

Digital Community Planning: The open source way to the top of Arnstein's ladder



Enzo Falco – OTB Department for the Built Environment, TU Delft



Outline

- Assumptions
- Research Questions
- Planning Approaches to Public Participation
- Theories underpinning choice of a particular approach and use of digital tools
- Open Source Software examples



Assumptions

1. Planning as a state and future-oriented activity (Huxley, 1999).
2. Participation is still controlled by the government (staged Participation) (Davidoff, 1965; Boonstra & Boelens, 2011; Saad-Sulonen, 2014).
3. Advances in ICT, social media, open data and open Source Software and their application limited to certain contexts (developed countries).



Government

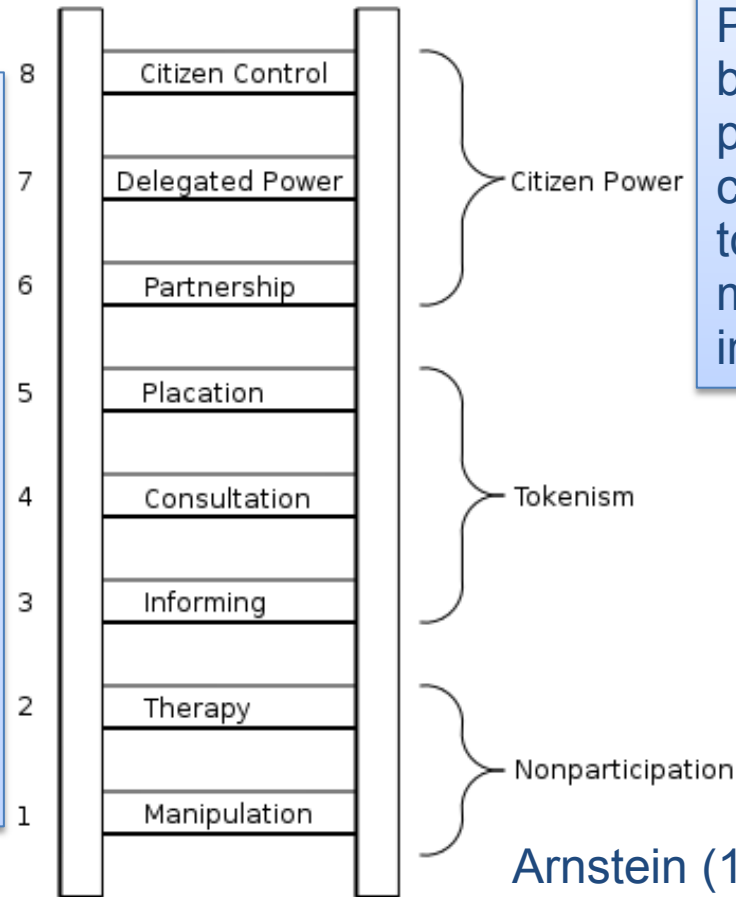


Research Questions

- Which planning approach is able to guarantee wider citizen participation and greater empowerment?

- What does the planning process look like?

- How can citizens be digitally engaged in the planning process?



Power is redistributed between citizens and powerholders, and the citizens have the ability to influence decision-making and what is included in the plan.

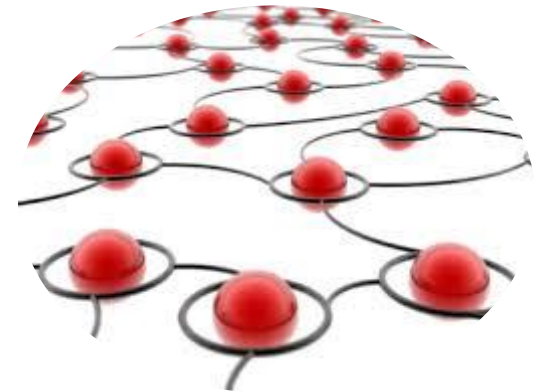


Approaches to Public Participation

- Advocacy and Plural Planning (Davidoff, 1965)

- Equity Planning (Kaufman, 1982)

- Communicative planning (Innes, 1995; Healey, 2006).



