I-Room: a Virtual Space for Intelligent Interaction

An intelligent environment which acts as a knowledge aid to support collaborative teleconferences and meetings

Austin Tate
AIAI, University of Edinburgh

Ai Austin
Virtual University of Edinburgh

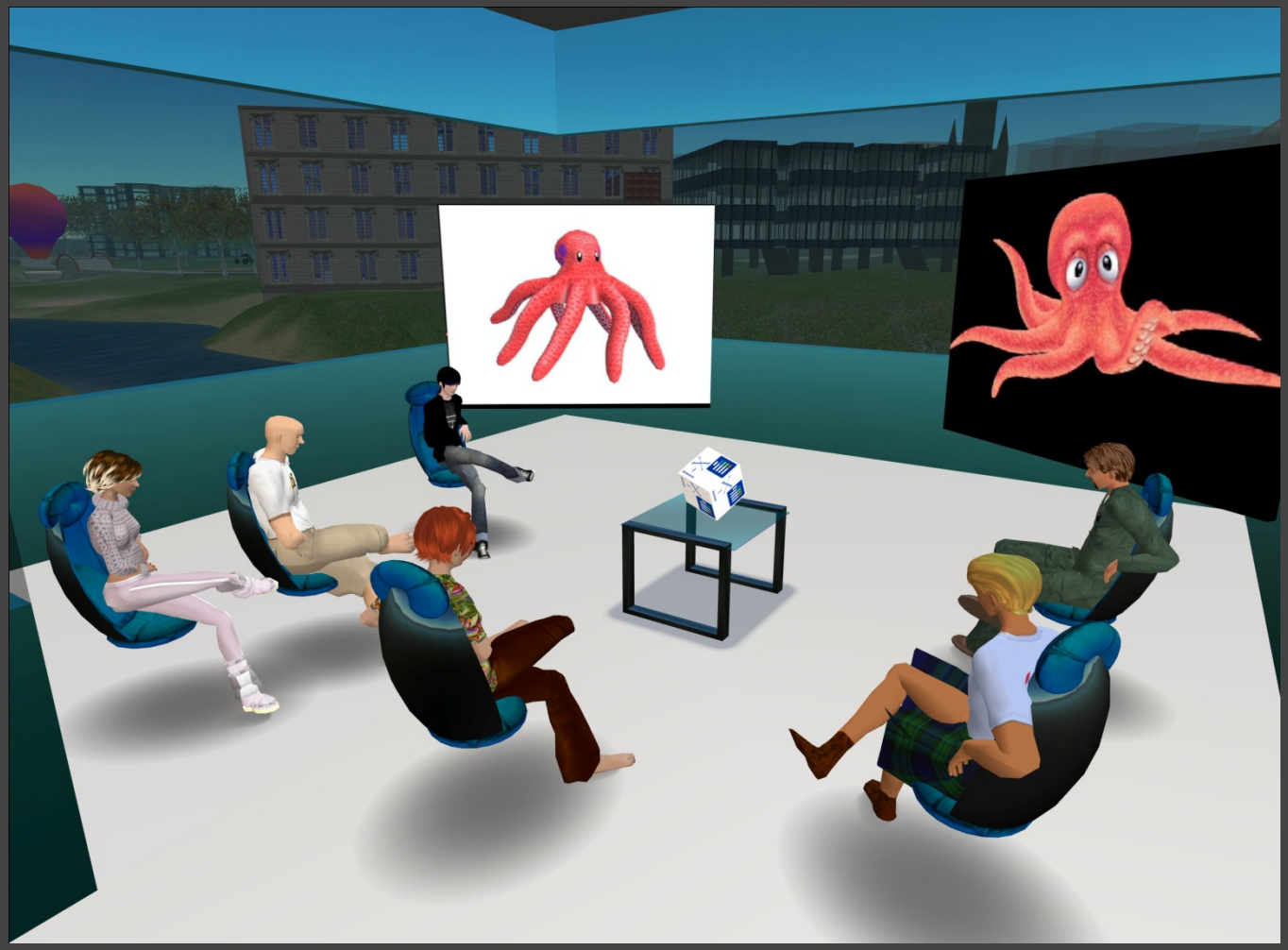
OpenVCE

I-Room: a Virtual Space for Intelligent Interaction

Low cost, simple setup, mixed-reality meetings spaces

I-Room: a Virtual Space for Intelligent Interaction

Distributed collaborative team support for production and review in the creative industries



I-Room: a Virtual Space for Intelligent Interaction

Operations Centres, Brainstorming Spaces, Team Meeting Rooms, Training and Review Areas

I-Room: a Virtual Space for Intelligent Interaction

Operations Centres, Brainstorming Spaces, Team Meeting Rooms, Training and Review Areas

I-Room: a Virtual Space for Intelligent Interaction

Tutorial and commercial spaces

I-Room Introduction

- I-Room provides a 3D virtual space with multiple work zones, designed for collaborative and brain storming style meetings
- I-Rooms are used in the I-X research on intelligent collaborative and task support environments
- The main feature of the I-Room is the link up with external web services, collaboration systems and intelligent systems aids

OpenVCE

I-Room Applications

- Virtual collaboration center
- Business teleconferencing
- Team Meetings for project and product reviews
- Product Help Desks
- Design to Product - product lifecycle support
- Environment, building and plant monitoring
- Health and safety at work, disability awareness
- Intelligent tutors, guides and greeters
- Active demonstration pavilions

OpenVCE

I-Room Integration

- The I-Room 3D virtual space is linked to a social networking and community knowledge management web portal in OpenVCE.net
- Recent experimental use of the I-Room and OpenVCE for the "Whole of Society Crises Response" (WoSCR) community in the conduct of emergency response and crisis management
- This is intended as a contribution to the wider notions of "The Helpful Environment"

VCE for WoSCR

- Whole of Society Crisis Response Community
- Cognitive Work Analysis of Requirements and Technologies
- Virtual Collaboration Environment:
  - Web-based portal
  - Virtual interaction space
  - Community tools inclduing I-Room
  - Collaboration protocols
- OpenVCE.net

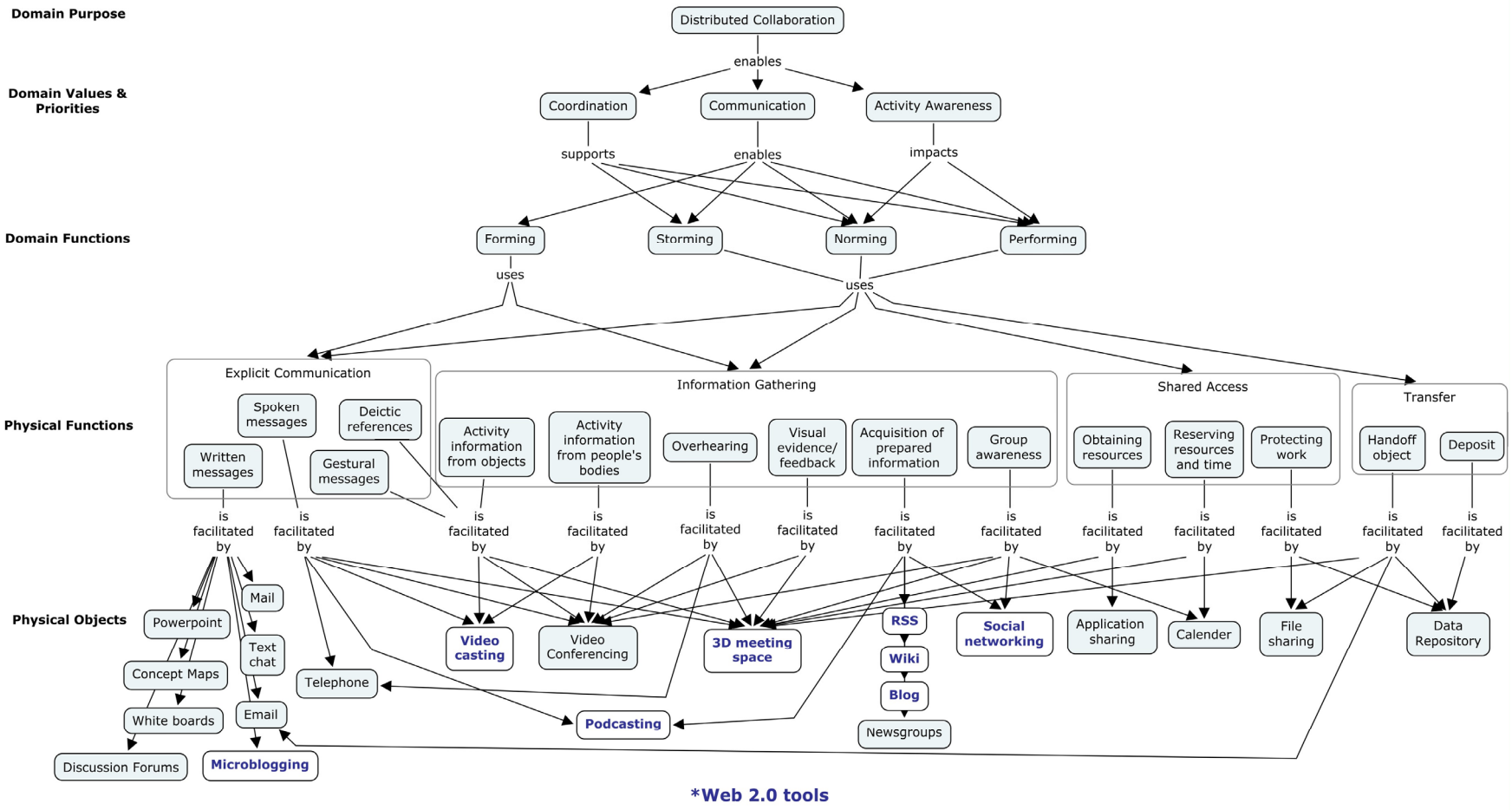
OpenVCE

WoSCR

- Whole of Society Crisis Response Community
- The Whole of Society Crises Response (WoSCR) community takes a "whole of society" approach to complex problems seeking to input PMESII factors into the analysis and decision support when a crisis occurs. It seeks a global comprehensive approach to crises response
- PMESII stands for the "Political, Military, Economic, Social, Infrastructure, and Information" considerations involved in crisis and emergency response

OpenVCE

Cognitive Work Analysis – Phase I



Vicente, K. J. (1999) Cognitive Work Analysis

Cognitive Work Analysis – Phase I

The first phase of the Cognitive Work Analysis involves identifying the activity-independent constraints of the work domain:

- Domain purpose: the overarching goal to be achieved – in this case, distributed collaboration.
- Domain values and priorities: principles or qualities on which work in the domain is founded – in this case, we can identify coordination, communication and activity awareness as essential components of distributed collaboration.
- Domain functions: the realization of the domain values and priorities (and fulfillment of the domain purpose) as abstract functions within the domain.
- Physical functions: the realization of the domain functions in terms of techniques.
- Physical objects: artifacts that provide some aspect of the identified physical functionality, with particular reference to novel “Web 2.0”-type technologies that may be exploited alongside common existing technologies.

By pinpointing specific tools and providing a clear functional rationale for their use, the resulting analysis provides a roadmap for the development of a VCE that meets the functional objectives of the domain.

