



## **4D MUSRENBANG: Designing user experience (UX) to support** public participation in spatial planning for Indonesia

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traditional public participation







### "Not everyone can draw the visualization of their houses in 3D"





3D?



## "Not everyone can draw the visualization of their houses in 3D"

"A simplified model could parallel the user's cognitive structure and reduce the total load to the processing system" (Kaplan et al., 1989)

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simplified 3D model:

commercial residential office open space mixed-use



Kaplan, R., Kaplan, S., and Brown, T. (1989). Environmental preference: A comparison of four domains of predictors. Environment and behavior, 21(5):509–530.



The 4PHASE toolkit



### Musrenbang – traditional participation tool





### **4D MUSRENBANG**

Adding traditional Musrenbang as the planning formulation to 4D PUPM platform







The 4PHASE toolkit









#### 6. Building the Prototype of 4D Musrenbang





#### 6. Building the Prototype of 4D Musrenbang





#### The 4PHASE toolkit

#### **OVERALL TASK EXPERIENCE**



ask 1: Login	according to	user's role			Task 2: Access the 'Participate' map interface						
Participant	User Role	Task Time (m:s)	Success	Error	Satisfaction (1 ~ 5)	Participant	User Role	Task Time (m:s)	Success	Error	Satisfaction (1 ~ 5)
Participant A	Contributor	00:45	1	0	5	Participant A	Contributor	00:25	1	0	5
Participant B	Contributor	00:41	1	0	5	Participant B	Contributor	00:33	1	0	5
Participant C	Validator	00:40	1	0	3	Participant C	Validator	00:23	1	0	4
Participant D	Contributor	00:30	1	1	4	Participant D	Contributor	00:46	1	0	4
Participant E	Mediator	00:50	1	0	3	Participant E	Mediator	00:34	1	0	4
SUM 84.5%		TIME 97.3%	COMPLETION 100%	ERRORS 8.4%	SATISFACTION 83%	SUM 91.8%		TIME 98.9%	COMPLETION 100%	ERRORS 0%	SATISFACTION 91.9%

ask 3: Search an address						Task 4: Display information from 3D spatial plan					
Participant	User Role	Task Time (m:s)	Success	Error	Satisfaction (1 ~ 5)	Participant	User Role	Task Time (m:s)	Success	Error	Satisfaction (1 ~ 5)
Participant A	Contributor	01:22	1	0	4	Participant A	Contributor	01:44	1	1	2
Participant B	Contributor	01:14	1	0	5	Participant B	Contributor	01:04	1	0	4
Participant C	Validator	01:09	1	0	4	Participant C	Validator	00:46	1	0	4
Participant D	Contributor	01:54	1	2	4	Participant D	Contributor	01:24	1	1	3
Participant E	Mediator	01:21	1	0	3	Participant E	Mediator	01:01	1	0	4
SU 82	IM 1%	TIME 94.3%	COMPLETION 100%	ERRORS 14.9%	SATISFACTION 83%	SU 74	IM 1%	TIME 77.8%	COMPLETION 100%	ERRORS 14.9%	SATISFACTION 54.6%

Task 3: Searc	h an address					Task 4: Displa	ay informa
Participant	User Role	Task Time (m:s)	Success	Error	Satisfaction (1 ~ 5)	Participant	User Rol
Participant A	Contributor	01:22	1	0	4	Participant A	Contribute
Participant B	Contributor	01:14	1	0	5	Participant B	Contribute
Participant C	Validator	01:09	1	0	4	Participant C	Validato
Participant D	Contributor	01:54	1	2	4	Participant D	Contribute
Participant E	Mediator	01:21	1	0	3	Participant E	Mediato
SU 82	SUM 82.1%		COMPLETION 100%	ERRORS 14.9%	SATISFACTION 83%	SU 74.	IM 1%

#### Task 7: Move 3D Building Satisfactio Task Time User Role Error Participant Success (1~5) (m:s) Participant A Contributor 02:54 0 Contributor 02:24 Participant B 1 02:30 0 Participant C Validator 1 02:32 Participant D Contributor Mediator 02:31 Participant SUM 34.7% TIME 61.4% COMPLETION 43.5% ERRORS 51.9% SATISFACTION 20.4%





# How to design a User Experience (UX) for geo-web applications to support public participation in spatial planning process?



- Recognize who are the users and what kind of participation activities that they will perform (PHASE 1)
- Visualize each user's personality and flow and determine what feature/functionality should exist on the interface (PHASE 2)
- Build functions to the interface so that user can interact with the map interface (PHASE 3)
- Test whether the design hypothesis matches with real-lif (PHASE 4)