Communities

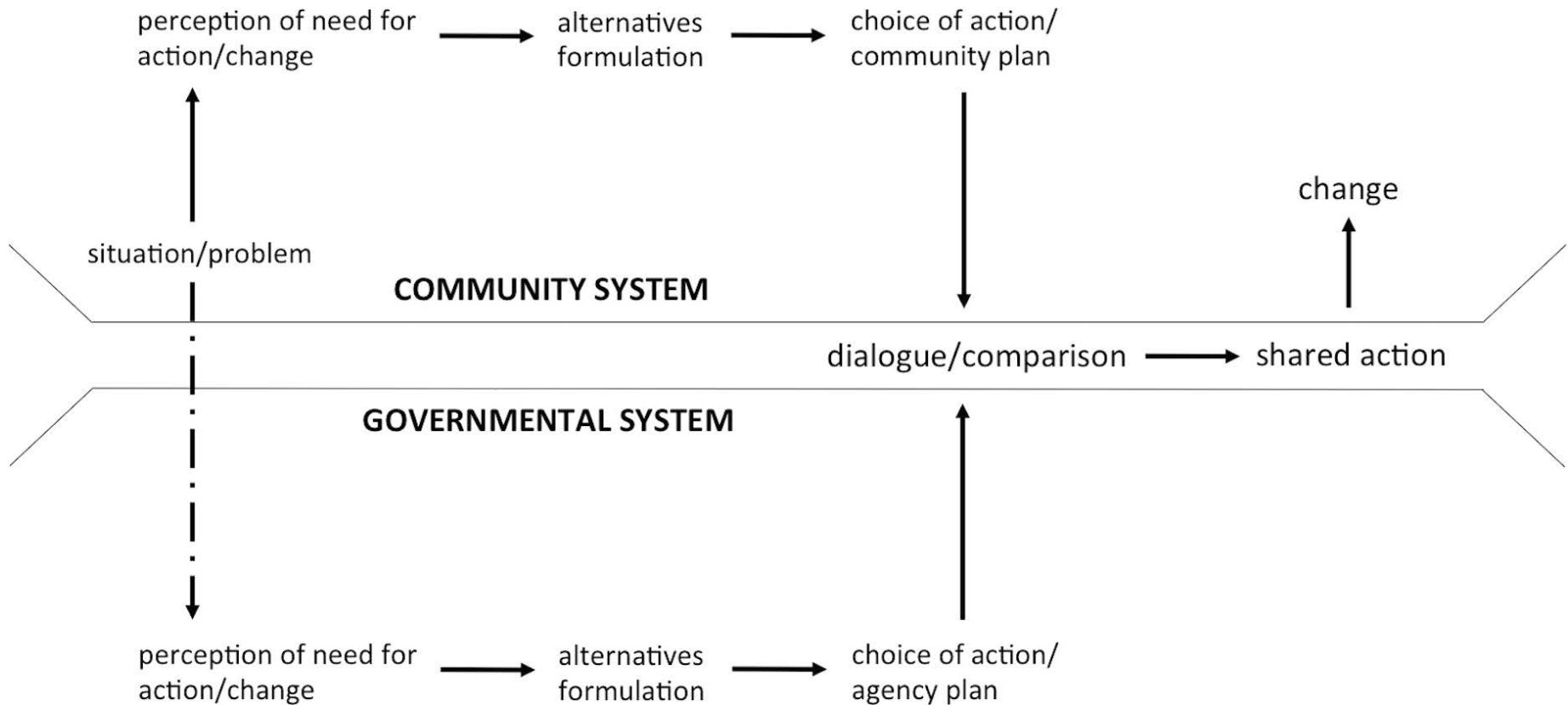


Digital Rationality and Illusion of Transparency

- Han 2014: Theory of **Digital Rationality**: changes in current society have pushed us towards a more digital and direct democracy.
 - “More egalitarian and democratic; does not exclude anyone and anything and so is less discriminatory; anyone can contribute from anywhere and at any time; creates a pre-communicative and pre-discursive rationality”.
- Savitsky K. & Gilovich T. (2003) Theory of the **Illusion of Transparency**.
 - “individuals often believe that their internal states are more apparent to others than is actually the case”.
 - People report to experience significant anxiety when having to deliver a public speech and, more specifically, an extemporaneous speech.