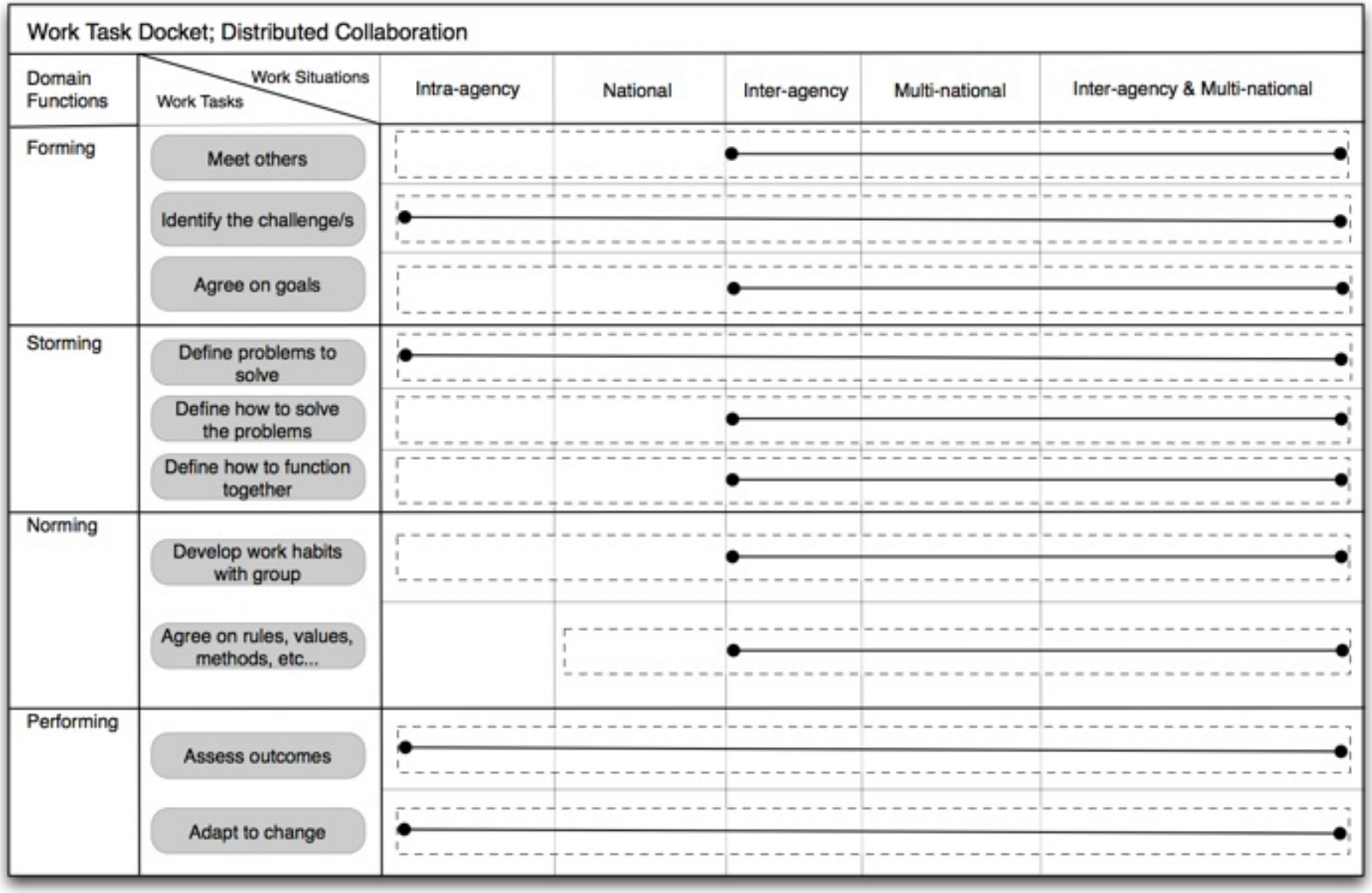
Work Organizational Analysis – Phase II

The second phase of the Cognitive Work Analysis situates tasks at the appropriate organizational level according to the actors involved.

One dimension of this is based on the domain functions identified in the CWA, each now elaborated according to specific work tasks.

The second dimension reflects increasing geographical and organizational dispersal – from local and intra-agency through national inter-agency and on to multi-national and involving civil and military participants.

Work Organizational Analysis – Phase II



Tuckman, B.W. (1965) Developmental Sequence in Small Groups

Open Virtual Collaboration Environment

- **Web-based Collaboration Portal**
  - Drupal CMS
  - Also explored Facebook, Google Groups, Yahoo Groups, Ning Groups, Grou.ps, Joomla CMS
  - Linkups to external web services and gadgets
- **Virtual World 3D Space**
  - Second Life
  - Opensim (potentially behind a firewall)
- **Virtual Collaboration Protocol**
  - Standard Operating Procedures
  - FAQ and Tips
  - Protocol (Rob Cross, University of Virginia)
- **Community Tools**
  - AIAI I-Room – a Room for Intelligent Interaction
  - CMU Catalyst Community Knowledge base
  - Concept Maps, and Experimental 3D Model Visualizations

OpenVCE

Austin Tate

- Home
- Messages
- Blogs
- Forums
- Wiki
- Events
- Files
- Images
- Videos
- More content
- Create content
- FAQ
- Links
- My profile
- Log out

3D space

teleport now

Access: Chat, Wave, HW, QT

[Setup/Help, Register avatar]

[Terminals, Presenter, Blogger]

Event calendar

« April »

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Welcome to the OpenVCE community portal. All content is community-created, so become a registered user and start contributing!

Forthcoming events

Federal Consortium for Virtual Worlds Conference 2010	2 weeks 5 days from now	contact: Austin Tate
WoSCR Community - Possible Virtual Iterative Workshop Series - VIWS-4	5 weeks 2 days from now	contact: Austin Tate

Current discussions

OpenVCE envisioned site structure *started by Jeff Hansberger, last reply by Austin Tate 28 weeks ago*

The weakest link *started by ac, last reply by erapisardi 4 weeks ago*

Expt Case 0 H1N1 Forum *started by Austin Tate, last reply by Jeff Hansberger 18 weeks ago*

more

What are you doing?

Austin Tate | Meeting Ken Anderson of Project EPIC - see http://sn.im/tweakt | max 140 characters | Send

Austin Tate Meeting Ken Anderson of Project EPIC - see http://sn.im/tweakthetweet *1 day ago* Edit Delete

Austin Tate Writing paper on OpenVCE support to WoSCR for KSCO-2010 http://ksco.info/ksco-2010.html *2 days ago* Edit Delete

lfuentes Preparing a presentation to the Virginia Local Government IT Executives (VALGITE) for Apr 26 on VOICCE *3 days ago*

Search this site: Search

Search the Wiki: Search

I-Room Concept Maps Second Life QOC Shared Media I-Zone QOCTale Lounge

Who's online

There are currently *1 user* and *6 guests* online.

Austin Tate

Latest wiki updates

PMESII-Tools *3 weeks 6 days ago*
PMESII-Tools *3 weeks 6 days ago*
PMESII-Tools *4 weeks 1 day ago*
VOICCE *6 weeks 2 days ago*
Main Page *6 weeks 3 days ago*

more

What's happening

lfuentes has updated group VOICCE Group *14 hours ago*

lfuentes has updated VOICCE Resources and VOICCE *14 hours ago*

Austin Tate has updated I-Zone and I-Room - A Virtual Space for

OpenVCE Portal – Roles of Elements

- Blog – personal web log
- Forum – threaded discussion within community
- Wiki – community knowledge creation and refinement
- Book Pages – edited content and index pages (change by admins and group leaders only)
- Comment – can be added to most elements

OpenVCE - Internet Explorer
http://openvce.net/wiki/index.php/Main_Page
File Edit View Favorites Tools Help
Favorites OpenVCE

Main Page

Return to OpenVCE.net Community Portal.

Note this MediaWiki facility is an experiment. The OpenVCE.net "Books" are the main knowledge sharing mechanism at the moment.

Contents

1 OpenVCE Facilities
2 Communities
3 Misc.
4 About OpenVCE

OpenVCE Facilities [edit]

- Collecting Social Networking Data from Second Life
- Creating SOPs Using a Wiki
- OpenVCE vs. CSCW
- Types of Meeting Space
- Protocol Technology

Communities [edit]

- KSCO - Knowledge Systems for Coalition Operations Community
- JOE - Joint Operating Environment Community
- MPAT - Multinational Planning Augmentation Team
- WoSCR - Whole of Society Crises Response Community
  - H1N1 Swine Flu Scenario

Misc. [edit]

- All Pages Index
- Wiki Editing Help, Formatting, Links, Images, Tables, Formatting, Images, Wiki Editing Tips
- Image Tests

About OpenVCE [edit]

OpenVCE.net (Open Virtual Collaboration Environment) is a project at the Artificial Intelligence Applications Institute (AIAI) within the School of Informatics at the University of Edinburgh . It provides open source and freely accessible facilities to support collaboration in a community, linking a web-based *Community Portal* with a virtual-world based 3D space.

OpenVICE

Sandbox
Venue
Amphitheatre
I-Zone B
Expo Pavilion
Project
Space
Orientation Area
Central Plaza
Project
and
Team
Suites
I-Zone A
Hill Top
Meeting Spaces

OpenVCE
... open virtual collaboration environment
"Whole of Society" Crises Response
Community of Interest

OpenVCE
OpenVCE
OpenVCE
OpenVCE

Links between Web Collaboration Portal and 3D Space

Virtual Collaboration Protocol

- 7 main phases of the VCP (Rob Cross):
  - identify problem dimensions (asynchronous)
  - agree problem dimensions (synchronous)
  - describe relevant experience per dimension (asynchronous)
  - discuss experience and decide on sub-teams addressing different problem dimensions (synchronous)
  - subgroup work on different dimensions (asynchronous)
  - presentation of solutions (synchronous)
  - solution integration (asynchronous)

- OpenVCE Web Portal supports asynchronous work
- OpenVCE I-Room supports synchronous work

