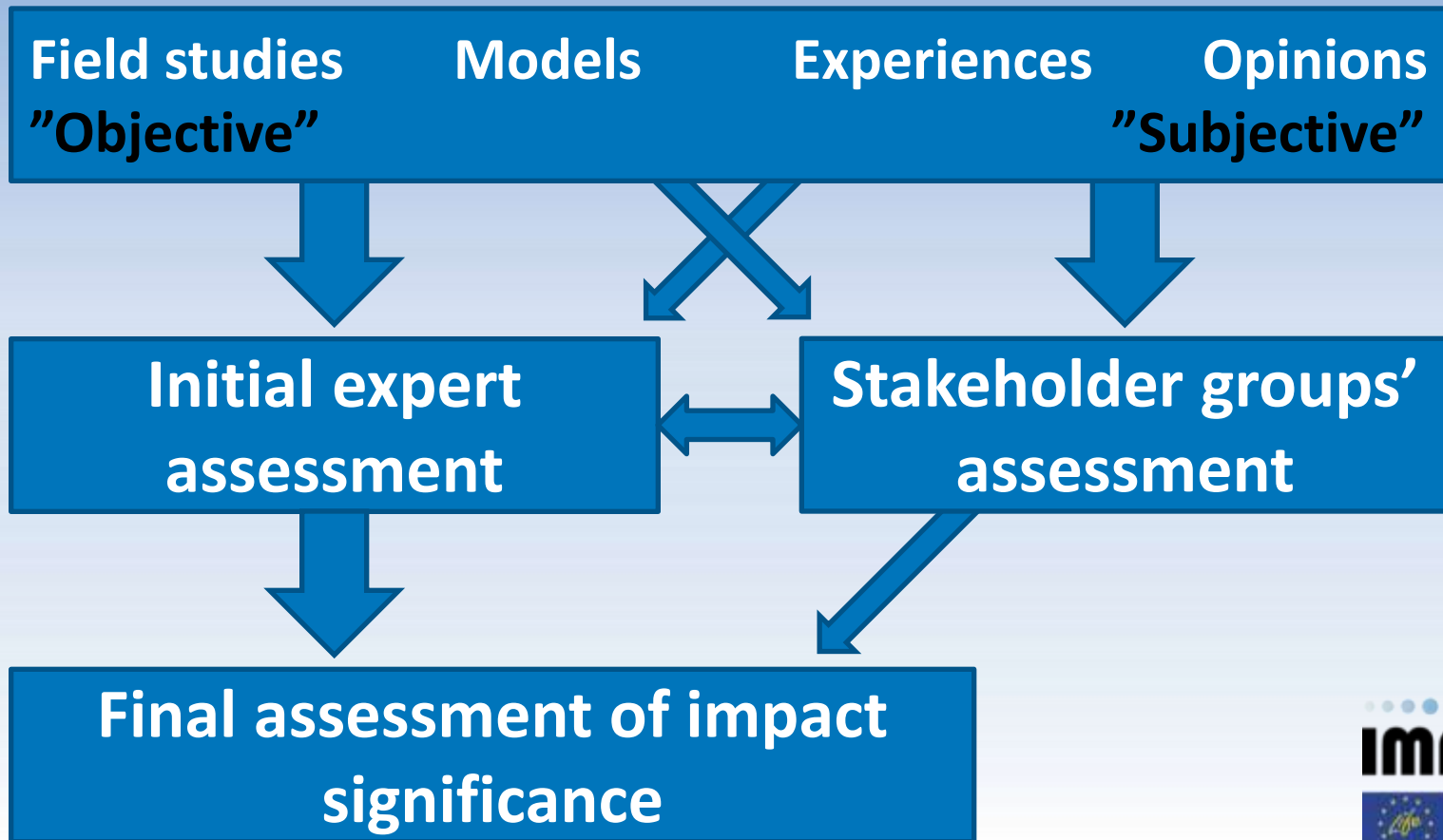
# 3. Support for participating stakeholders