Planning Process

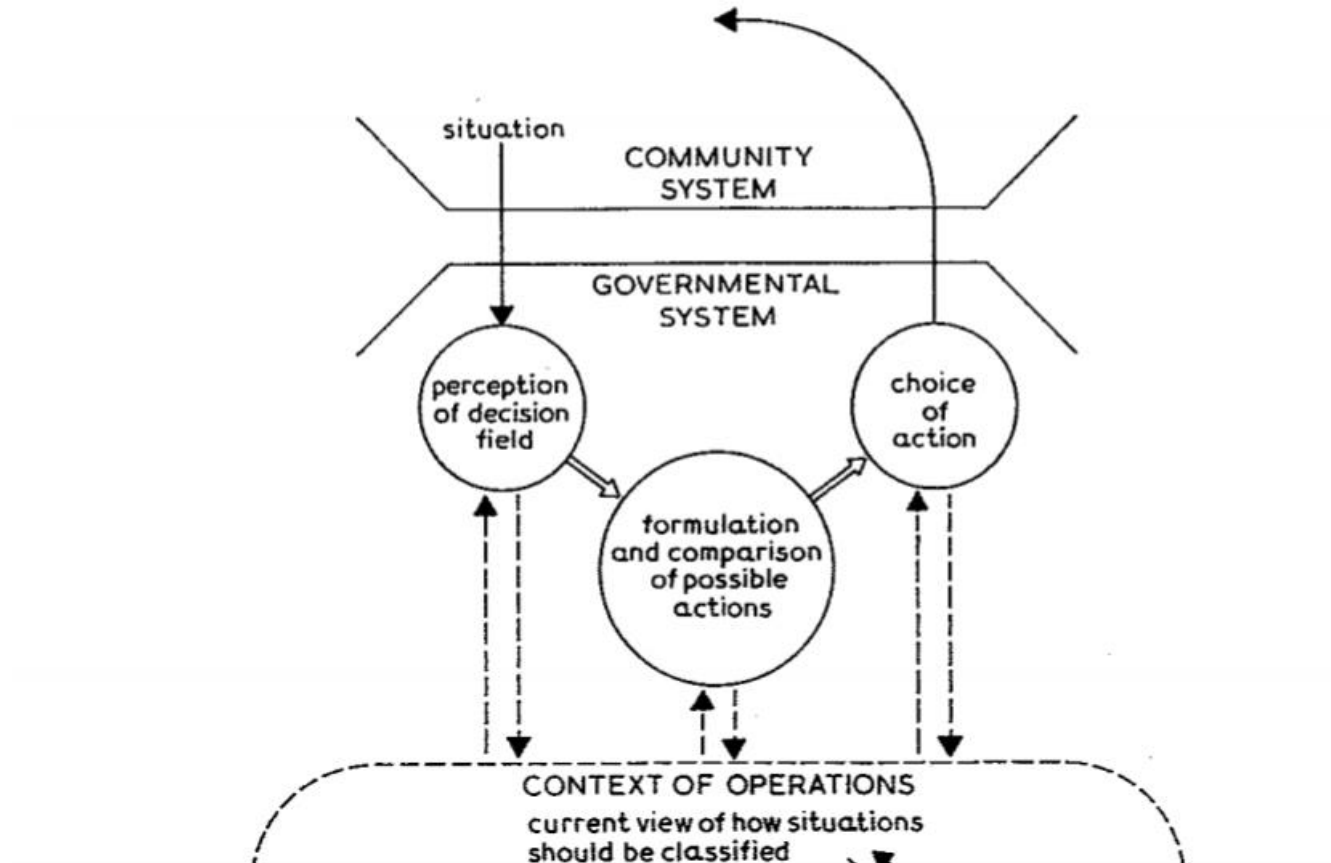


Based on Friend and Jessop's Dialogue Model (1969:103)



Planning Process

Figure 24. Model 3: the context of operations



Original Friend and Jessop's Dialogue Model (1969)



OSS 1 - PPGIS

Public Participat. GIS (PPGIS) – Soft-GIS

- Geospatial database.
- Combines hard and soft-data (socially constructed and practical knowledge).
- Map-based questionnaire.

Benefits

- Catalyst of residents
- Collective intelligence
- Facilitates self-organization
- Alternative formulation

Disadvantages

- A little expert-based nature
- Can exclude sections of population (digital divide)
- Costs (hardware and staff).



OSS 2 – Social Media (SNS)

Benefits

- Help stir debate (around the alternatives in PPGIS)
- Facilitate social engagement, socialization, communication
- Reinforce neighbouring
- Complement traditional methods and attract younger people

Disadvantages

- Digital divide
- Lack of action following debate
- Substitute for more traditional modes of face-to-face communication



OSS 3 – STAN

Decision Support Systems: [STAN software](#)

DSS: “Computer technology solutions that can be used to support complex decision making and problem solving” (Shim et al., 2002).

Based on operation research, linear programming and binary variables.

