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# Individual Decision Making in Online Public- Participation Transportation Planning

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# Individual decision making in online public-participation transportation planning

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TREC Friday Seminar

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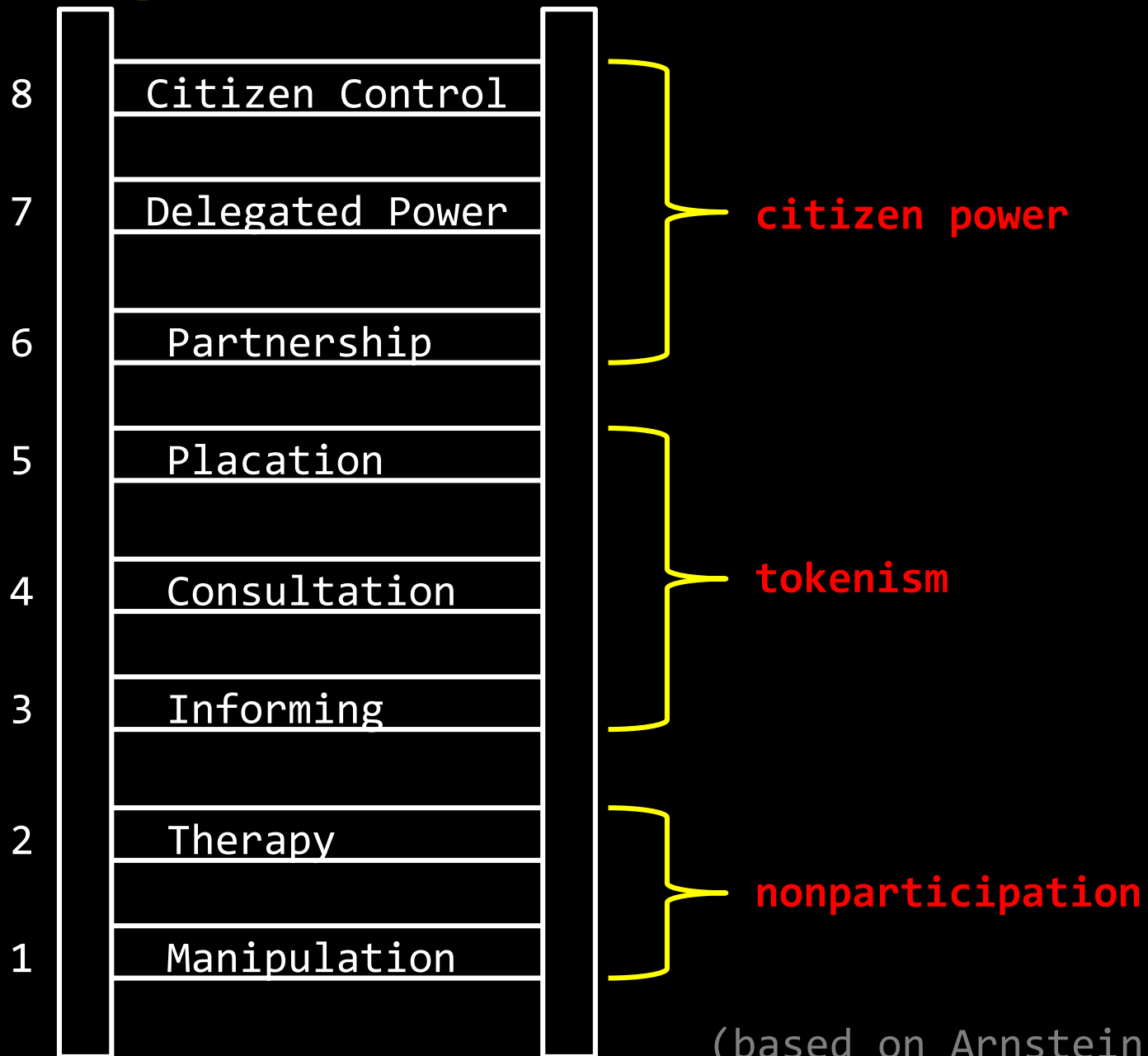
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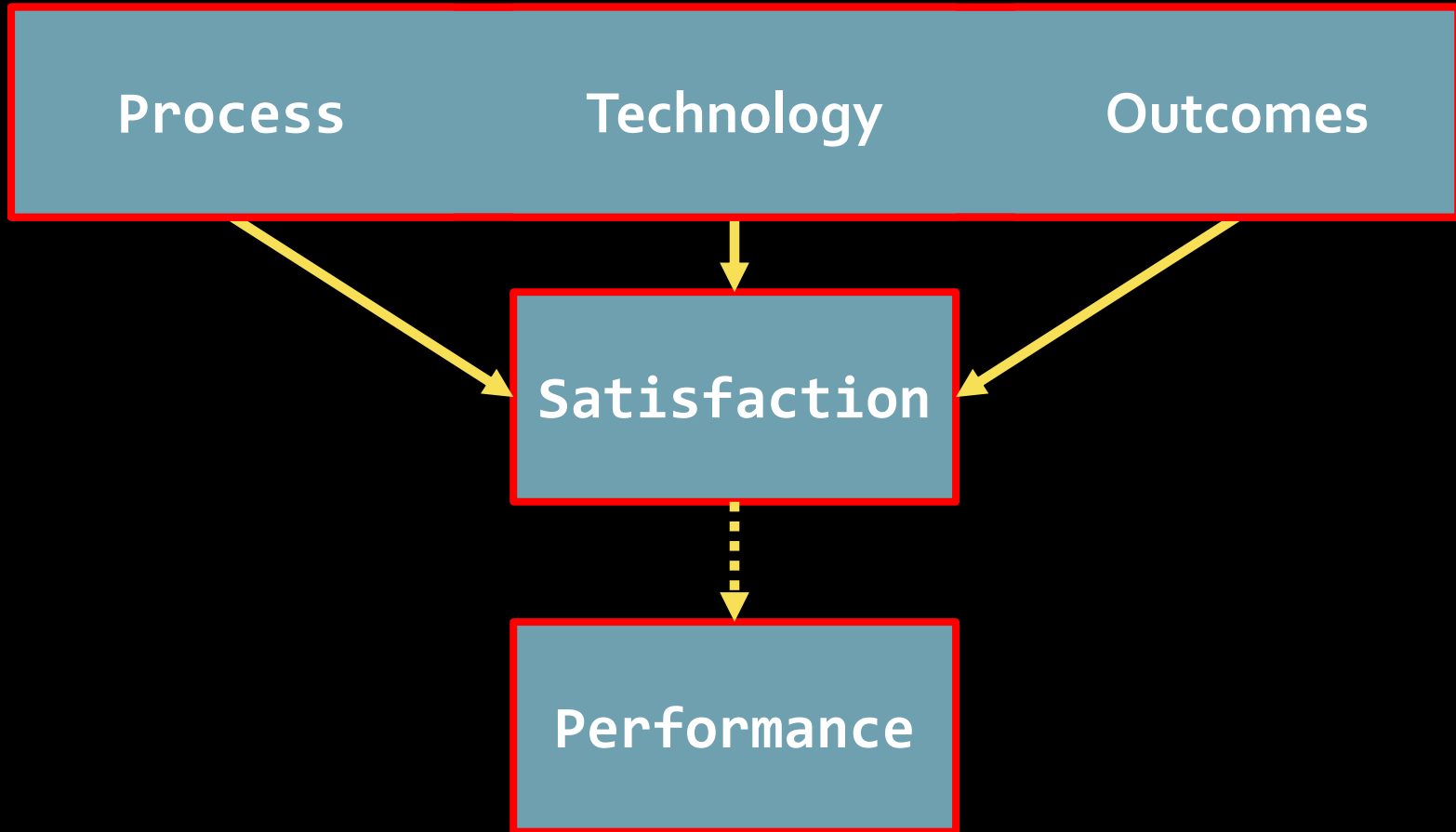
Tao Zhong