OpenVCE Portal - Team Home Page

1 OpenVCE Main Menu

2 Collaboration Facilities

3 Progress Overview (To-Do List)

4 Link to 3D Virtual World

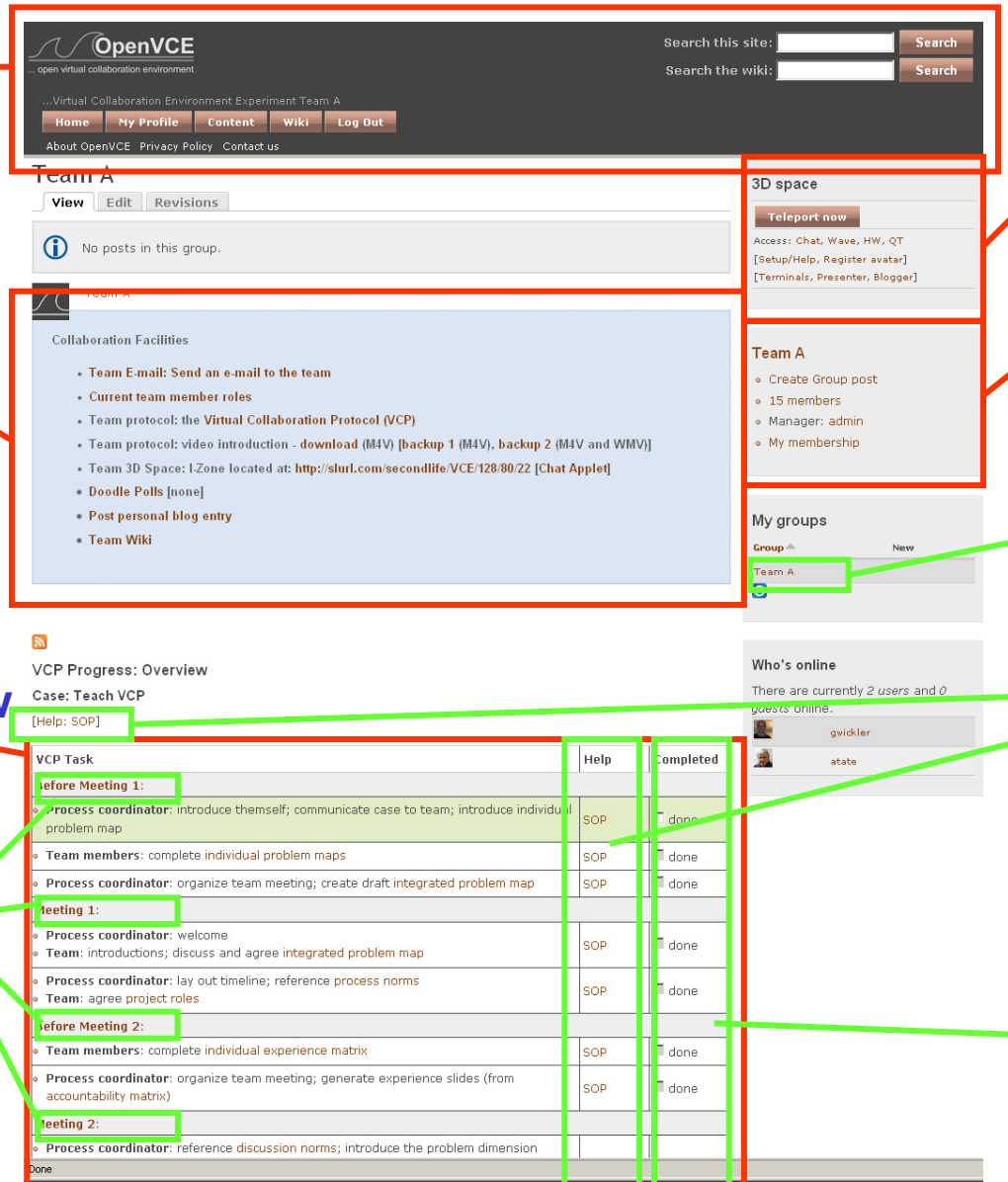
5 Team Links

6 VCP Links (synchronous & asynchronous)

7 Link to Team Page

8 Help Links "SOP"

9 Tick-off boxes

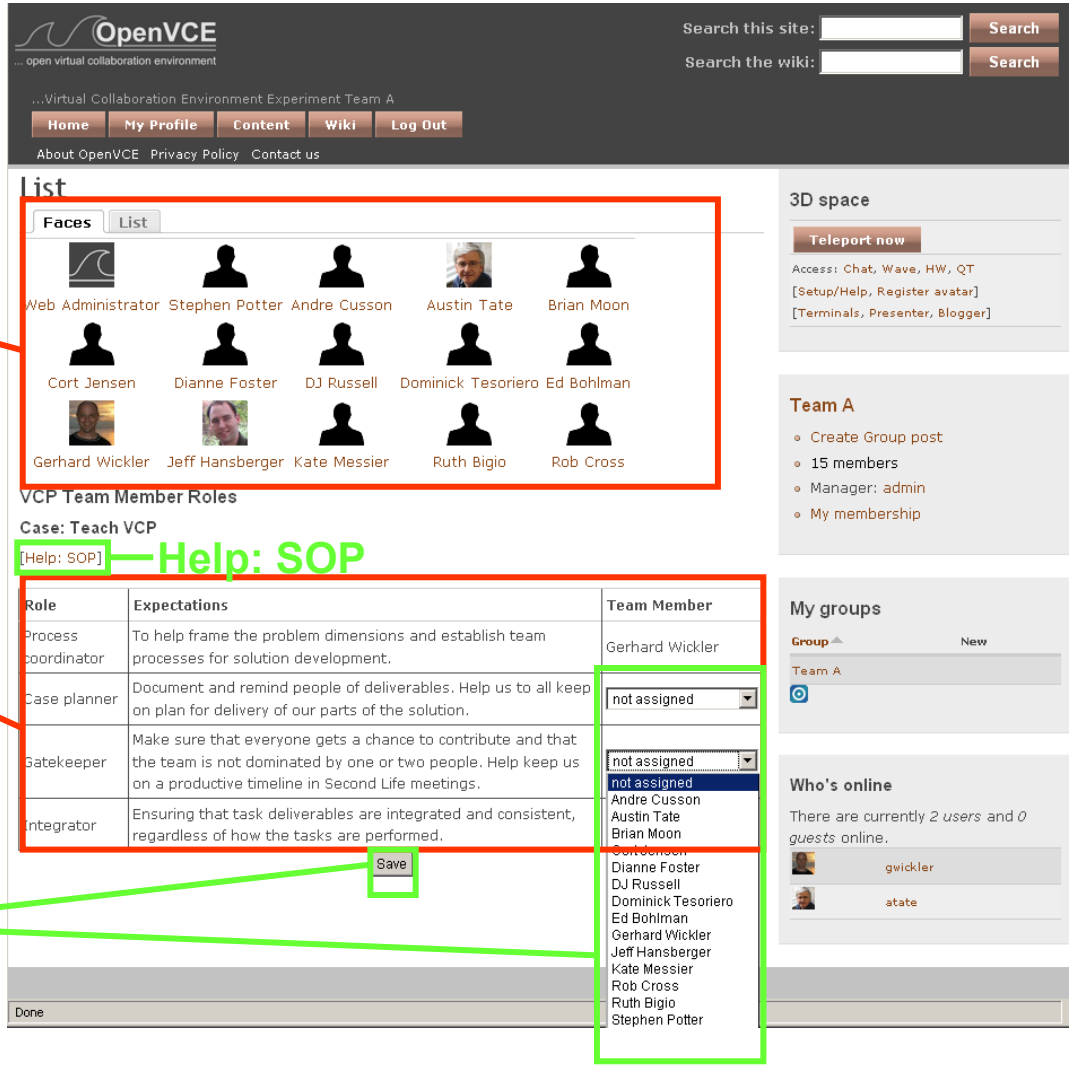


OpenVCE Portal – Team & Roles

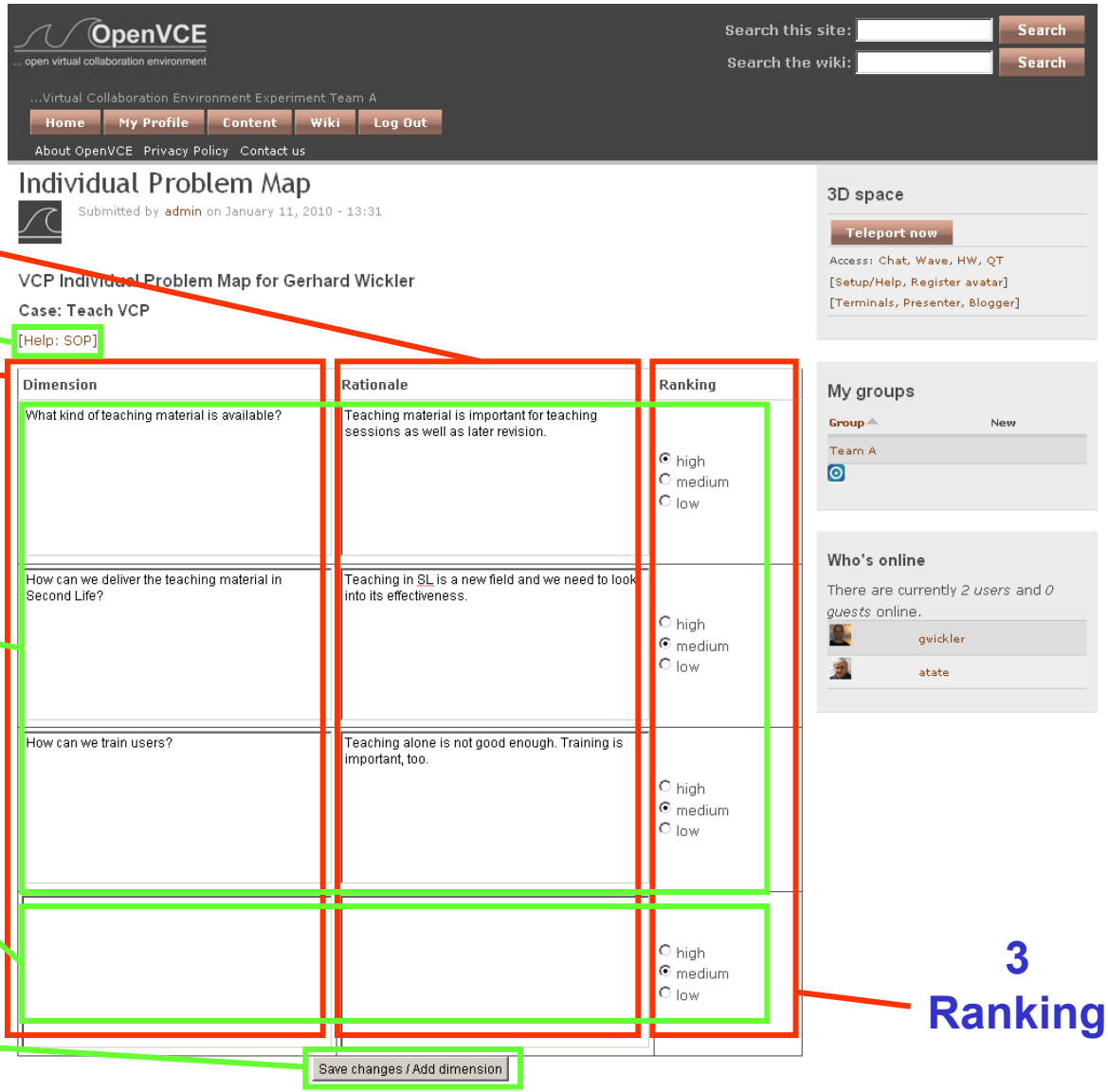
1
Team members with links to their OpenVCE profile pages

