

**Vaja 2:**  
**Hierarhične metode**  
**s programom LogicalDecisions**

---

---

---

---

---

---

---

---

**Namen in vsebina**

Prikaz in uporaba programov za delo s hierarhičnimi modeli:

- Logical Decisions <http://www.logicaldecisions.com/>
- DECERNS <http://decerns.com/>

Metode:

- neposredno določanje uteži in koristnosti
- MAUT: uporaba mejnih vrednostnih funkcij
- AHP: primerjava atributov in alternativ po parih

---

---

---

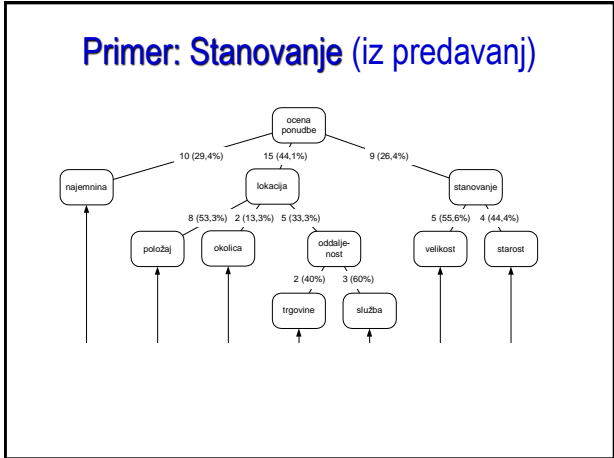
---

---

---

---

---



---

---

---

---

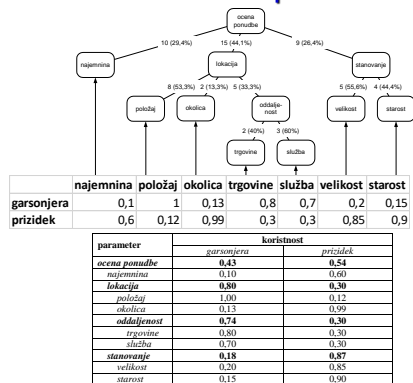
---

---

---

---

### Metoda 1: Neposredna




---

---

---

---

---

---

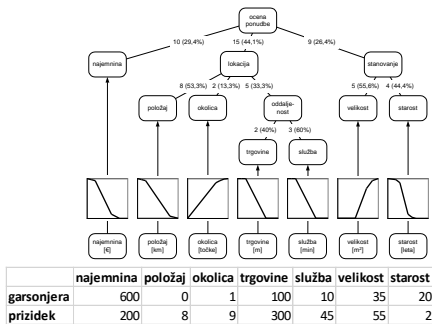
---

---

---

---

### Metoda 2: MAUT




---

---

---

---

---

---

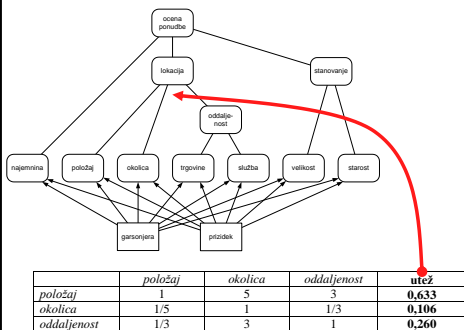
---

---

---

---

### Metoda 3: AHP




---

---

---

---

---

---


---

---

---

---

## Program Logical Decisions



- Windows, od 2021 brezplačen
- Program starejšega datuma
- Zelo zmogljiv, primeren bolj za analitike kot za „običajne“ uporabnike
- Podpira vse tri obravnavane metode (neposred., MAUT, AHP)
- in še mnogo več, npr.:
  - skupinsko odločanje („preference sets“)
  - vrednotenje z verjetnostnimi porazdelitvami

