Virtual Operations Centres for Coalition Operations and Distributed Team Collaboration

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University of Edinburgh & US Army Research Lab

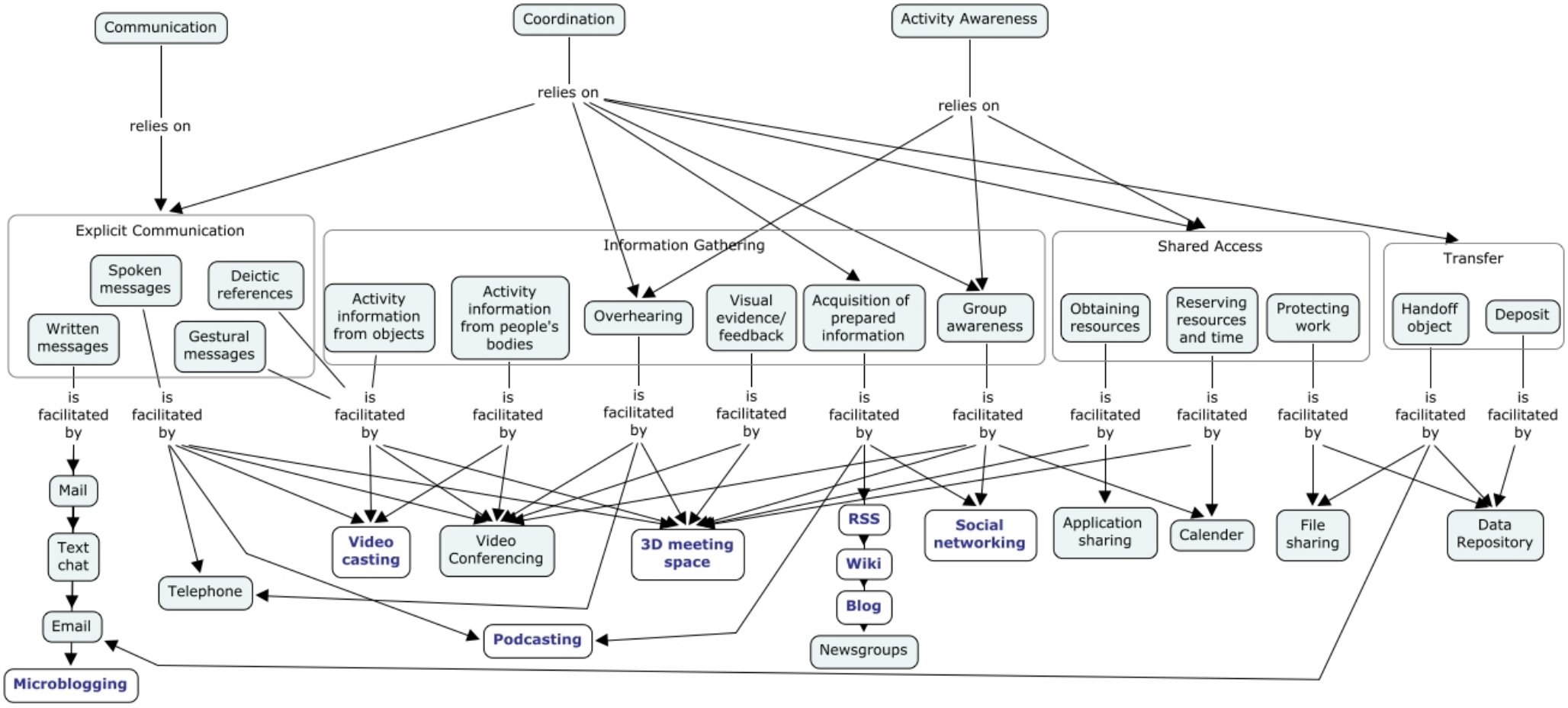
http://openvce.net

Project to provide a Virtual Collaboration Environment for the WoSCR Community

- Support for Whole of Society Crisis Response Community
- Cognitive Work Analysis of Requirements and Technologies
- Experiments with Virtual Collaboration Environment (VCE):
  - Web-based portal
  - Virtual interaction space
  - Community tools
  - Collaboration protocol
- USJFCOM, US ARL HRED, CMU, U.Virginia, U.Edinburgh, Perigean Technologies