2
Team members filling VCP roles

3
Process coordinator can update (at appropriate stage)



OpenVCE Portal – Problem Map Completion



2
Rationale

1
Problem Dimension

Help: SOP

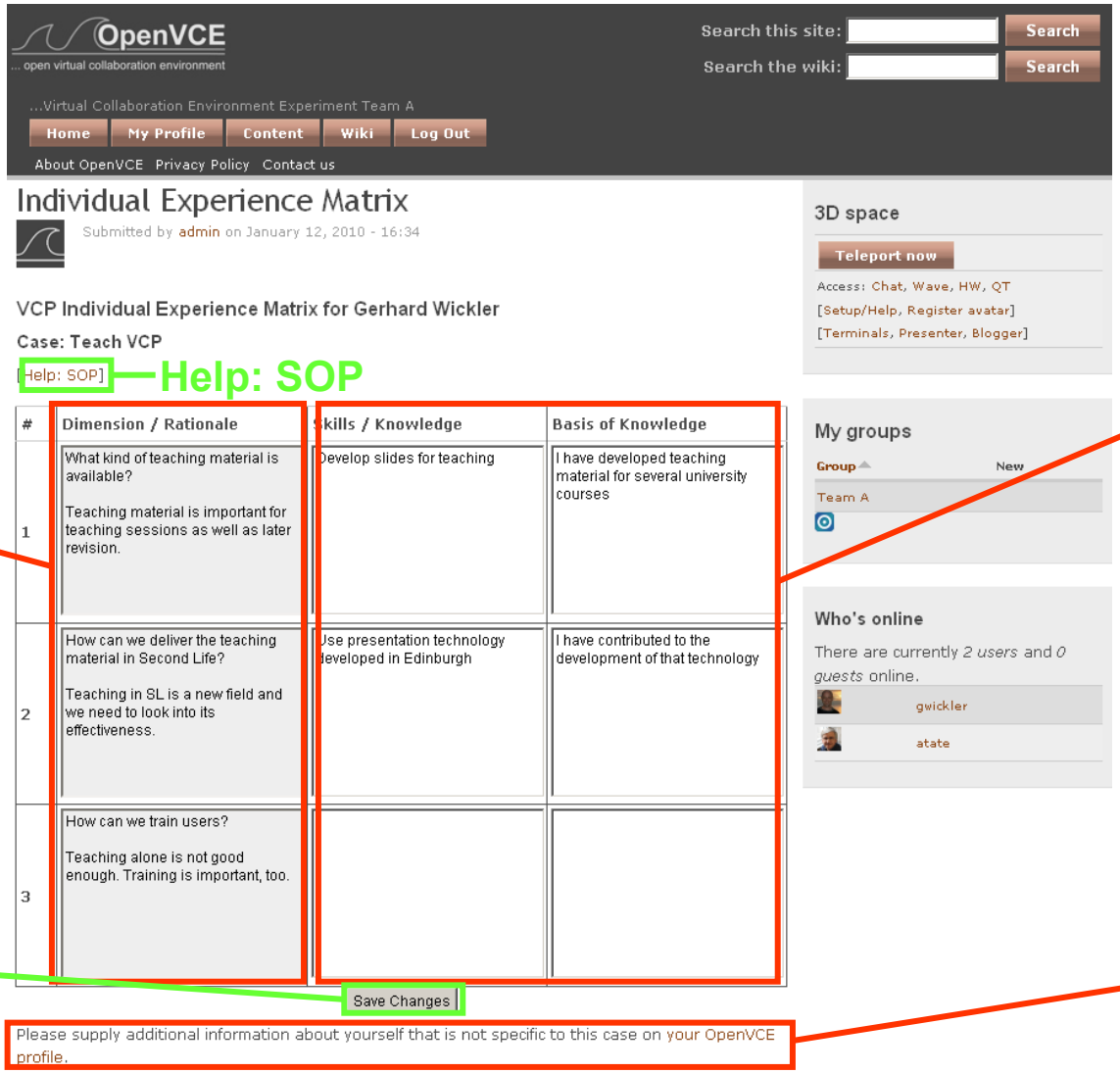
4
Previously Defined Problem Dimensions

5
Space for Additional Problem Dimension

6
Save + Add

3
Ranking

OpenVCE Portal – Individual Experience



1
Agreed Problem Dimensions

2
Input Area for describing relevant knowledge & background (leave blank for no experience)

3
Link to OpenVCE profile

4
Save

OpenVCE Portal – VCP Support

VCP Progress: Overview

Case: Teach VCP

[Help: SOP]

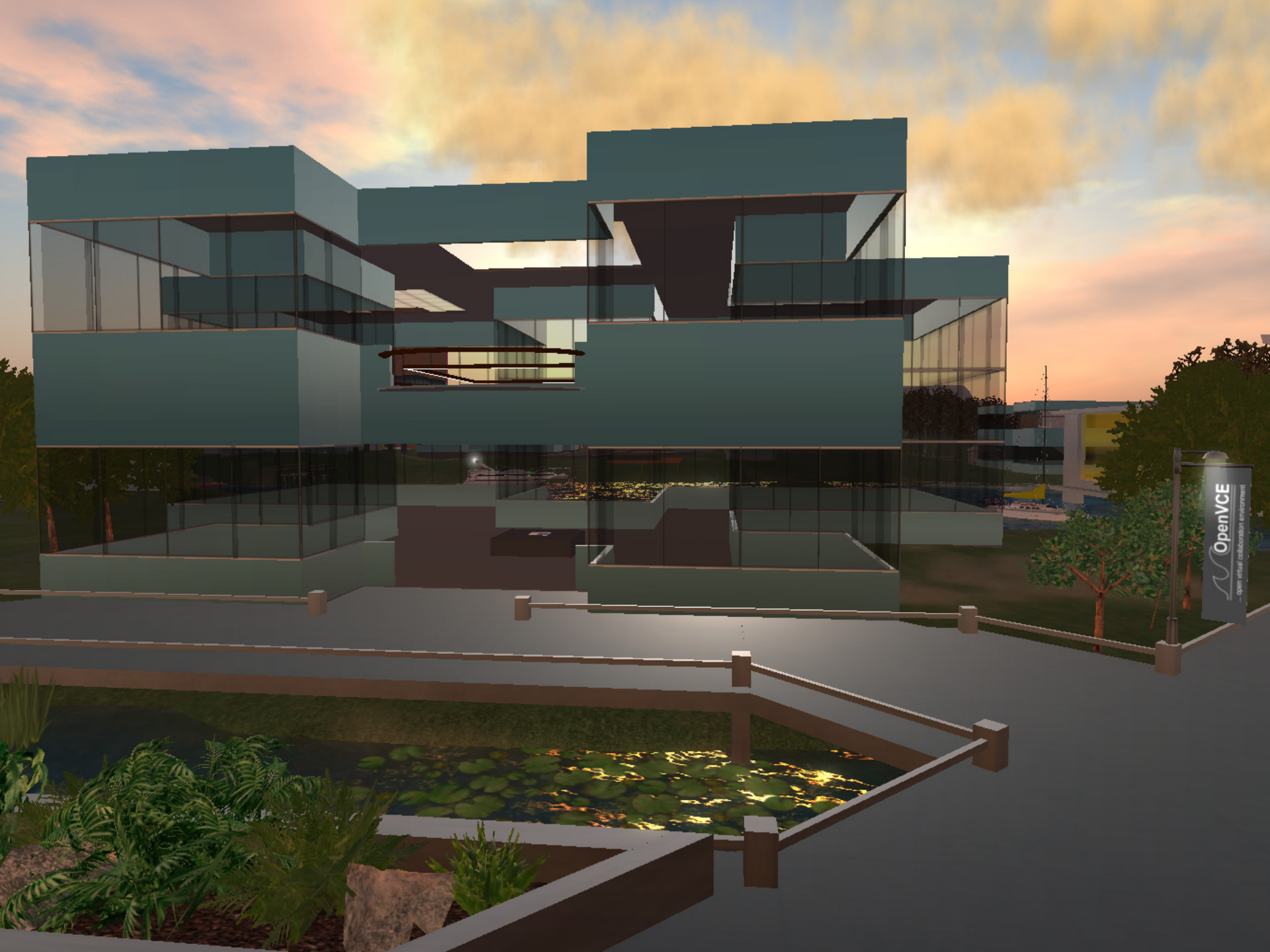
VCP Task	Help	Completed
Before Meeting 1:		
• **Process coordinator**: introduce themself; communicate case to team; introduce individual problem map	SOP	☑ done
• **Team members**: complete individual problem maps	SOP	☑ done
• **Process coordinator**: organize team meeting; create draft integrated problem map	SOP	☑ done
Meeting 1:		
• **Process coordinator**: welcome • **Team**: introductions; discuss and agree integrated problem map	SOP	☑ done
• **Process coordinator**: lay out timeline; reference process norms • **Team**: agree project roles	SOP	☑ done
Before Meeting 2:		
• **Team members**: complete individual experience matrix	SOP	☑ done
• **Process coordinator**: organize team meeting; generate experience slides (from accountability matrix)	SOP	☑ done
Meeting 2:		
• **Process coordinator**: reference discussion norms; introduce the problem dimension solution template • **Team**: discuss individual experiences (by dimension)	-	☑ done
• **Team**: discuss and agree subteams • **Case planner**: complete accountability matrix	SOP	☑ done
• **Case planner**: generate empty solution pages (from accountability matrix)	SOP	☑ done
Before Meeting 3:		
• **Gatekeeper**: monitor progress • **Subteams**: develop solutions • **Team members**: comment on others solutions	SOP	☑ done
• **Subteams**: create solution presentations • **Integrator**: begin integration	SOP	☑ done
Meeting 3:		
• **Subteams**: present solutions and discuss	SOP	☑ done
After Meeting 3:		
• **Integrator**: integrate and deliver final solution	-	☐ done

Save

Tick Active Task When Complete

OpenVCE – Community Tools

- I-Room – Space for Intelligent Interaction
- Catalyst – Community Knowledge Base
- Cmaps - Concept Mapping
- Modelling - Experimental 3D Visualizations
- Collaborative Shared Media


OpenVCE
open virtual collaboration environment

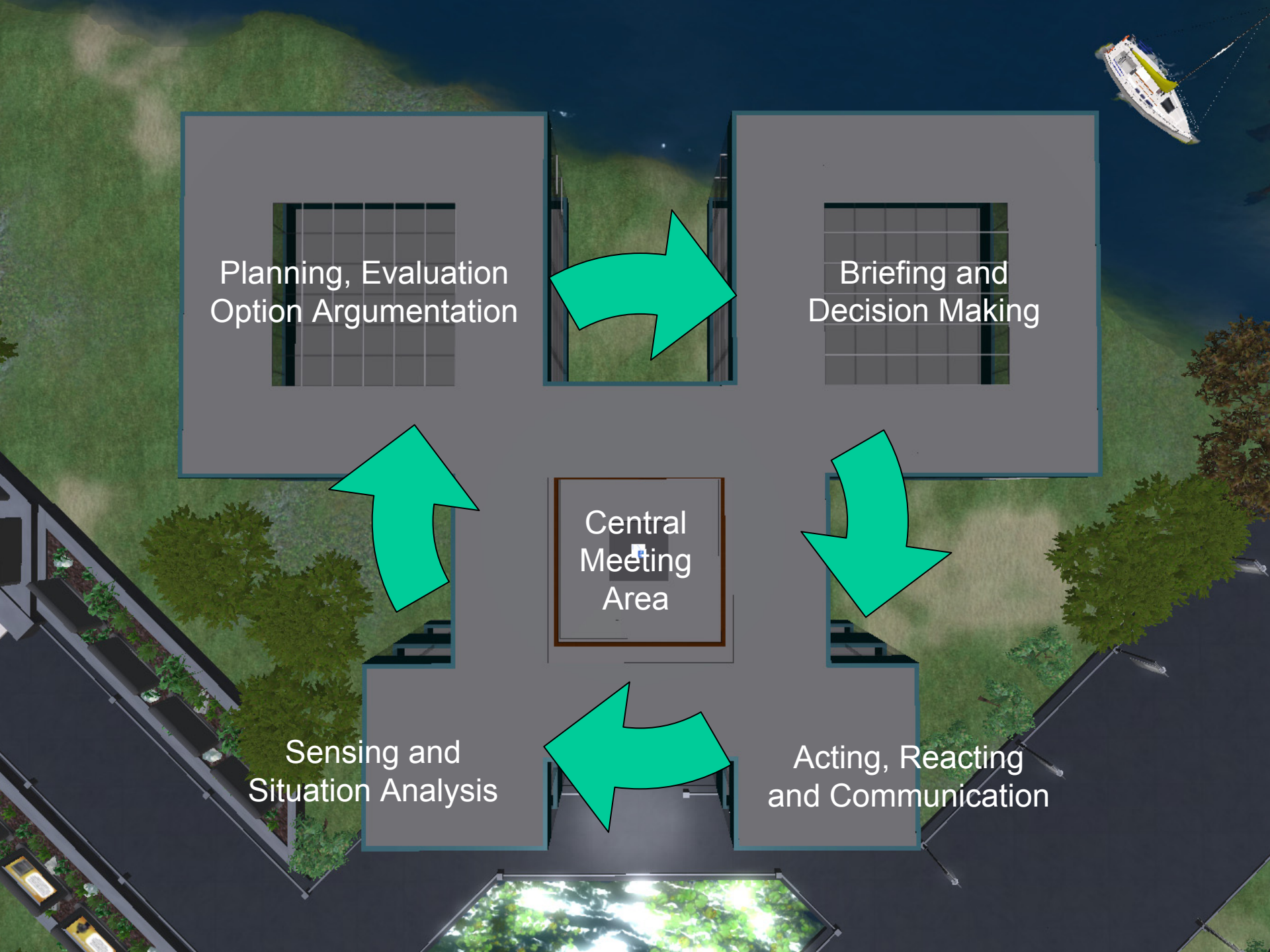
Problem Dimension #4
Clinical Guidelines Including Antiviral Med...
rationale: Here we can discuss what the case definition of...
ranking: high
Knowledge/Skills
Andre Cusson: Knowledge architect, information sharing and communication infrastructure specialist, CISSP
based on: Medical background
Jason Jordan: no specialized experience
Paul Seeman: General medical knowledge
based on: M.D. and MPH degrees
Ronald Cole: none
NUS RidgeCat Member
Dragon Qendra
OpenVCE
Gerhard Tomorrow (Away)
OpenVCE Bot
Aura Atlass
OpenVCE
SP Pizzicato
OpenVCE
Ai Austin
OpenVCE
Jeff Reanimator
Annoying Melody
OpenVCE
PerigeanTechnologies Lowbea
(Away)
UNA Staff
Eirene Janus
Ed Overland
No Phobos
Jayson Gearhead
OpenVCE Event Reception
Kent Optera
Chat Relay
OpenVCE
ac Eberhardt
I-Room Helper (off)
Acknowledged
Acknowledged
Acknowledged
Acknowledged
Acknowledged
Acknowledged
Eleni Lubitsch
Defense Threat
Agency
Web Content