---

---

---

---

---

---

---

---

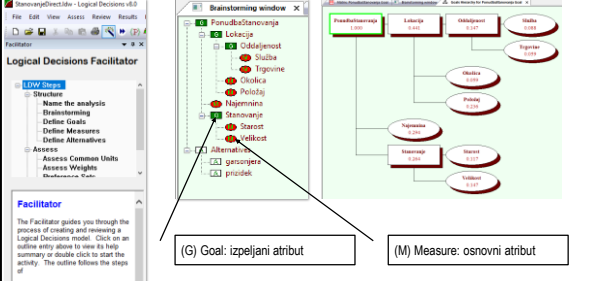
---

---

---

---

## Osnovni pogledi



**Logical Decisions Facilitator**

**Brainstorming window**

**Facilitator**

1) Structure - create the goals, measures and alternatives for your model  
 2) Assess - make the judgments needed to convert the raw levels for an alternative into an overall utility.

**Table: Mera Posredniškega cilja**

	Naprednost	Okoliščina	Publ.izj	Šk.izj	Stanovj	Trigovine	Velikost
gorazgraja	0.6	0.99	1	0.7	0.95	0.9	0.2
prosele	0.6	0.99	0.12	0.3	0.9	0.3	0.85

(G) Goal: izpeljani atribut  
 (M) Measure: osnovni atribut

---

---

---

---

---

---

---

---

---

---

---

---

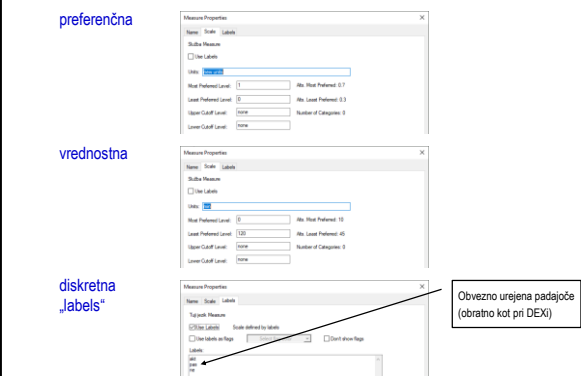
## Merske lestvice

preferenčna

vrednostna

diskretna „labeled“

Obeznova urejena padajoča (obratno kot pri DEXI)