# Participation

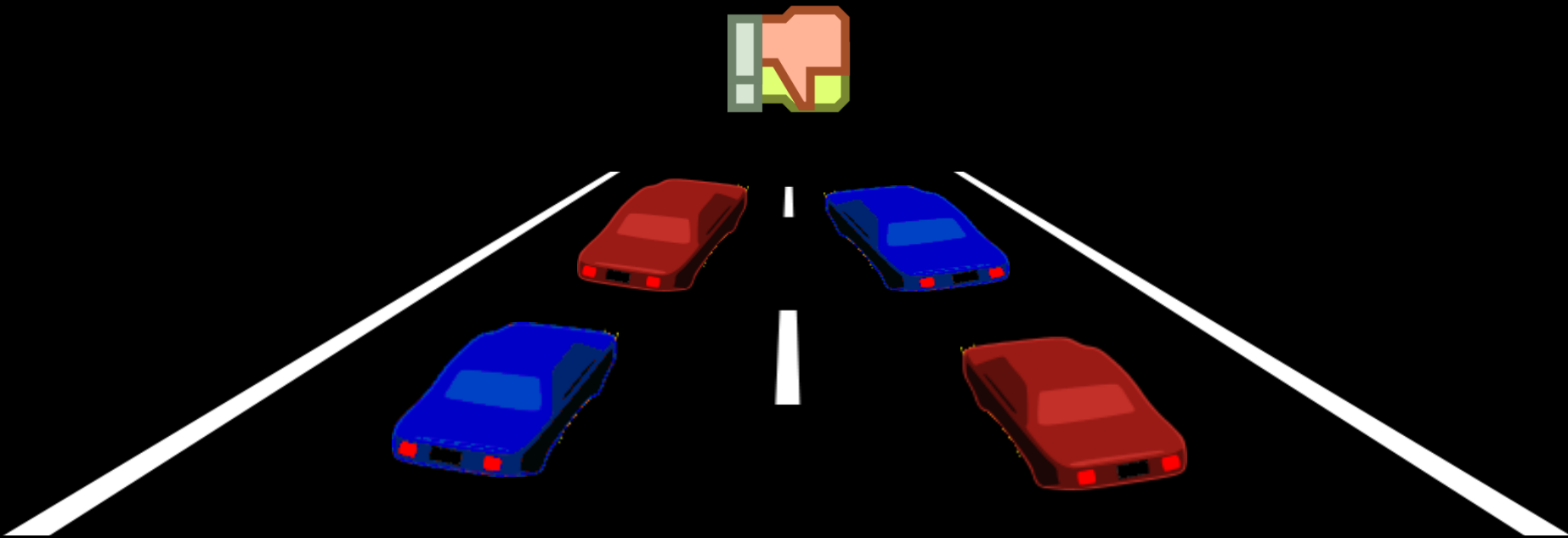


(based on Arnstein, 1969)