Edit View World Tools Help Advanced VCE 132, 62, 22 (PG) - I-Zone
7:01 AM PDT L$22,947 Search
SLtweets Menu/Help
aiaiaustin (Ai Austin): #openvce I-Room Helper and I-Chat linkup now work to I-Zone rather than previous I-Room
aiaiaustin (Ai Austin): #OpenVCE MEET-4 strats at 2:30pm EDT for event reception - noSL Voice in Use - Text Only
S
W
aiaiaustin (Ai Austin): #openvce http://openvce.net/3d-space-alt not in use for MEET-4 - only showing Vue Balloon Video
AIAI Gerhard Tomorrow
OpenVCE Karma Luckstone
OpenVCE JeffD Anda
OpenVCE Ai Austin
OpenVCE Brooks Appletor
OpenVCE Keg Runner
OpenVCE Skye Gears
OpenVCE Aura Atlass
Vue Associate SP Pizzicato
aiaiaustin (Ai Austin): #openvce MEET-4 event presention available - event URL is http://tr.im/openvcemeet4
aiaiaustin (Ai Austin): #openvce 3d-space-alt feed will be switched off to allow use of servers for harmonie Web tests for MEET-4
aiaiaustin (Ai Austin): #openvce MEET-4 now starting at http://tr.im/openvcemeet4
Twitter - SLTweets HUD
Twitter Status - #openvce
Twitter feed on #openvce
Gears: Austin, your voice is noisy and not clear
Stand Up

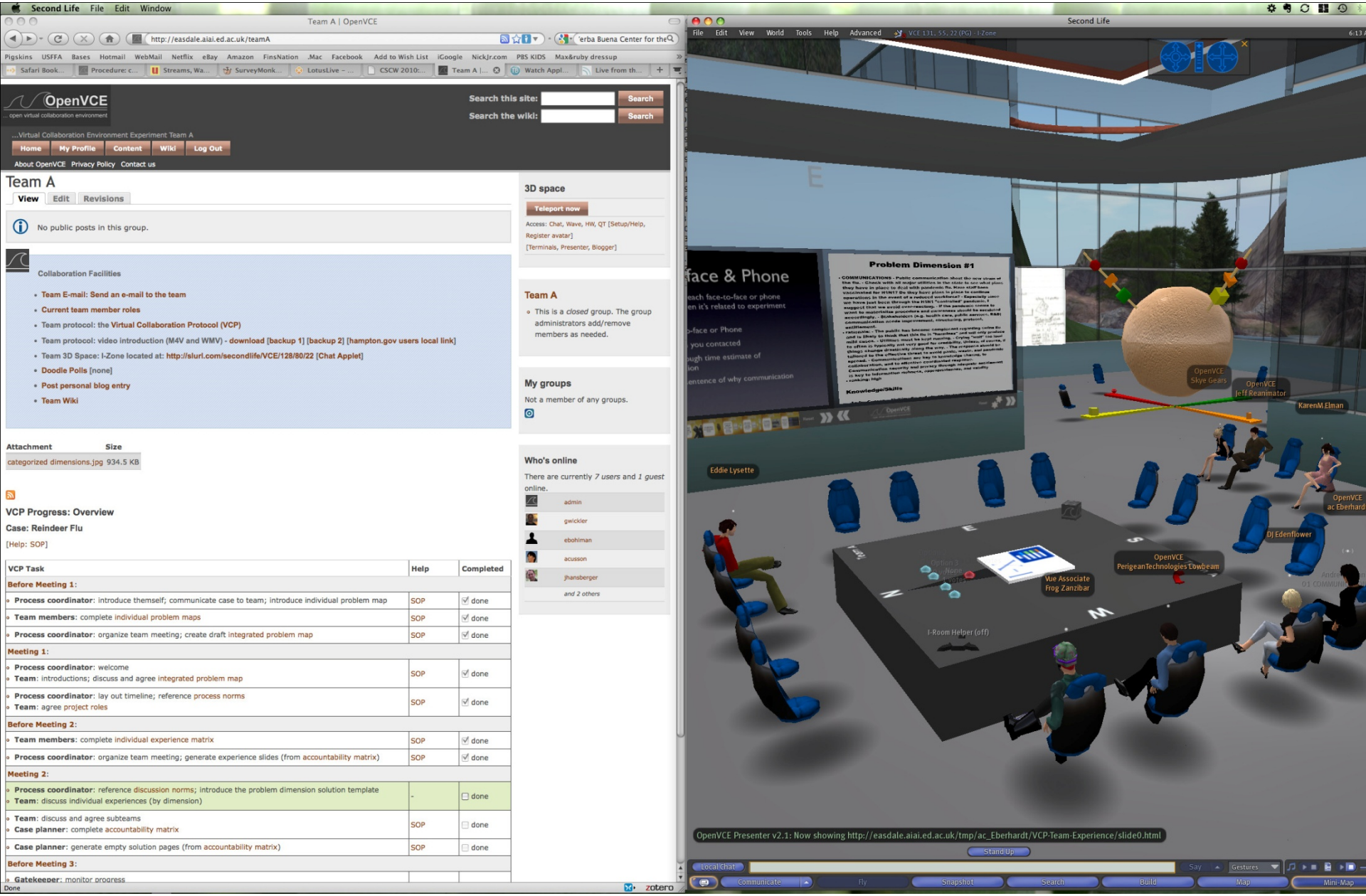
I-Room: Mixed-initiative Collaboration

Truly distributed mixed initiative collaboration and task support is the focus of the I-Room, allowing for the following tasks:

- situation monitoring
- sense-making
- analysis and simulation
- planning
- option analysis
- briefing
- decision making
- responsive enactment


Planning, Evaluation
Option Argumentation
Briefing and
Decision Making
Central
Meeting
Area
Sensing and
Situation Analysis
Acting, Reacting
and Communication

Second Life
Me Communicate World Build Help Advanced Develop
L$ 74,777 Buy L$
9:46 AM PDT
I-Zone, VCE - General
Search
I-Room: A Virtual Space for Intelligent Interaction
Trinity Rooney
Diana Grizot
Firery Broome
Owner
Theo Outlander
Light Sequent
Honda SL Design Team
JohnFrej Herzfeld
Innovator
Serious Starsider
WorkingRelationships
Deb Quintessa
OpenVCE
Ai Austin
Tonito Alderson
RL <--> SL Scripter
AI Supercharge
Sato Michinaga
Owner
Viking Zinner
Vue Associate
SP Pizzicato
Academy of HRD
Rachelle Munro
"Relay for Life"
Member
Pamela Varthader
Member
Joelle Yalin
isi help desk
shamblesguru
DougCaldwell Unplugged
Member
ED Czavicevic
PeterG Ember
OpenVCE Event Reception
Acknowledged
Anders Wildcat
Open University UK
Gardy Flux
Chat Relay
Clear Clickers
I-Room Helper (off)
Team A
Anders Cronstadt
AO OFF


