

# Virtual collaborative design environments

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Explosions of Virtuality Week

Stanford University, 5 Oct 2011

**ad:mt**

DEPARTMENT OF ARCHITECTURE, DESIGN & MEDIA TECHNOLOGY



**AALBORG UNIVERSITY**



# Design

- Architecture, engineering & construction (AEC)
- Industrial & product design
- Civil & mechanical engineering
- Manufacturing



# Distributed & collaborative approaches to design/creation


## *Open source*

- Wikipedia
- 'Open Source' software
- Mechanical Turk (Amazon)
- Crowdspirit/InnoCentive

## *Business world (innovation & product development)*

- Proctor & Gamble
- Mass customisation: Adidas, Benetton
- Threadless.com

*How can these approaches be harnessed for architectural projects?*



# Virtual worlds as platforms for collaboration and design

- Enhanced testing and feedback processes can replace physical prototyping
- Immersive environments with good communication/collaboration possibilities
- Voice/video/application sharing
  
- Idea generation
- Design
- Manufacturing

# Wikitecture 3.0



# Wikitecture 3.0: Wiki-tree





# Wikitecture: Contribution assessment

	Theory Shaw	Azwaldo Villota	Keystone Bouchard	Victoria Bury	Lordfly Digeridoo	Daruma Picnic	Omei Turnbull	Veeyawn Spoonhammer	Average	Eligible Members	Adjusted Average	Payout US Dollars	\$240.96 Lindens per US Dollar
Keystone_Bouchard	45.0%	17.0%	15.0%	10.0%	30.0%	20.0%	25.0%	15.0%	22.1%				
Azwaldo_Villota	15.0%	16.0%	15.0%	50.0%	0.0%	15.0%	15.0%	15.0%	17.6%	17.6%	27.6%	\$275.93	\$66,487.98
Omei_Turnbull	15.0%	11.0%	15.0%	10.0%	30.0%	15.0%	15.0%	10.0%	15.1%	15.1%	23.7%	\$236.79	\$57,057.06
Daruma_Picnic	10.0%	16.0%	15.0%	10.0%	0.0%	40.0%	15.0%	10.0%	14.5%	14.5%	22.7%	\$227.01	\$54,699.33
Theory_Shaw	5.0%	17.0%	15.0%	10.0%	30.0%	10.0%	8.0%	15.0%	13.8%				
Veeyawn_Spoonhammer	5.0%	10.0%	8.0%	10.0%	0.0%	0.0%	8.0%	5.0%	5.8%	5.8%	9.0%	\$90.02	\$21,691.12
Lordfly_Digeridoo	5.0%	6.0%	7.0%	0.0%	10.0%	0.0%	5.0%	10.0%	5.4%	5.4%	8.4%	\$84.15	\$20,276.48
Zage_Farman	0.0%	5.0%	0.0%	0.0%	0.0%	0.0%	3.0%	5.0%	1.6%	1.6%	2.5%	\$25.44	\$6,130.10
Bryan_Caldwell	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%	5.0%	1.1%	1.1%	1.8%	\$17.61	\$4,243.91
Bjorn_Collins	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	4.0%	0.0%	0.8%	0.8%	1.2%	\$11.74	\$2,829.28
Anthony_Reisman	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	0.6%	0.6%	1.0%	\$9.78	\$2,357.73
Max_Ballard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	0.6%	0.6%	1.0%	\$9.78	\$2,357.73
Pell_Juran	0.0%	0.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.5%	0.8%	\$7.83	\$1,886.18
Far_Link	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.3%	0.3%	0.4%	\$3.91	\$943.09
	100.0%	98.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.8%	63.9%	100.0%	\$1,000.00	\$240,960.00

# Project collaboration modes



A 3D architectural model is shared through a platform (e.g. Second life) with a community. Feedbacks/improvements are received and the ones considered adequate will be selected

Open

Participation

A selected group of the partners chosen by the company. The company defines the objective of the project, defines the rules of collaboration and monitors the whole activity.

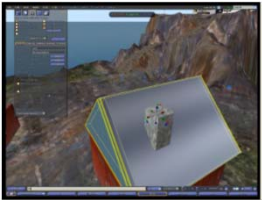
Closed

<p><b>Solver/Feedback Network</b></p> <p><i>aloft</i></p>	<p><b>Pure open design Community</b></p> <p><i>Wikitecture</i></p>
<p><b>VIP Network</b></p> <p><i>PARC</i></p>	<p><b>Consortium</b></p> <p><i>Implenia</i></p>

A network where designers openly choose the leadership, collaborate with each other, propose designs and decide which ones are more valuable

A private group of participants jointly select focus areas and design solutions.

Hierarchical                      Flat  
**Governance Model**






# Observations

- No ‘one size fits all’ approach to virtual collaboration
- Dynamic governance models
- Combination of virtual worlds with ‘traditional’ forms of collaboration



# Open Architecture Network

- *<http://www.openarchitecturenetwork.org/>*
- Online, open source community dedicated to improving living conditions through innovative and sustainable design
- Share ideas, designs and plans
- View and review designs posted by others
- Collaborate with each other, people in other professions and community leaders
- Manage design projects from concept to implementation
- Communicate easily amongst team members
- Protect intellectual property rights
- Build a more sustainable future



# The future of open source architecture networks

- Increased opportunities for less experienced architects and smaller firms
- Peer review of tendered bids
- Alternative paths to professional registration
- More collaborative relationships between designers, manufacturers and other suppliers



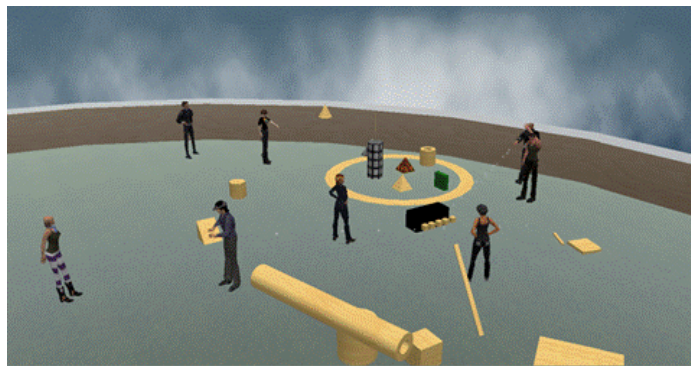
- Architectural and Design based Education and Practice through Content & Language Integrated Learning using Immersive Virtual Environments for 21st Century Skills
- (Architectural) Design T&L
- Virtual environments (design & learning)
- CLIL
- Fragile spaces

# Actions to date (partial)

Student workshop (Paris)  
Architecture in virtual worlds



Student course (Paris)  
Crit-IMPACT



Student workshop (OU)  
Working with a design brief

***Future:*** We are looking for additional collaborators for upcoming T&L actions (Spring 2012)