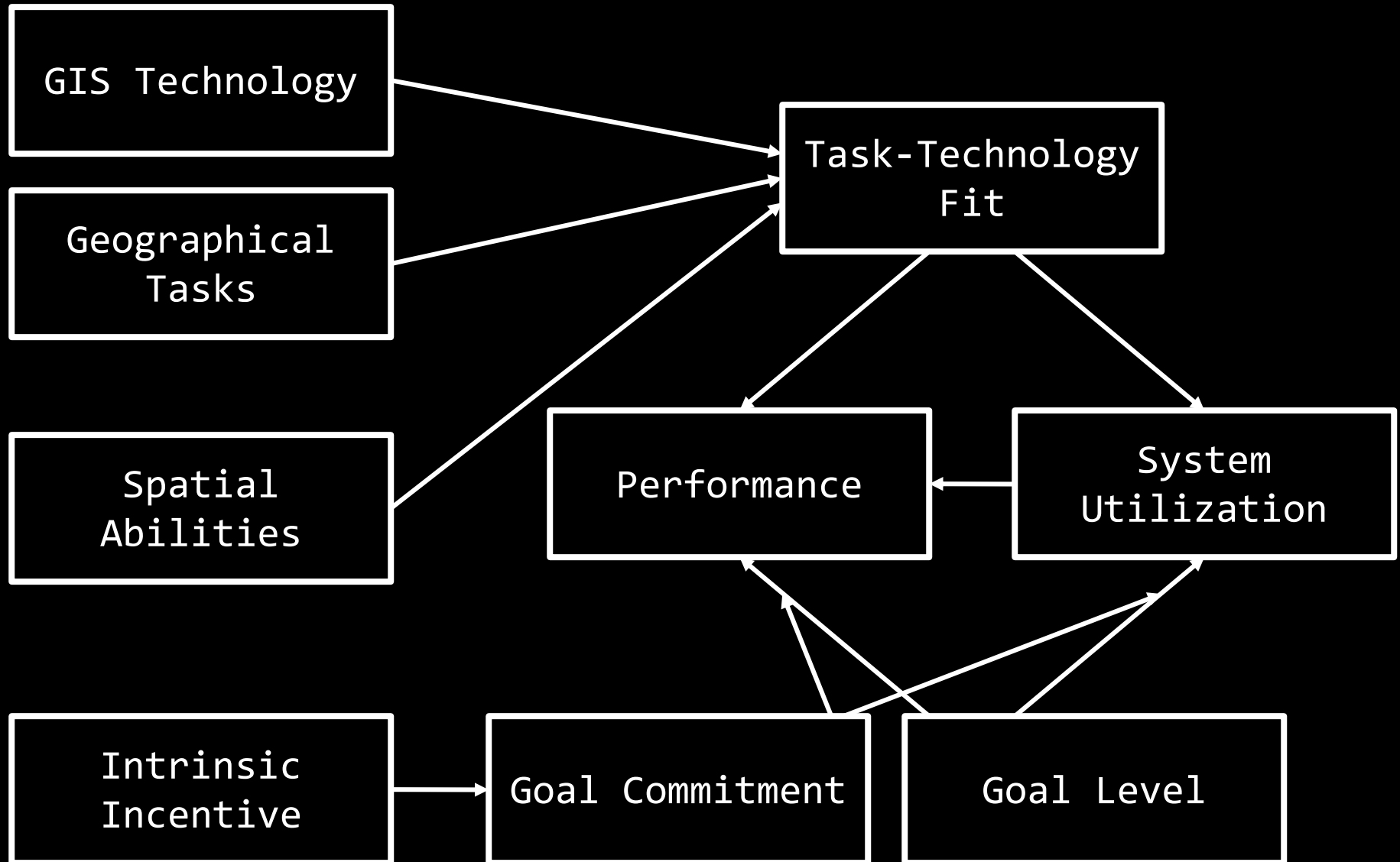
# Use of Technology



# Illustration



# Task-Technology Fit



(based on Jarupathirun and Zahedi, 2007)



# PGIST



During the next 25 years the central Puget Sound population is expected to grow by **1.2 million people**.

How will this growth impact our already congested **transportation system**?

What **improvements** are necessary to keep our region moving?