---

---

---

---

---

---

---

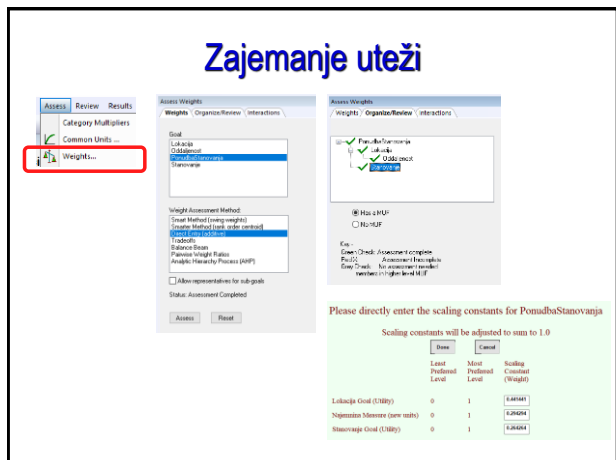
---

---

---

---

---




---

---

---

---

---

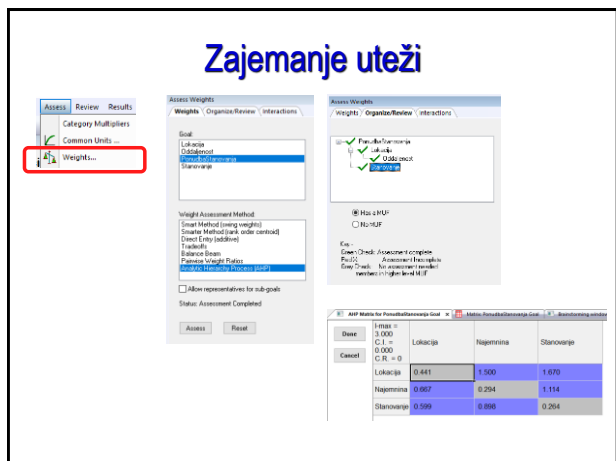
---

---

---

---

---




---

---

---

---

---

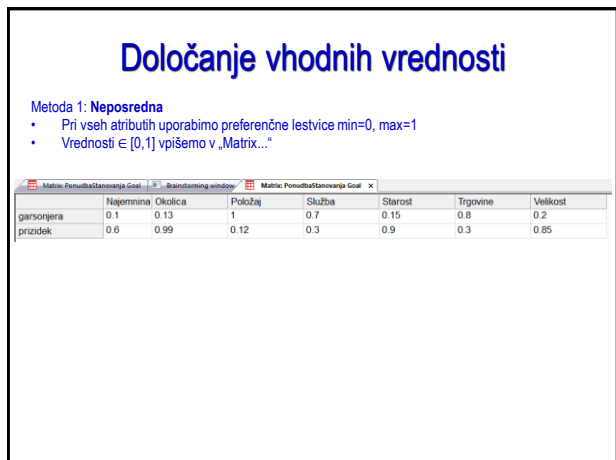
---

---

---

---

---




---

---

---

---

---

---

---

---

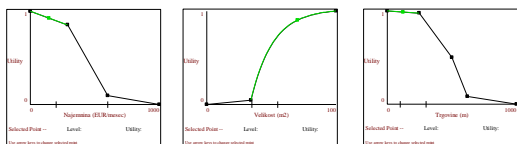
---

---

## Določanje vhodnih vrednosti

### Metoda 2: MAUT

- Za vse vhodne atribute (M: Measures):
  - uporabimo dejanske zaloge vrednosti (npr. za *Trgovine*: most preferred = 0m, least preferred = 1000m)
  - Določimo SUF (Single-measure utility function, mejne vrednostne funkcije)
- V „Matrix...“ vpišemo dejanske vhodne vrednosti



	Najemina	Okolica	Položaj	Služba	Starost	Trgovine	Velikost
garsonerja	600	1	0	10	20	100	35
prizidek	200	9	8	45	2	300	55

---

---

---

---

---

---

---

---

---

---

## Določanje vhodnih vrednosti

### Metoda 3: AHP

- Začnemo kot pri neposredni Metodi 1
- Za zajemanje uteži in koristnosti uporabimo „Assessment Method: Analytic Hierarchy Process“

Goal Hierarchy for PonudbaStanovalja Goal	AHP Matrix for PonudbaStanovalja Goal																
Dose: I max = 3.000 C.I. = 0.000 C.R. = 0	<table border="1"> <thead> <tr> <th></th> <th>Lokacija</th> <th>Najemina</th> <th>Stanovalje</th> </tr> </thead> <tbody> <tr> <td>Lokacija</td> <td>0.441</td> <td>1.500</td> <td>1.670</td> </tr> <tr> <td>Najemina</td> <td>0.667</td> <td>0.294</td> <td>1.114</td> </tr> <tr> <td>Stanovalje</td> <td>0.599</td> <td>0.898</td> <td>0.264</td> </tr> </tbody> </table>		Lokacija	Najemina	Stanovalje	Lokacija	0.441	1.500	1.670	Najemina	0.667	0.294	1.114	Stanovalje	0.599	0.898	0.264
	Lokacija	Najemina	Stanovalje														
Lokacija	0.441	1.500	1.670														
Najemina	0.667	0.294	1.114														
Stanovalje	0.599	0.898	0.264														
Dose: I max = 2.000 C.I. = 0.000 C.R. = 0	<table border="1"> <thead> <tr> <th></th> <th>garsonerja</th> <th>prizidek</th> </tr> </thead> <tbody> <tr> <td>garsonerja</td> <td>0.500</td> <td>1.000</td> </tr> <tr> <td>prizidek</td> <td>1.000</td> <td>0.500</td> </tr> </tbody> </table>		garsonerja	prizidek	garsonerja	0.500	1.000	prizidek	1.000	0.500							
	garsonerja	prizidek															
garsonerja	0.500	1.000															
prizidek	1.000	0.500															