## Pure expert assessment

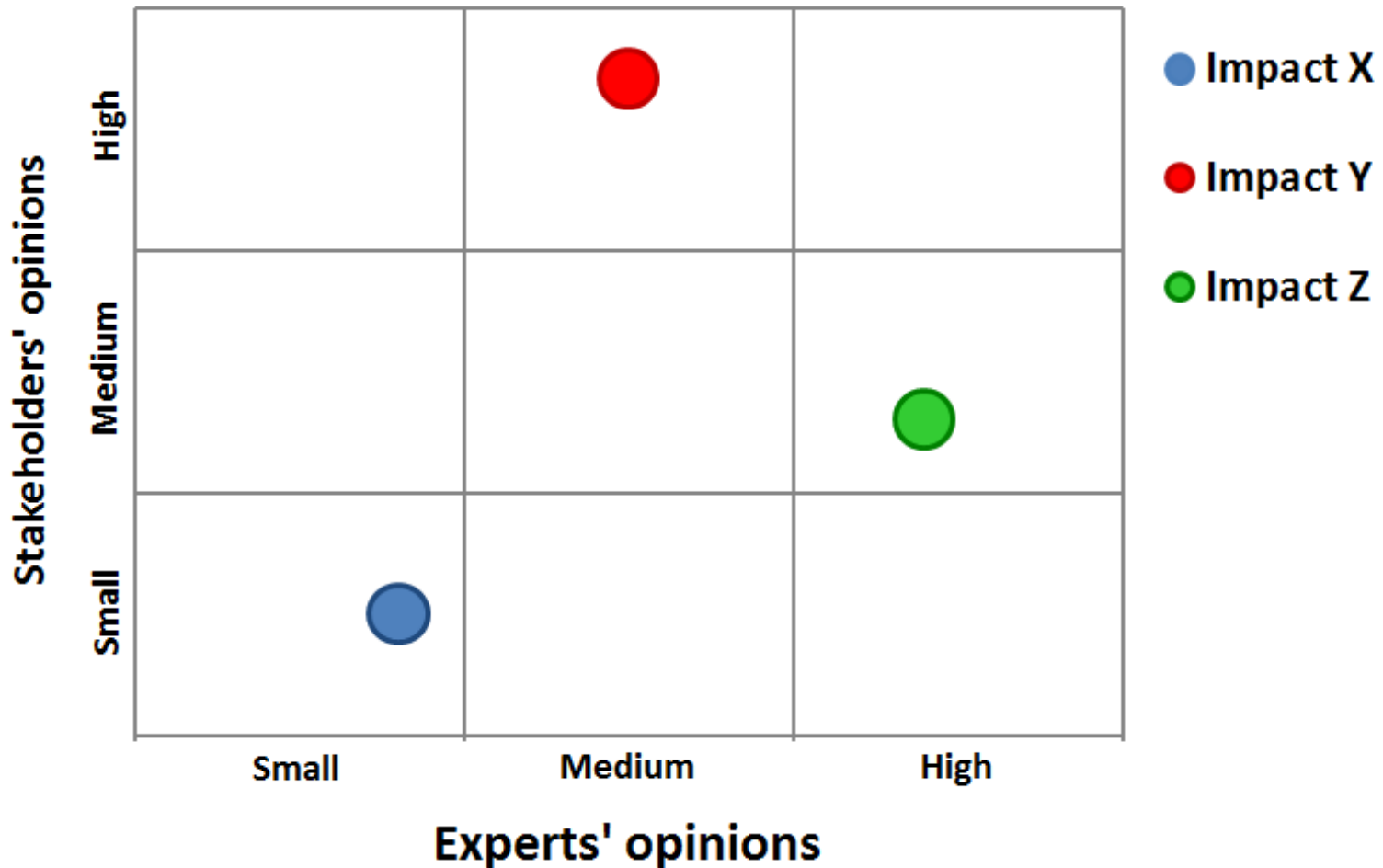


# Stakeholder participation framework

## Assessment with stakeholder participation



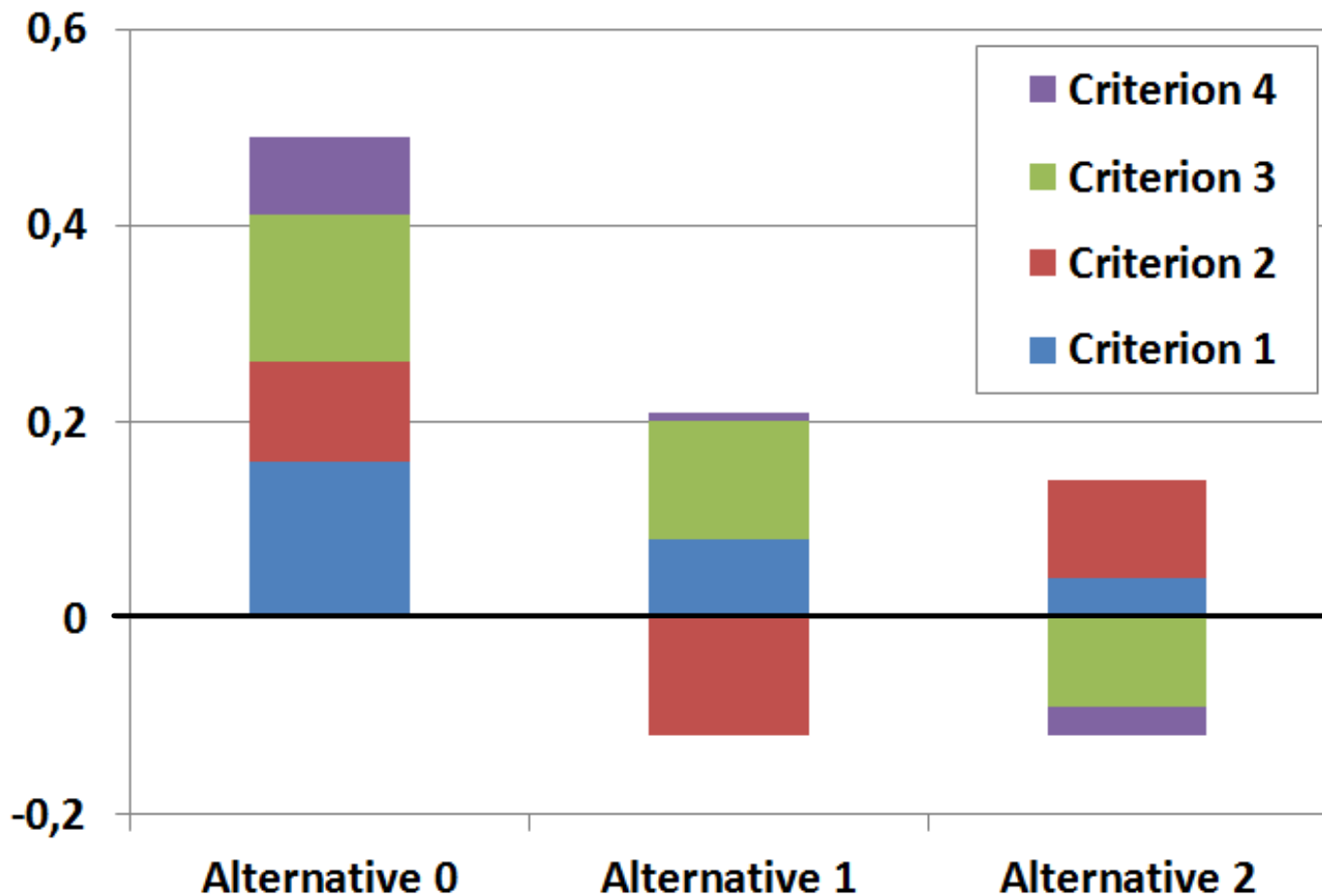
# IMPERIA tool for stakeholder participation



## 4. Support for the evaluation of the alternatives

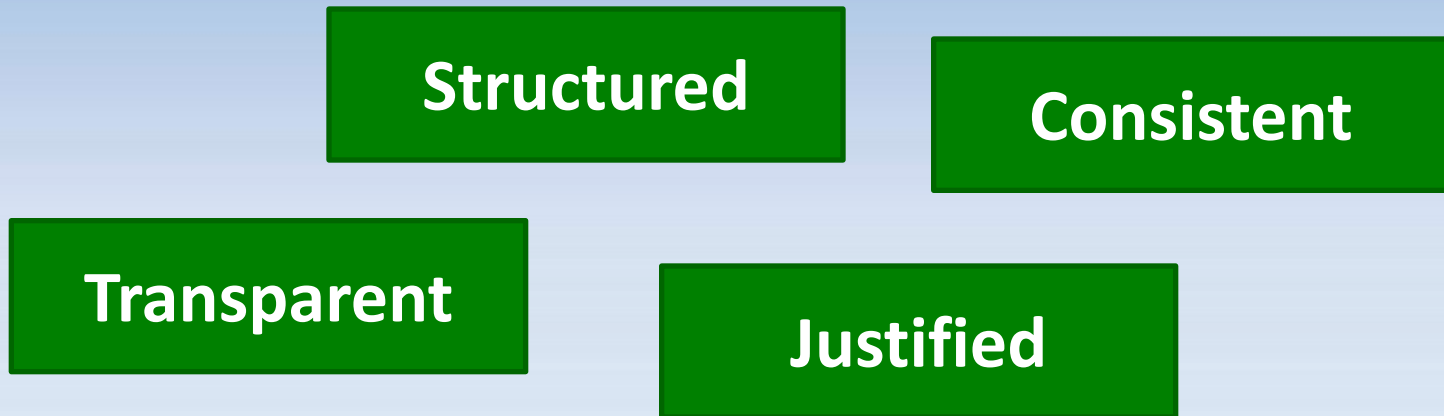
“How good are the alternatives as a whole?”

# IMPERIA MCDA tool for the evaluation of the alternatives



# Conclusions

Keywords of MCDA for supporting EIA:



Encouraging initial experiences from the  
**IMPERIA** project

Next step: **Put all this in practice!**