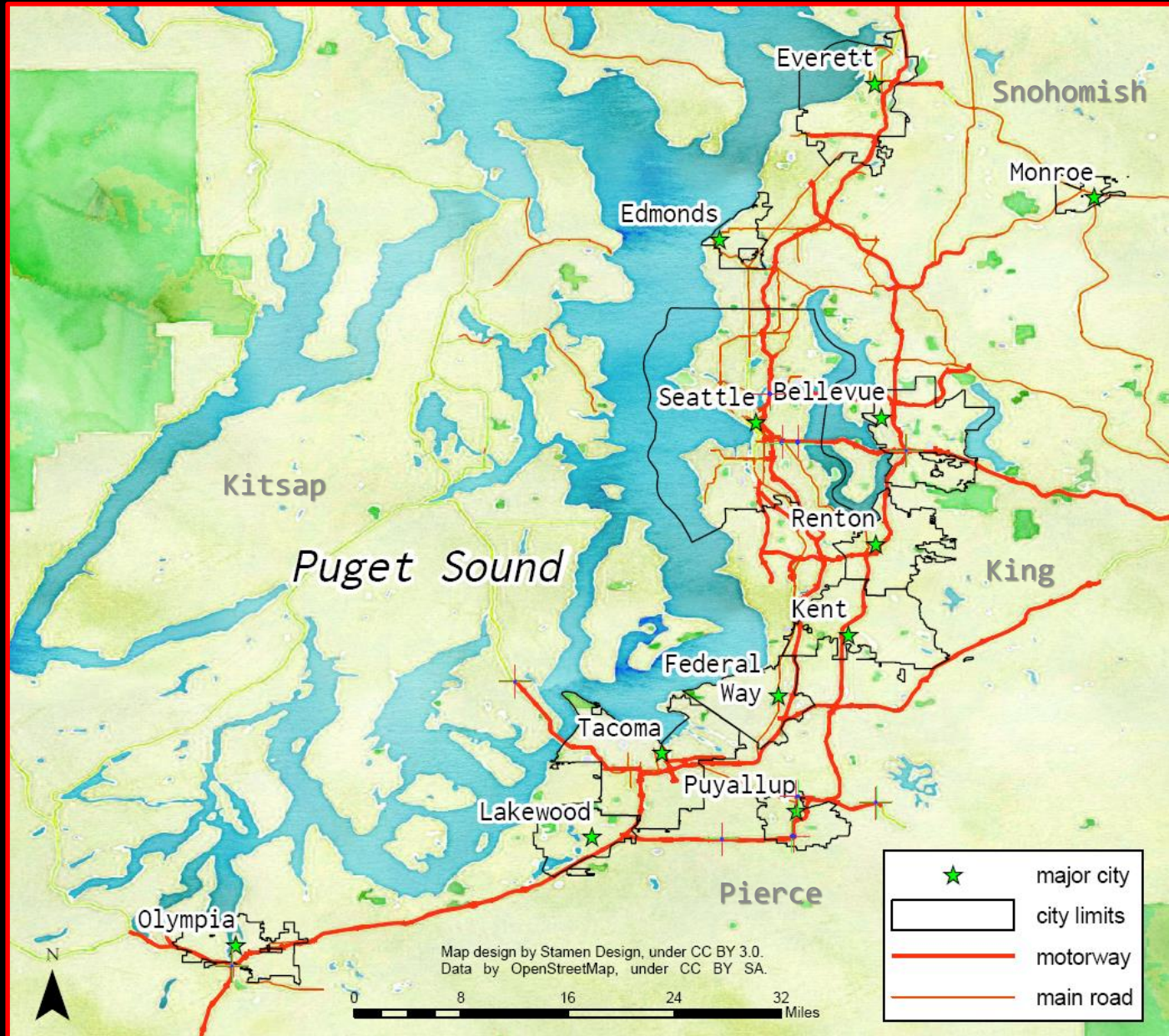
**Who** gets to have a voice in this decision?

**User Name**

**Password**

Login

# Puget Sound



# LIT Steps

**1. Concerns**

**2. Factors**

**3. Individual  
Package**

**4. Group  
Package**

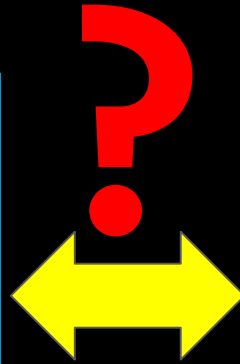
**5. Report**

**1  
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h**

# Challenge

user interaction

Group of users with similar user interaction



individual characteristics

Socio-demographics

Cognitive Style Indicator\*

Travel behavior

Computer/Internet proficiency

\*(Cools and van den Broeck, 2007)

# Server Log File

timestamp	user_id	treelid	url	sessionid
10/14/2007 5:54:37 PM	1034248	10	login.do	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:54:37 PM	1034248	10	main.jsp	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:54:40 PM	1034248	10	WorkflowAgent.getWorkflows.dwr	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:54:40 PM	1034248	10	userhome.do	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:54:42 PM	1034248	10	SystemAgent.getAnnouncements.dwr	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:54:43 PM	1034248	10	WorkflowAgent.getWorkflow.dwr	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:54:58 PM	1034248	10	usercp.do	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:55:04 PM	1034248	10	SystemAgent.getAnnouncements.dwr	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:55:05 PM	1034248	10	WorkflowAgent.getWorkflow.dwr	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:55:07 PM	1034248	10	workflow.do288	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:55:12 PM	1034248	10	RegisterAgent.getUserTrips.dwr	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:58:11 PM	1034248	10	RegisterAgent.saveUserTrip.dwr	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:58:23 PM	1034248	10	userhome.do	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:58:24 PM	1034248	10	SystemAgent.getAnnouncements.dwr	88A666C75B48FD1CDAEBA2460440174D
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10/14/2007 5:58:32 PM	1034248	10	workflow.do297	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 5:58:33 PM	1034248	10	CCTAgent.getContextConcerns.dwr	88A666C75B48FD1CDAEBA2460440174D
10/14/2007 6:01:22 PM	1034248	10	CCTAgent.prepareConcern.dwr	88A666C75B48FD1CDAEBA2460440174D