---

---

---

---

---

---

---

---

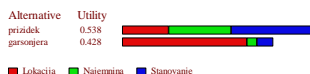
---

---

## Vrednotenje in analiza alternativ

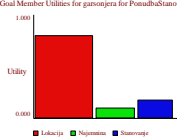
### Rank Alternatives

Ranking for PonudbaStanovalja Goal

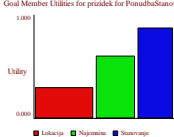


### Graph an Alternative

Goal Member Utilities for garsonerja for PonudbaStanovalja Goal



Goal Member Utilities for prizidek for PonudbaStanovalja Goal




---

---

---

---

---

---

---

---

---

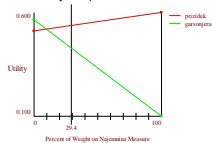
---

## Vrednotenje in analiza alternativ

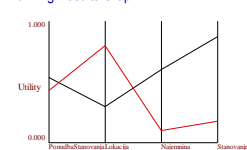
Ranking Results Matrix

Podciljevi Cilj	Urbane Mreže	Suburbane Mreže	Stanovanje Stan. Pridob. Mreže	Stanovanje Stan. Pridob. Mreže	Stanovanje Stan. Pridob. Mreže	Stanovanje Stan. Pridob. Mreže	Stanovanje Stan. Pridob. Mreže	Stanovanje Stan. Pridob. Mreže	Stanovanje Stan. Pridob. Mreže	Stanovanje Stan. Pridob. Mreže
Urbane	1.00	0.40	0.20	0.20	0.10	0.10	0.10	0.10	0.10	0.10
Suburbane	0.20	1.00	0.80	0.80	0.90	0.90	0.90	0.90	0.90	0.90
Stanovanje	0.40	0.20	0.10	0.10	1.00	1.00	1.00	1.00	1.00	1.00

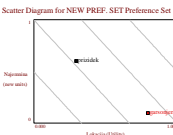
Sensitivity Graph



Ranking Results Graph



Scatter Graph




---

---

---

---

---

---

---

---

---

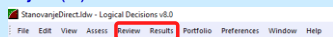
---

---

---

## Naloga 1: Razglejte se

1. Odprite StanovanjeDirect.ldw
2. Odprite in si oglejte vse tri osnovne poglede: *Brainstorming*, *Goals Hierarchy* in *Matrix*
3. Odkrijte, kako pridete do definicij merskih lestvic
4. Odprite okno *Assess Weights* in si oglejte, kako so definirane uteži vseh ciljev (G)



5. Oglejte si – in se „igrajte“ z – možnostmi v menijih *Review* in *Results*
6. Poskusite narediti vse grafikone, prikazane zgoraj na dveh straneh „Vrednotenje in analiza alternativ“

---

---

---

---

---

---

---

---


---

---

---

---

## Naloga 2: MAUT

1. Odprite StanovanjeMAUT.ldw
2. Poiščite vse razlike v primerjavi z Nalogo 1:
  - Preglejte vse merske lestvice. Opazite razlike?
  - Odprite okno SUFs  in si za vse (M) oglejte mejne vrednostne funkcije. Razumete, za kaj gre? Bi jih vi definirali drugače?
  - Poglejte „Matrix...“. V čem je bistvena razlika od prej?
3. Na modelu MAUT ponovite analizo rezultatov vrednotenja iz Naloga 1

---

---

---

---

---

---

---

---

---

---

---

---

### Naloga 3: Dotik AHP

V modelu StanovanjeMAUT.Idw določite uteži podrednih kriterijev kriterija PonudbaStanovanja z metodo MAUT.

Korake do tja odkrijte sami.

Pazite na konsistentnost.

---

---

---

---

---

---

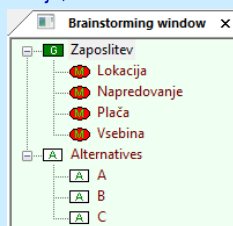
---

---

### Naloga 4: Razvoj novega modela

V programu Logical Decisions poskusite razviti nov model od začetka.

Za prvič priporočam nekaj enostavnega, na primer izbor zaposlitve na osnovi: plače, lokacije, vsebine dela in napredovanja.



---

---

---

---

---

---

---

---