Second Life File Edit Window
Team A | OpenVCE
http://easdale.aiai.ed.ac.uk/teamA
OpenVCE
... open virtual collaboration environment
Search this site:
Search
Search the wiki:
Search
...Virtual Collaboration Environment Experiment Team A
Home
My Profile
Content
Wiki
Log Out
About OpenVCE Privacy Policy Contact us
Team A
View
Edit
Revisions
No public posts in this group.
Collaboration Facilities
Team E-mail: Send an e-mail to the team
Current team member roles
Team protocol: the Virtual Collaboration Protocol (VCP)
Team protocol: video introduction (M4V and WMV) - download [backup 1] [backup 2] [hampton.gov users local link]
Team 3D Space: I-Zone located at: http://slurl.com/secondlife/VCE/128/80/22 [Chat Applet]
Doodle Polls [none]
Post personal blog entry
Team Wiki
Attachment
Size
categorized dimensions.jpg 934.5 KB
VCP Progress: Overview
Case: Reindeer Flu
[Help: SOP]
VCP Task
Help
Completed
Before Meeting 1:
Process coordinator: introduce themself; communicate case to team; introduce individual problem map
SOP
done
Team members: complete individual problem maps
SOP
done
Process coordinator: organize team meeting; create draft integrated problem map
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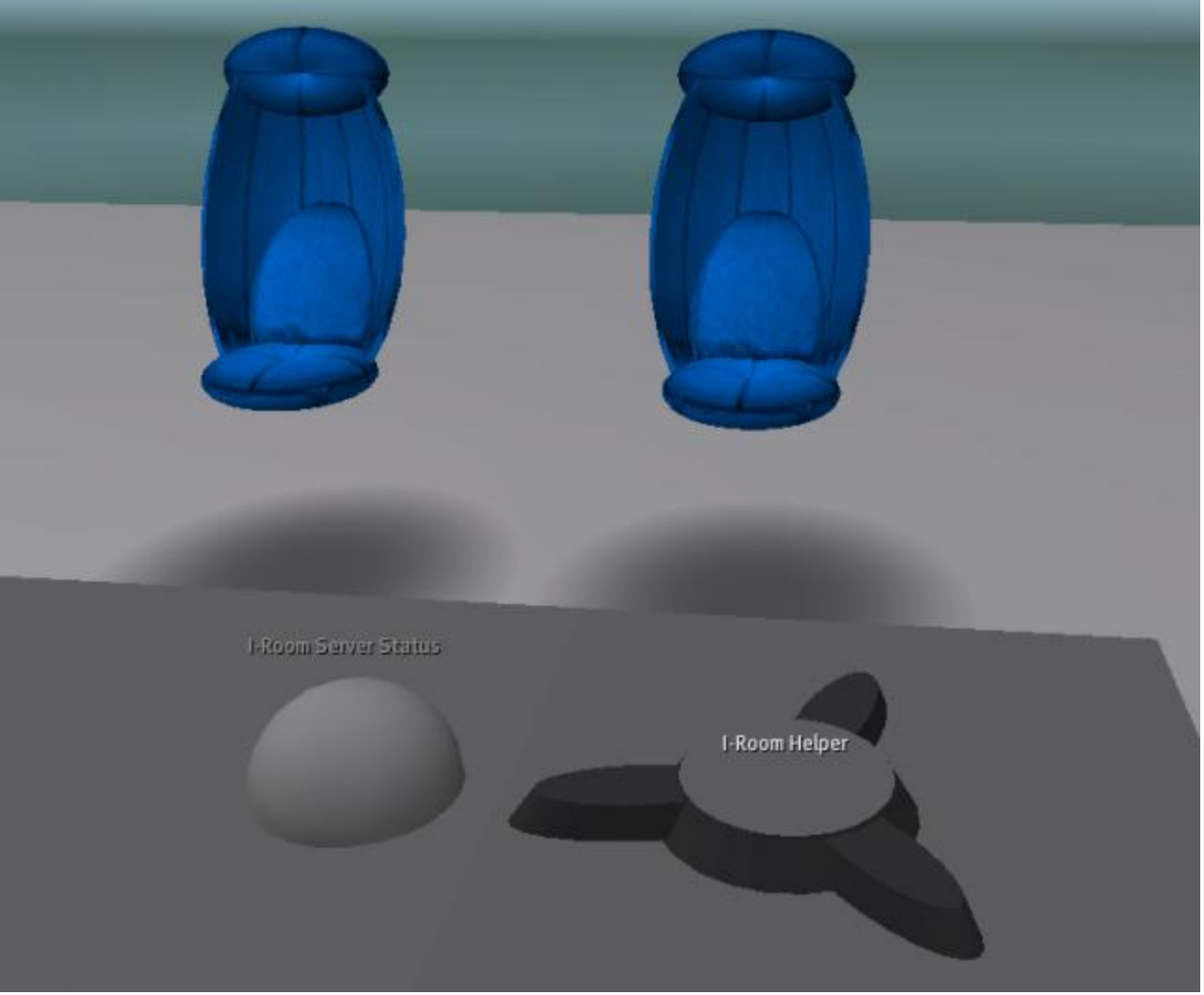
-
done
Team: discuss and agree subteams
Case planner: complete accountability matrix
SOP
done
Case planner: generate empty solution pages (from accountability matrix)
SOP
done
Before Meeting 3:
Gatekeeper: monitor progress
3D space
Teleport now
Access: Chat, Wave, HW, QT [Setup/Help, Register avatar]
[Terminals, Presenter, Blogger]
Team A
This is a closed group. The group administrators add/remove members as needed.
My groups
Not a member of any groups.
Who's online
There are currently 7 users and 1 guest online.
admin
gwickler
ebohlman
acusson
jhansberger
and 2 others
Done
zotero
Second Life
File Edit View World Tools Help Advanced
Problem Dimension #1
OpenVCE Skye Gears
OpenVCE Jeff Reanimator
KarenM Elman
Eddie Lysette
OpenVCE ac Eberhardt
DJ Edenflower
OpenVCE PerigeanTechnologies Lowbeam
Vue Associate Frog Zanzibar
I-Room Helper (off)
OpenVCE Presenter v2.1: Now showing http://easdale.aiai.ed.ac.uk/tmp/ac_Eberhardt/VCP-Team-Experience/slide0.html
Stand Up
Local Chat
Say
Gestures
Communicate
Fly
Snapshot
Search
Build
Map
Mini-Map


I-Room Server Status
I-Room Helper

Home Office JOC

File New Edit Tools Help Test

Issues

	Description	Annotations	Priority	Action
	Consider how to handle newcomers		Normal	

Activities

	Description	Annotations	Priority	Action
▼	**hold-meeting I-Room-Demo**		Normal	**Refine using hold-meeting**
▼	**start-meeting I-Room-Demo**		Normal	**Refine using start-meeting**
	welcome-participants I-Room-Demo		Normal	Done
	note-apologies I-Room-Demo		Normal	Done
	agree-end I-Room-Demo		Normal	Done
	agree-previous-minutes I-Room-Demo		Normal	Done
▼	**address-action-items I-Room-Demo**		Normal	**Refine using address-action-items**
	discuss-action "Davie Munro" "Obtain Security Service Input"		Normal	
	discuss-action "Ai Austin" "Read Ops Pineapple Briefing"		Normal	
	address-agenda-items I-Room-Demo		Normal	
	discuss-any-other-business I-Room-Demo		Normal	
	finish-meeting I-Room-Demo		Normal	
	setup-next-meeting		Normal	

JOC I-Room Process Panel
Based on I-X Technology

Home Office JOC

File New Edit Tools Help Test

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agree-end I-Room-Demo		Normal	Done
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discuss-action "Davie Munro" "Obtain Security Service Input"		Normal	
discuss-action "Ai Austin" "Read Ops Pineapple Briefing"		Normal	
address-agenda-items I-Room-Demo		Normal	
discuss-any-other-business I-Room-Demo		Normal	
finish-meeting I-Room-Demo		Normal	
setup-next-meeting		Normal	

- Done
- N/A
- Escalate to Cabinet Office
- Pass to MoD
- Pass to OGD
- Delegate to Local Government
- Delegate to Emergency Services
- Delegate to Security Service
- Carry to next meeting

JOC I-Room Process Panel
Based on I-X Technology

Catalyst – Links between OpenVCE Portal and 3D Space

Catalyst Tools | OpenVCE - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://openvce.net/catalyst

Most Visited Getting Started Latest Headlines

My profile

Log out

3D space

teleport now

Access: Chat, Wave, HW, QT

[Setup/Help, Register avatar]

[Terminals, Presenter, Blogger]

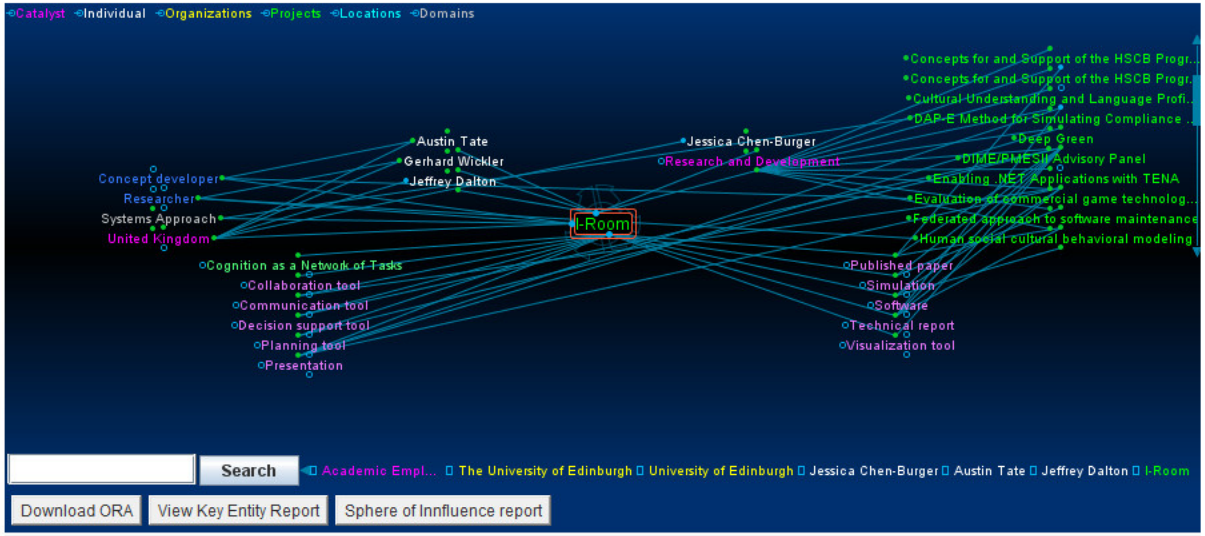
Event calendar

October

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Image gallery

CMU Catalyst - WoSCR Community Visualization - The Brain



Project Name
I-Room

Start Date
Jan / 2000

End Date
UNDETERMINED /

Primary Project Type
Research and Development

Your Primary Project Role
Concept developer

Country Location
United Kingdom

Geographical Region Location
Edinburgh, Scotland

Primary Support Organization
University of Edinburgh

Project Website URL
http://www.aiai.ed.ac.uk/project/i-room/

Primary Domain
Systems Approach

Secondary Domain
Knowledge Management

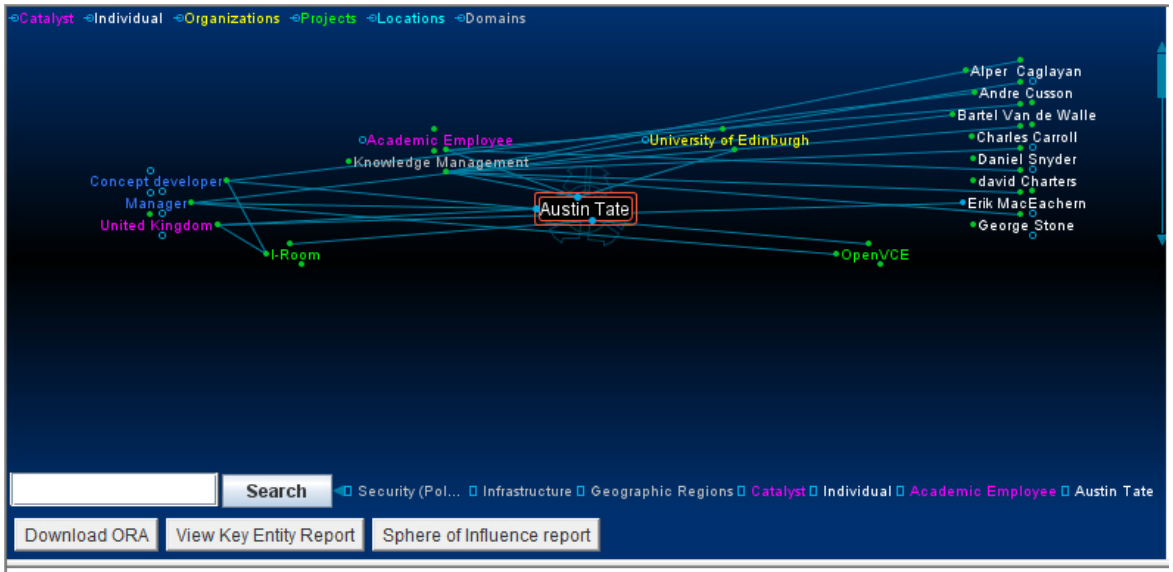
Who's online

There are currently *2 users* and *3 guests* online.