1 of 40590 | Unfiltered | Search

# Capturing Activities

deliberation

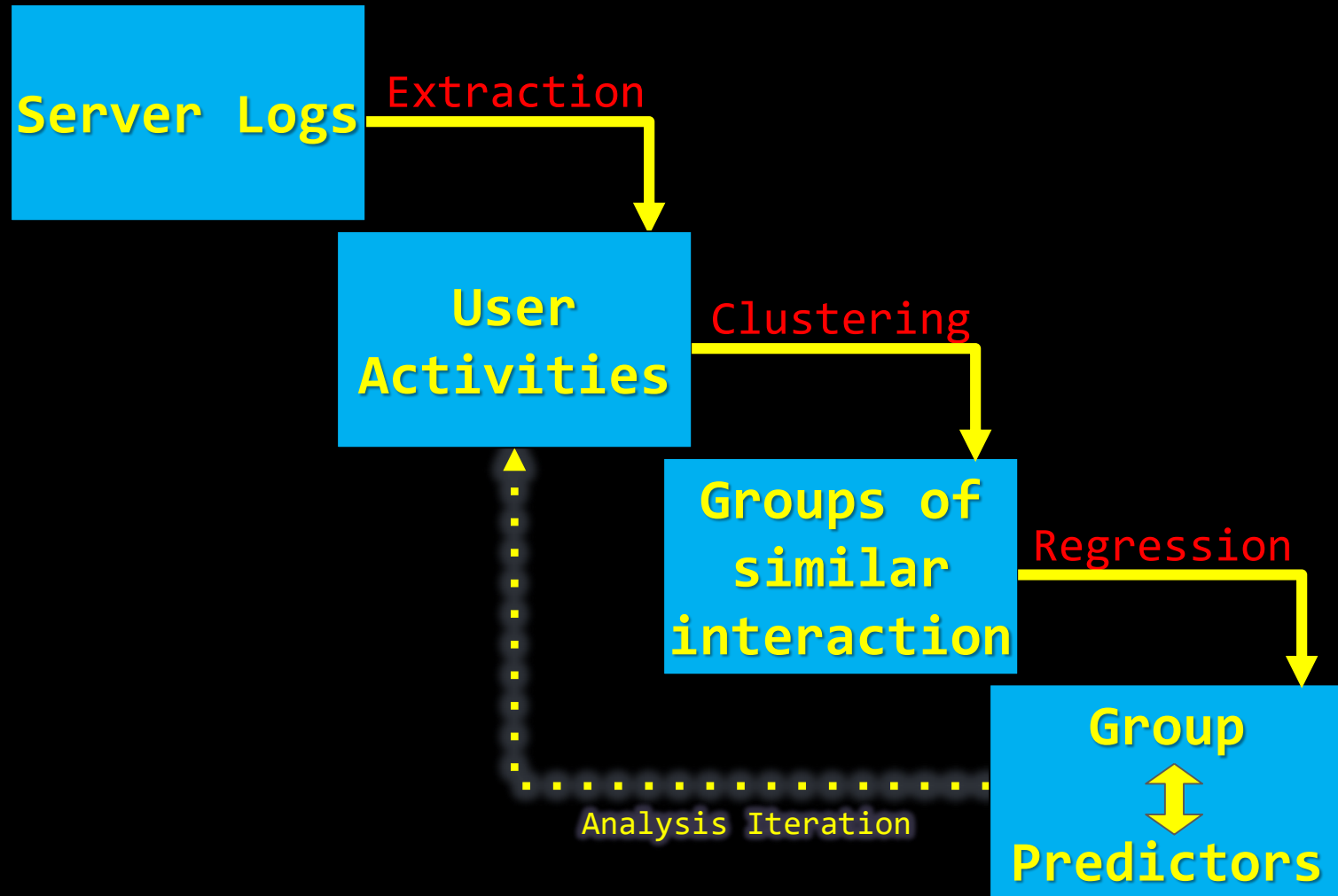
analysis

information gathering



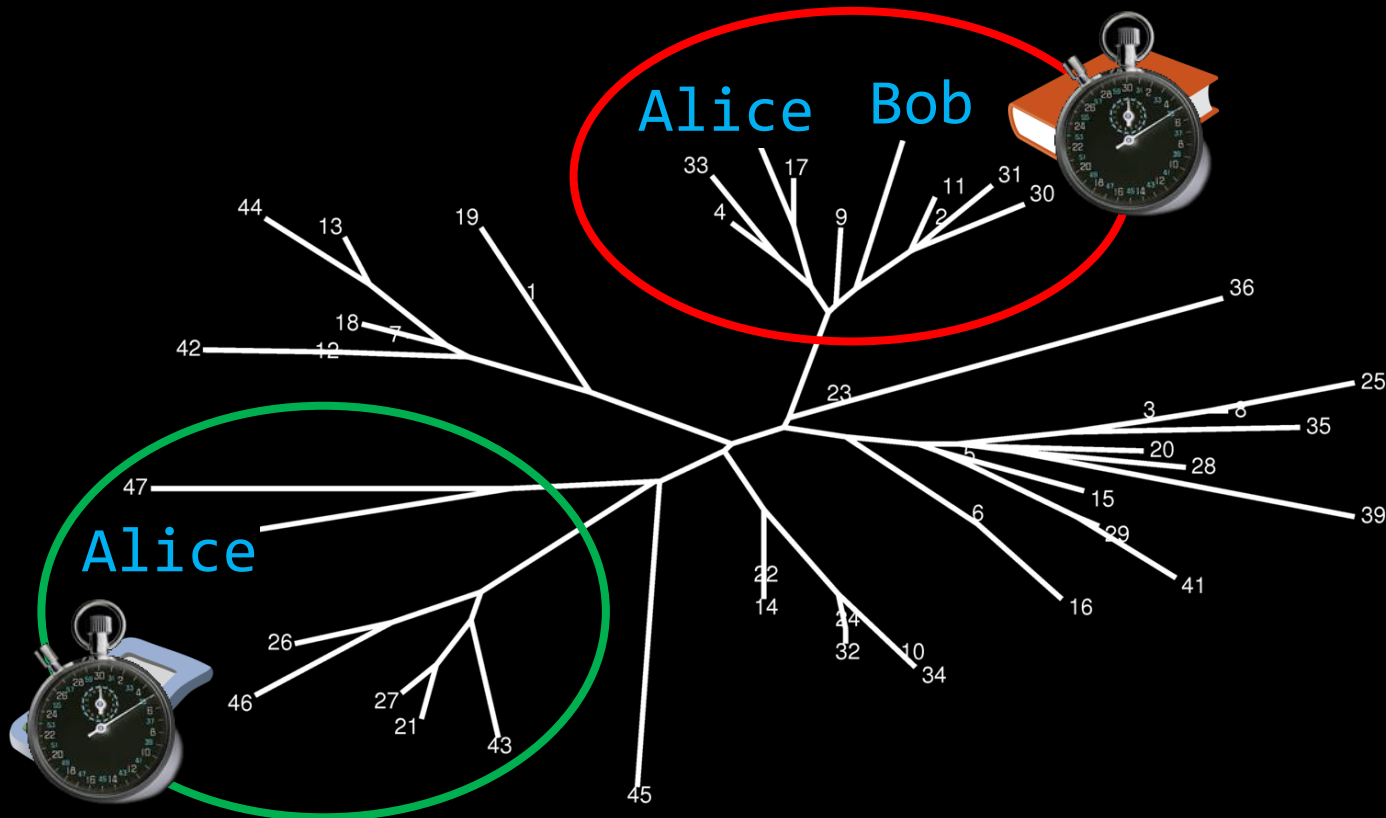
total duration

# HCI Analysis Overview



# Clustering Algorithms

- Multiple sequence alignment analysis\*
- Hierarchical cluster analysis



\*(Abbott, 1990; Shoval and Isaacson, 2007; Fabrikant et al., 2008)



# Clustering Summary

- HCA: Usable classification for total time
- MSA: Reliability concerns
- Analytical synergies MSA ↔ HCA

>13 54

MdrRpaCpaCpaCpaCpaVoaRpaVoaRpaRpaRpaRpaRpaRpaRpaRpaRpaRpaRpaRpaWit  
RpaWitRpaGipCpaRpaRpaRpaRpaRpaVoaRpaCypCypCypCypCypCypRpaGip  
GipRpaRpaRpaRpaRpaDpvRpaVoaRpaGioVoaGioVoa

>26 41

MdrRpaRpaVoaRpaVoaRpaRpaVoaVoaRpaVoaRpaVoaRpaCypCypRpaRpaVoa  
RpaRpaGipGipGipRpaGipVoaDpvRpaVoaRpaVoaRpaVoaRpaVoaRpaVoaRpa  
Rpa