Benefits

- Choosing and ranking alternatives
- Mediating between different stakeholders
- Engage the public
- Flexibility
- Traceability

Disadvantages

- Expert-based
- Needs a mediator
- Substitute for more traditional modes of face-to-face communication

OSS 3 – STAN

Openshaw.stan - STAN 1.1.0

File Windows

C:\Documents and Settings\Giampaolo\Desktop\stan-1.1.0-pre-3\examples\Openshaw.stan

Value	Frame	Constraints	Titolo	Scelta/Fissa	Cost	M	M	M	M	M	M	M
5.0			Modalità		Minimizza	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7.0			Minimo		-∞	0	0	0	0	0	0	0
9.0			Valore		5.0	1	1	1	1	0	1	1
12.0			Massimo		+∞	1	1	1	1	1	1	1
14.0			Destination									
17.0			Housing	<input type="radio"/> <input type="checkbox"/>	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
18.0			Community centr	<input type="radio"/> <input type="checkbox"/>	20	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.0			Open space	<input checked="" type="radio"/> <input type="checkbox"/>	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.0			Parking	<input type="radio"/> <input type="checkbox"/>	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33.0			Site									
End			A	<input type="radio"/> <input type="checkbox"/>	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			B	<input checked="" type="radio"/> <input type="checkbox"/>	4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			C	<input type="radio"/> <input type="checkbox"/>	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
			Designed inside									
			No	<input checked="" type="radio"/> <input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			Yes	<input type="radio"/> <input type="checkbox"/>	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10 solution(s) f...

Ready



OSS 4 – GTFS Data

General Transit Feed Specification - Trip Planners
Public transit agencies make such data freely available.

The screenshot displays a trip planner interface with a blue sidebar on the left and a map on the right. The sidebar contains the following information:

- Menu**
- Origin: Delft, Station Delft, 2611 AA Delft
- Destination: Michiel de Ruyterweg 12, 2628 BA Delft
- Depart at: 12:00 PM, Thu, Mar 16
- Send directions to your phone
- Four transit options, each with a 4-minute duration:

Time	Duration
12:03 PM (Thursday) – 12:07 PM	4 min
12:12 PM (Thursday) – 12:16 PM	4 min
12:18 PM (Thursday) – 12:22 PM	4 min
12:23 PM (Thursday) – 12:27 PM	4 min

The map shows a blue route starting at Delft, Station Delft and ending at Michiel de Ruyterweg 12. The route includes stops at Delft, Station Delft, Pathé Delft, and Michiel de Ruyterweg 12. The map also shows various landmarks and streets in Delft, including the Botanische Tuin and Delft University of Technology.



OSS 4 – GTFS Data Examples

agency.txt

agency_id,agency_name,agency_url,agency_timezone,agency_phone,agency_lang
AMA,Azienda Mobilità Aquilana (AMA s.p.a.),http://www.ama.laquila.it/,Europe/Rome,
 319857,it

...

stops.txt

stop_id,stop_name,stop_desc,stop_lat,stop_lon,stop_url,location_type,parent_station
 A240,Via Strinella lato parcheggio,,42.35238055,13.4068701,
 http://www.ama.laquila.it/uploads/fermate/1433158451-2683-a240.pdf,,
 A250,Via Strinella fronte parcheggio, 42.35301055, 13.4071801,
 http://www.ama.laquila.it/uploads/fermate/1433158497-8128-a250.pdf
 A260, Viale Pescara - questura - Strinella 88,42.35370055,13.4078801,
 http://www.ama.laquila.it/uploads/fermate/1433158546-1904-a260.pdf,,
 A270,Via Strinella - questura - Strinella 88,42.35388055,13.4072001,
 http://www.ama.laquila.it/uploads/fermate/1433158578-3629-a270.pdf,,

...

routes.txt

route_id,route_short_name,route_long_name,route_desc,route_type
A,15,Linea 15,"Arischia-Terminal",3