Mhor Atlass

admin

Catalyst – Links between OpenVCE Portal and 3D Space



Title	First Name	MI	Last Name	Suffix	Country of Citizenship
Prof	Austin		Tate		United Kingdom

Professional Address

AIAI, University of Edinburgh

Appleton Tower, Crichton Street

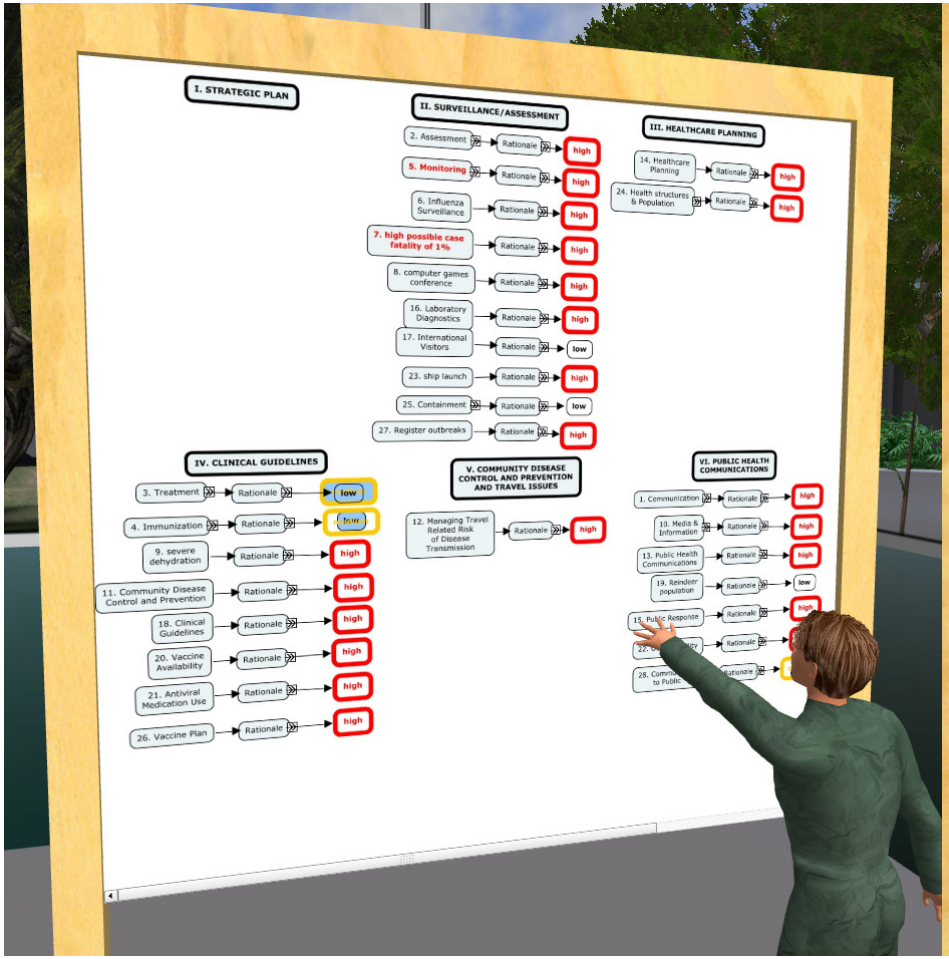
City	State/Province (if applicable)	Postal Code	Country
Edinburgh		EH8 9LE	United Kingdom

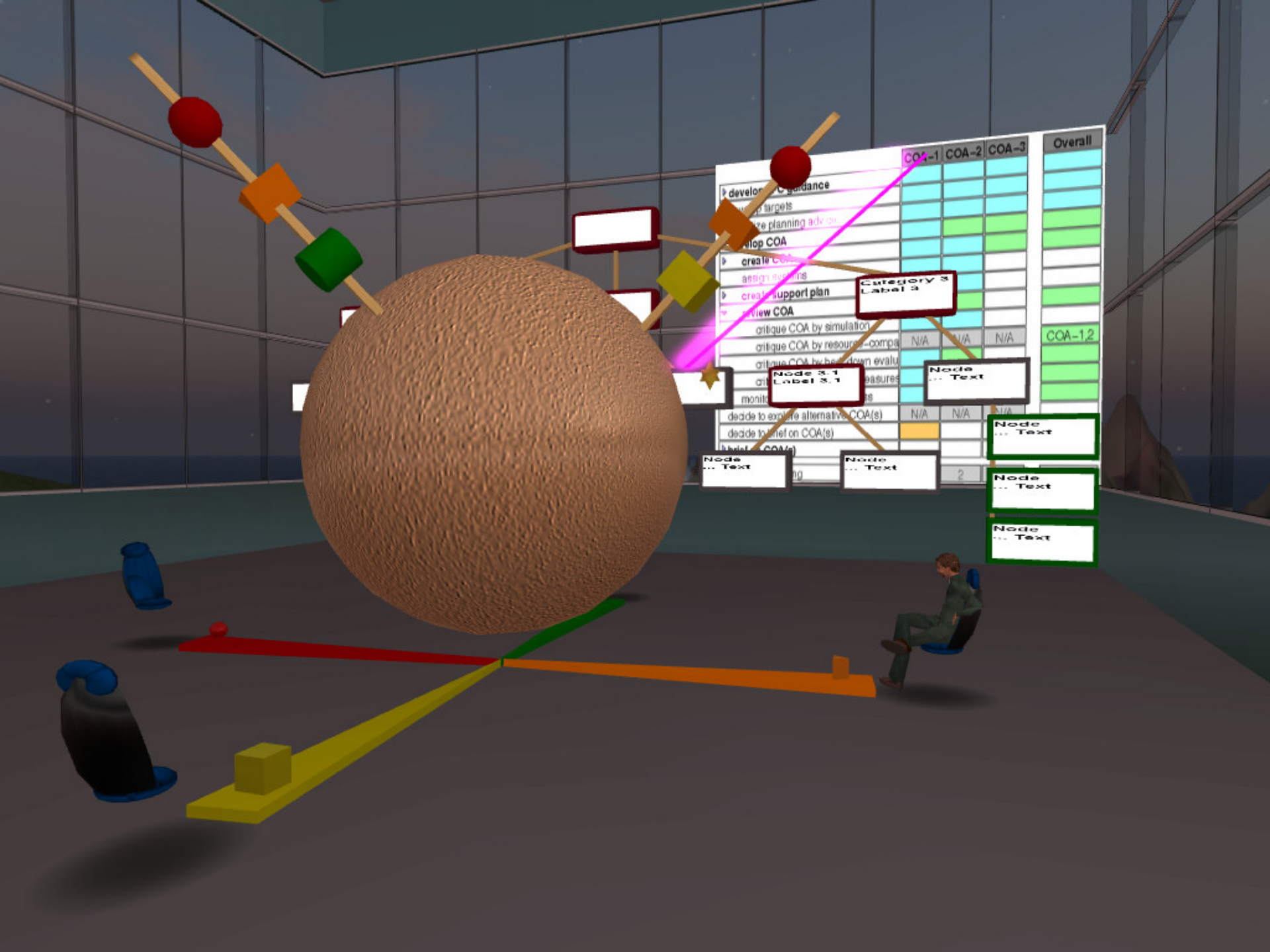
Primary Phone Number	Secondary Phone Number	E-Mail
+44 131 650 2732		a.tate@ed.ac.uk

Personal Webpage URL

http://www.aiai.ed.ac.uk/~bat/

Shared Media – E.g. Concept Maps & Adobe Connect

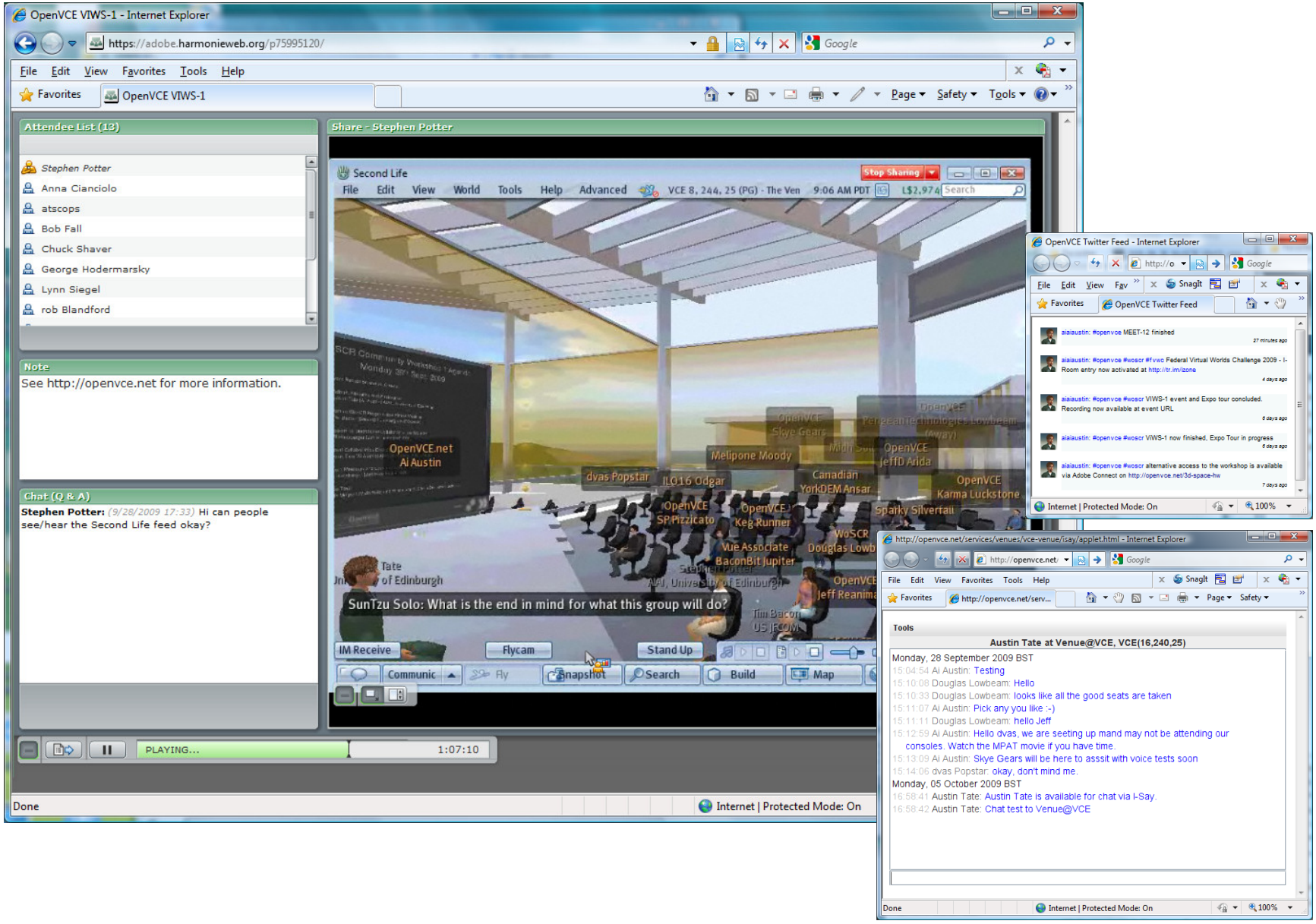



COA-1
COA-2
COA-3
Overall
develop guidance
develop COA
create support plan
review COA
critique COA by simulation
critique COA by resource-comparison
N/A
N/A
N/A
COA-1,2
decide to explore alternative COA(s)
decide to brief on COA(s)
Category 3
Label 3
Node 3.1
Label 3.1
Node
... Text
Node
... Text
Node
... Text
Node
... Text
Node
... Text