# Logistic Regression Summary

Groups with similar overall interaction duration

~~Socio demographics~~

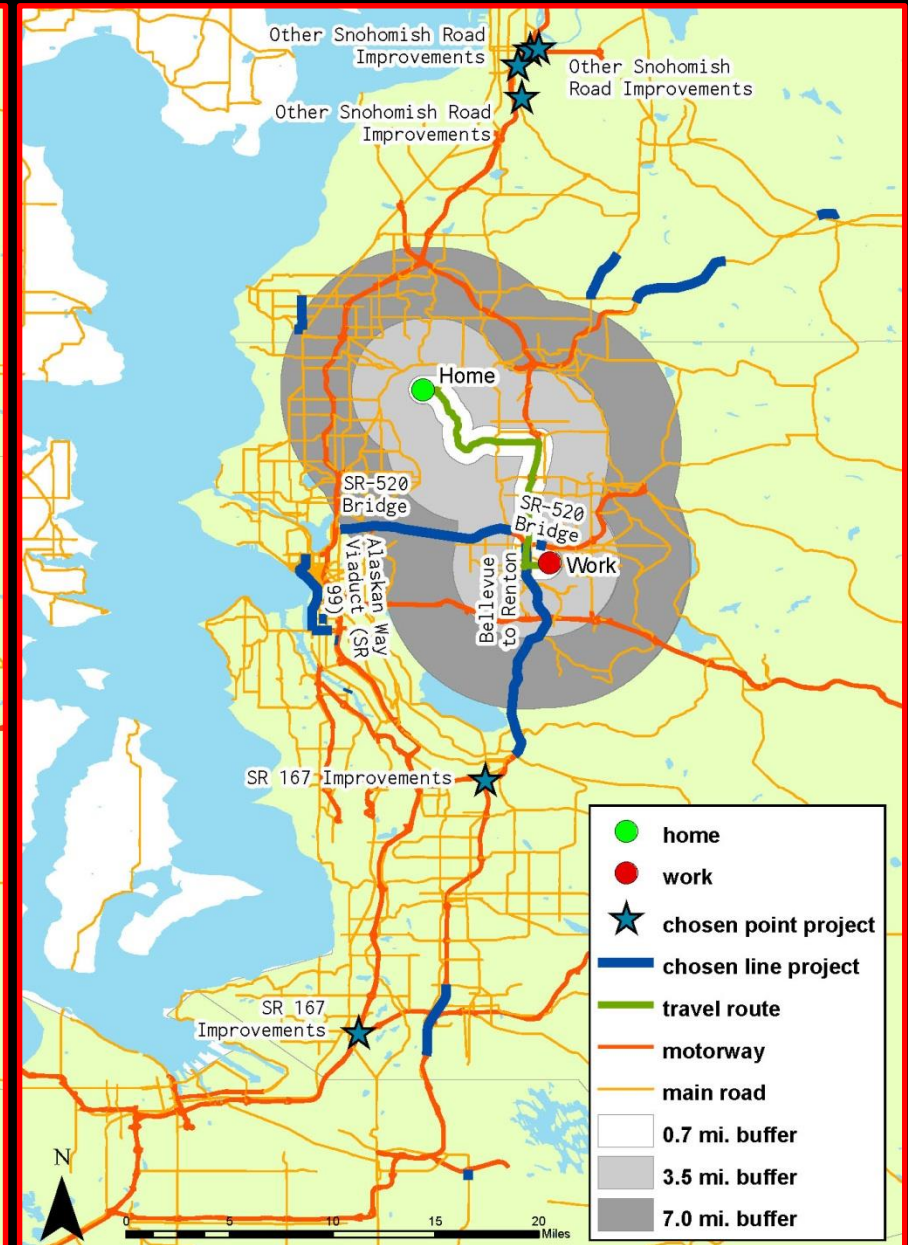
~~Cognitive Style Indicator\*~~

~~Travel behavior~~

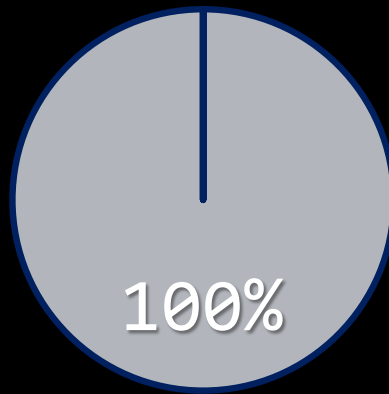
Online transportation discussions

\*(Cools and van den Broeck, 2007)

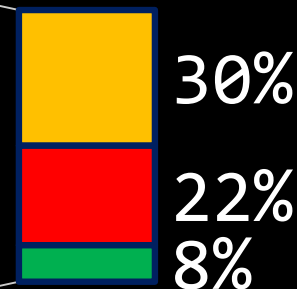
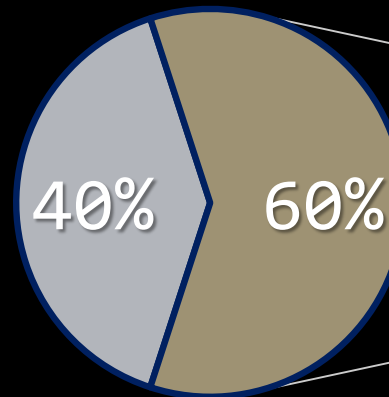
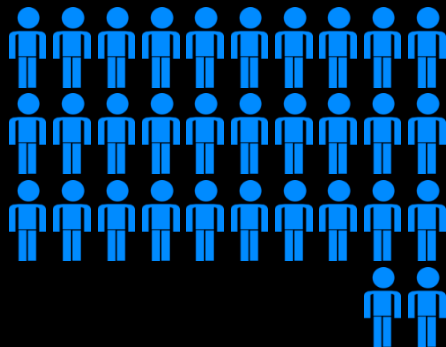
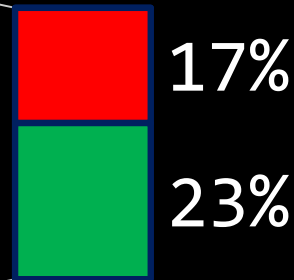
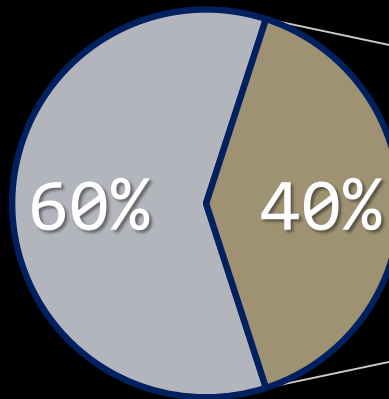
# What about Individual Choices?