trip_id	arrival_time	departure_time	stop_id
9_Ara	6:55:00	6:55:00	A01
9_Ara	6:55:53	6:55:53	B190
9_Ara	6:56:47	6:56:47	B170
9_Ara	6:57:40	6:57:40	A660
9_Ara	6:58:33	6:58:33	B00660
9_Ara	6:59:27	6:59:27	B00560
9_Ara	7:00:20	7:00:20	B680
9_Ara	7:01:13	7:01:13	B860
9_Ara	7:02:07	7:02:07	B890
9_Ara	7:03:00	7:03:00	B950
9_Ara	7:04:00	7:04:00	B960
9_Ara	7:05:00	7:05:00	F00780
9_Ara	7:06:00	7:06:00	F00800
9_Ara	7:07:00	7:07:00	F00820
9_Ara	7:08:00	7:08:00	F00840
9_Ara	7:09:00	7:09:00	F00860
9_Ara	7:10:00	7:10:00	F00880
9_Ara	7:11:26	7:11:26	F00900
9_Ara	7:12:51	7:12:51	F00920
9_Ara	7:14:17	7:14:17	F01010
9_Ara	7:15:43	7:15:43	F00940
9_Ara	7:17:09	7:17:09	F00960
9_Ara	7:18:34	7:18:34	F00980
9_Ara	7:20:00	7:20:00	F00990
9_Ara	8:00:00	8:00:00	A01
9_Ara	8:01:07	8:01:07	B190
9_Ara	8:02:13	8:02:13	B170
9_Ara	8:03:20	8:03:20	A660
9_Ara	8:04:27	8:04:27	B00660



OSS 4 – GTFS Data

Open Trip Planner Analyst: Integration of land use, spatial accessibility and location analysis, demographic data.

<http://www.opentripplanner.org/analyst/>

<http://www.mapnificent.net/>

<https://mapumental.com/>



Conclusions

- Planning is a state-led activity
- Participation is government-controlled
- Planning approaches to public participation
- Digital rationality and social psychology
- Digital Community planning could provide communities with a better setting to move up the ladder of citizen participation



SmartGov

Advanced decision support for Smart Governance

References

- Arnstein, S. (1969). A Ladder of Citizen Participation. *Journal of the American Planning Association*, 35(4), 216–224.
- Boonstra B., Boelens L. (2011). Self-organisation in urban development: towards a new perspective on spatial planning. *Urban Research & Practice*, 4(2): 99-122.
- Davidoff, P. (1965) Advocacy and Pluralism in Planning. *Journal of the American Planning Association*, 31(4): 331-338.
- Friend, J., Jessop, N. (1969) *Local Government and Strategic Choice*. London: Routledge.
- Healey, P. (2006) *Collaborative Planning: Shaping Places in Fragmented Societies*. 2nd Edition. London: MacMillan.
- Huxley, M. (2000) Limits to communicative planning. *Journal of Planning Education and Research*,
- Innes, J. E. (1995) Planning theory's emerging paradigm: communicative action and interactive practice. *Journal of planning education and research*, 4(3): 183-189.
- Kaufman, J. (1984) Comment. *Journal of the American Planning Association*, 48(5): 175-178.
- Ricca F., Scattoni P. (2008). Pianificazione nell'Approccio della Scelta Strategica. In Felici, G. and Sciomachen, A. (eds.) “*Scienza delle decisioni in Italia: applicazioni della Ricerca Operativa ai problemi aziendali*”. Genova: ECIG.
- Saad-Sulonen J., Horelli L. (2010) The value of Community Informatics to participatory urban planning and design: a case-study in Helsinki. *The Journal of Community Informatics*, 6(2): page unknown. Available at: http://ci-journal.net/index.php/ciej/article/view/579/603#_ftnref6. Accessed on 13 January, 2015.
- Saad-Sulonen, J. (2014) *Combining Participations: Expanding the Locus of Participatory E-Planning by Combining Participatory Approaches in the Design of Digital Technology and in Urban Planning*. PhD Thesis. Aalto University. Available at: <https://aaltoodoc.aalto.fi/bitstream/handle/123456789/13352/isbn9789526055435.pdf?sequence=1>. Accessed on 10 January, 2015.
- Savitsky K., Gilovich T. (2003) The illusion of transparency and the alleviation of speech anxiety. *Journal of Experimental Social Psychology*, 39: 618-625.
- Shim J.P., Warkentin M., Courtney J.F., Power D.J., Sharda R., Carlsson C., (2002) Past, present, and future of decision support technology. *Decision Support Systems*, 33(2): 111-126.
- van Varik F.J.M., van Oostendorp H. (2013) Enhancing Online Community Activity: Development and validation of the CA framework. *Journal of Computer-Mediated Communication*, 18(4): 454-475.
- Wellman B., Quan-Haase A., Boase J., Chen W., Hampton K., Díaz I., Miyata K., (2003) The Social Affordances of the Internet for Networked Individualism. *Journal of Computer-Mediated Communication*, 8(3): page unknown. Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.2003.tb00216.x/full>.
- Wenger E., White N., Smith, J.D., (2009) *Digital Habitats: stewarding technology for communities*. Portland: CPSquare.



Thanks for your time

Questions?