OpenVCE – Event Participants

- Real Participant in Physical Meeting Space
- Virtual Participant
  - Second Life
  - Opensim
- Web Observer
  - Adobe Connect
  - Video Stream (H.264) in Web Page

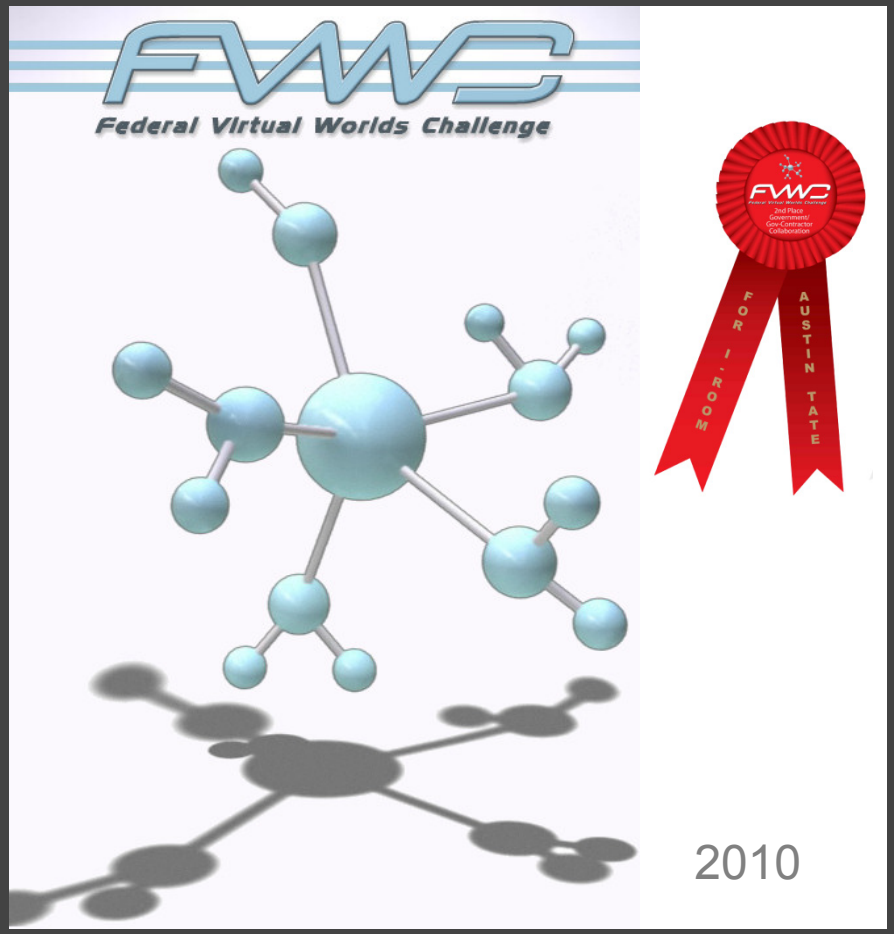
3D Space via Adobe Connect for Web Observers



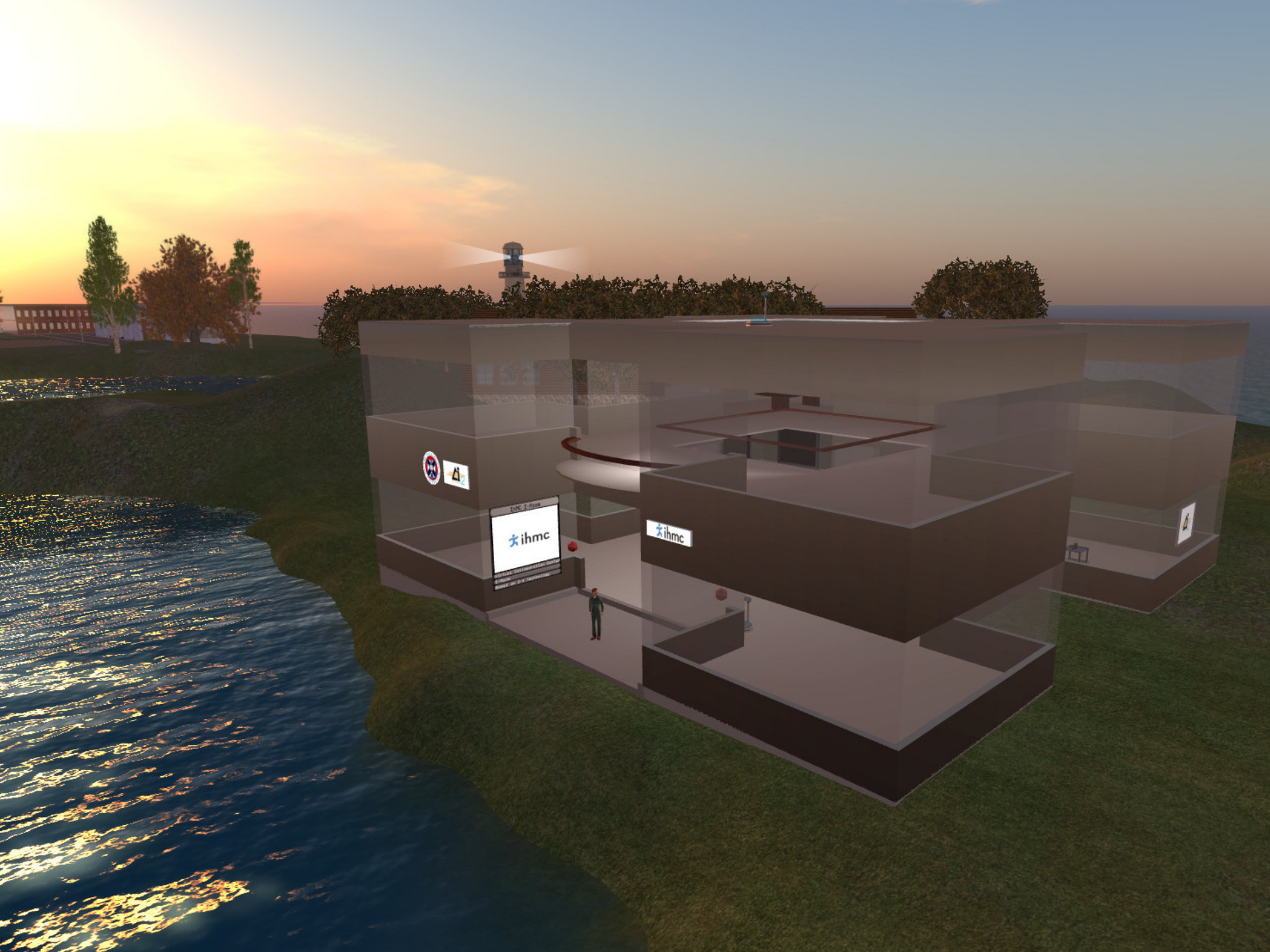
OpenVCE and I-Room

More information and papers at http://openvce.net/iroom

YouTube video at http://openvce.net/iroom-tour



OpenVCE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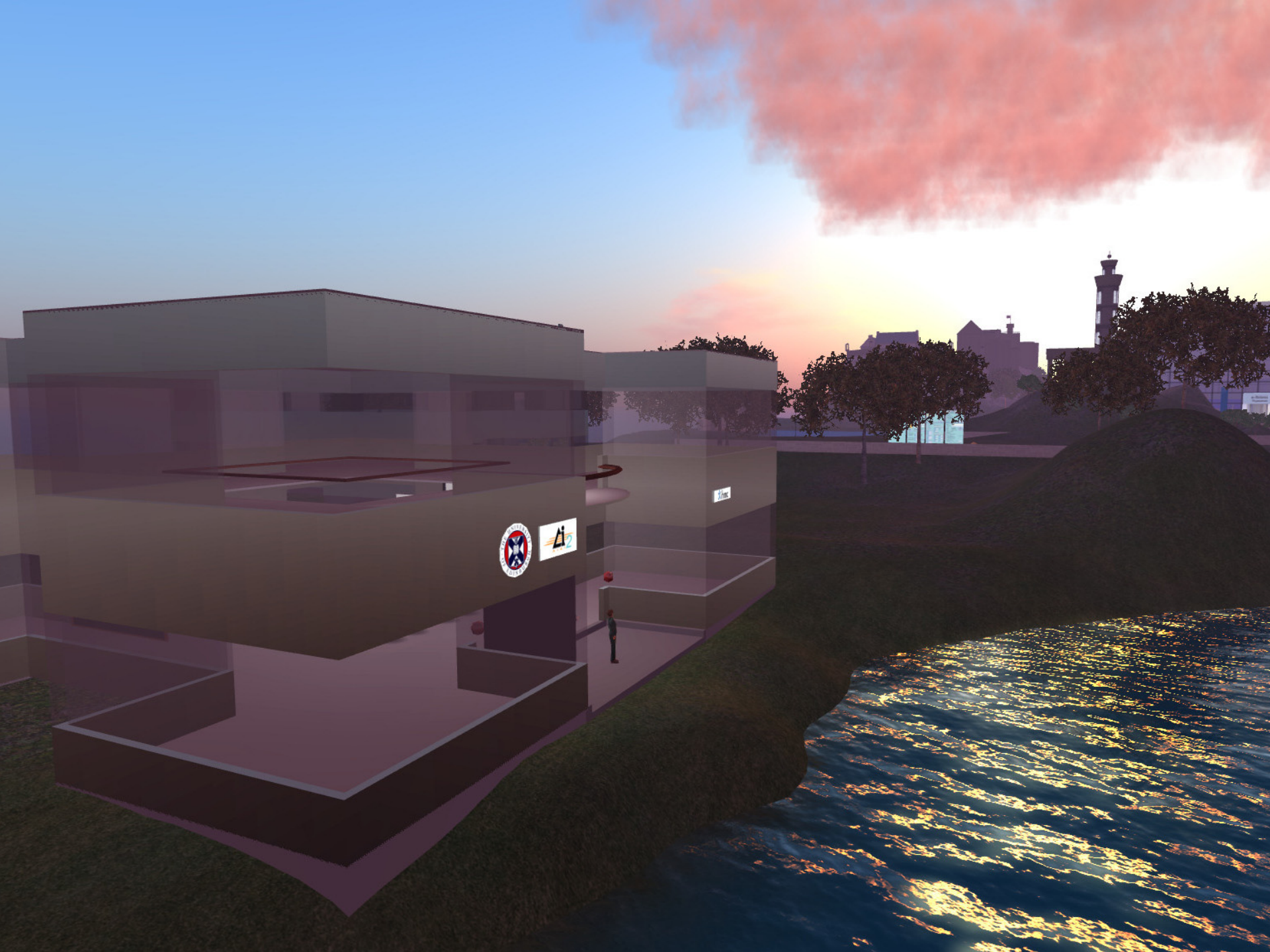

IHMC I-Room
ihmc
Virtual Collaboration Center
I-Room
Based on I-X Technology
ihmc
W
N

jffaa Acer
TCE Sumoku
OpenVCE Event Reception
DenisMoore Bluestar
KenIHMC Breil
jeffihmc Alex
Chat Relay
Clear Clickers
OpenVCE
Ai Austin
Team A
AlanIHMC Baudin
I-Room Helper
W
S
N
M
Austin Tate
AIAI, University of Edinburgh

... open virtual collaboration environment

http://openvce.net