# Location Analysis



- Outside buffers
- Walking distance
- Bicycling distance
- Driving distance



# Cost Analysis

Me



\$159

\$8,731

VS

You



\$378

\$16,348

Median

Sum

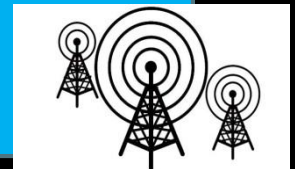
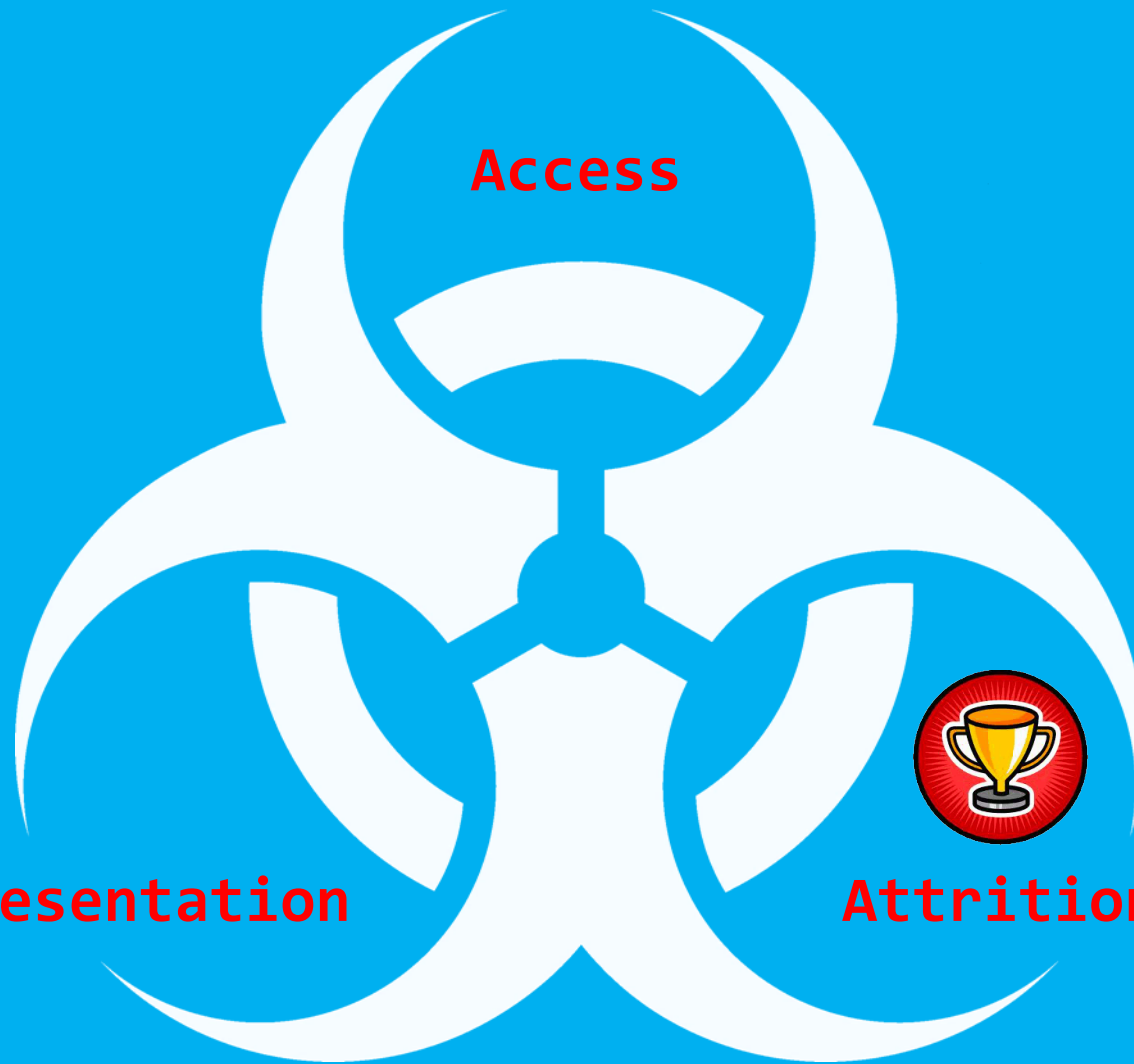
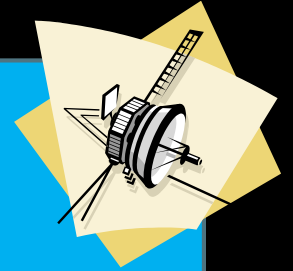
# Location/Cost Analysis Summary

- Self-centrism prevailing
- Need for moderation
- Feed observed patterns into process
- Complexity! Performance?

# Conclusions

- System, process, outcomes
- Capturing, evaluating HCI in web-based DSS (LIT as case study)
- Analysis of behavior; profiling of the 'public'
- PPGIS, spatial equity; greater good?

# Conclusions





# Take-home Message

- Public :: individuals
- Participation =  $f(\text{opportunities for participation})$
- Towards an individual-centered approach