OpenVCE

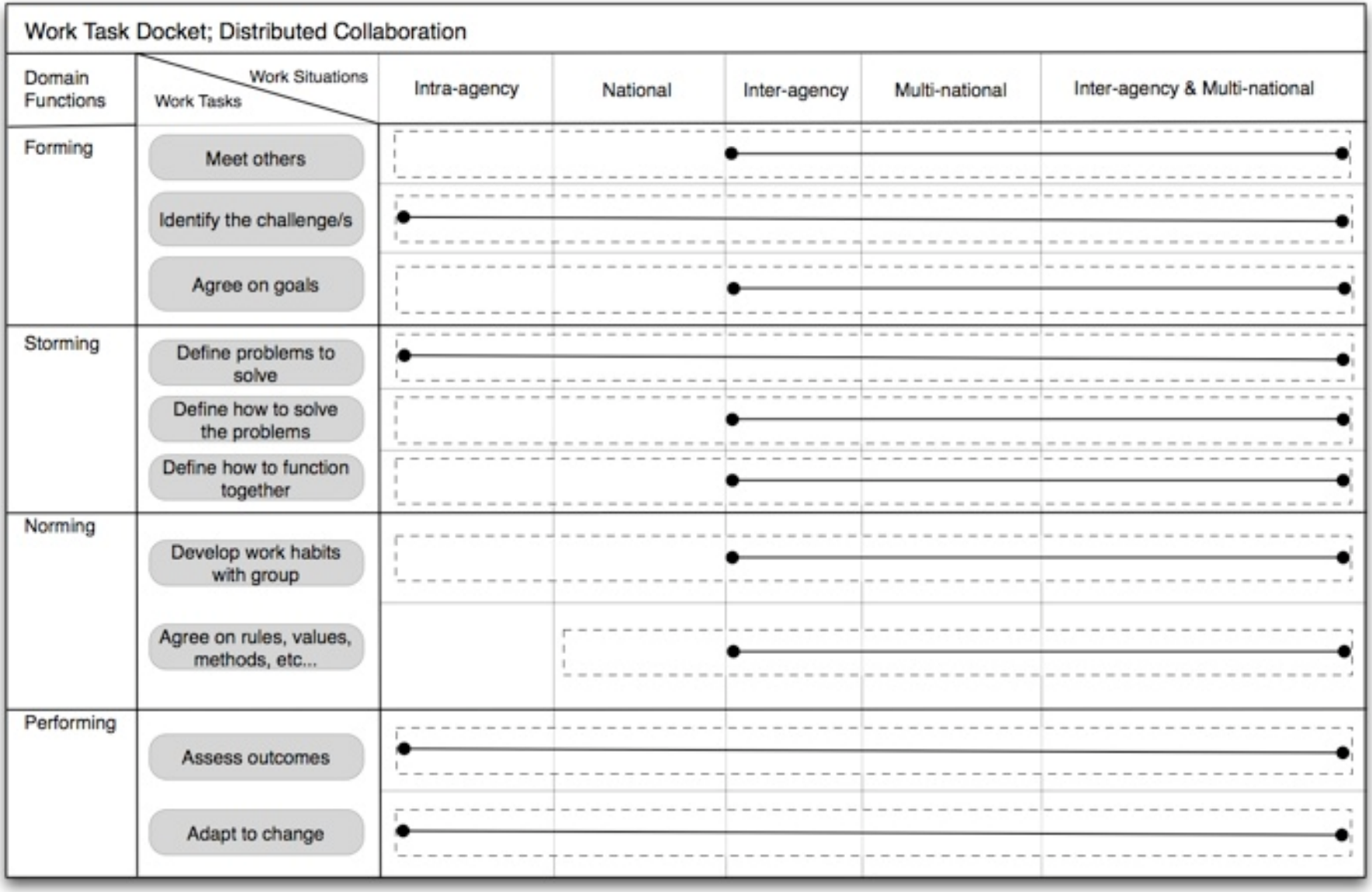
Cognitive Work Analysis – Task Independent



*Web 2.0 tools

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

Work Organizational Analysis – Task & Agent Centric



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

Requirements for Effective Distributed Task-centric Collaboration

- Mix of physical operations centres and remote access
- Bring in experts for improved analysis and option generation
- Mix of synchronous and asynchronous activity
- Share community knowledge and experience
- Share Standard Operating Procedures and Lessons Learned

Communication, Collaboration and Task/Process Centric Activities

Open Virtual Collaboration Environment

- Web-based Collaboration Portal
  - Drupal CMS
  - Also explored Facebook, Google Groups, Yahoo Groups, Ning Groups, Grou.ps, Joomla, Linkups to external web services and widgets
- Virtual World 3D Space
  - Second Life™ and Second Life Enterprise
  - OpenSim (allows for secure use, potentially behind a firewall, e.g. US government)
- Virtual Collaboration Protocol
  - Standard Operating Procedures
  - FAQ and Tips
  - Collaboration Protocol (with Rob Cross, University of Virginia)
- Community Tools
  - AIAI I-Room – a Virtual Space for Intelligent Interaction
  - CMU Catalyst Community Knowledge Base
  - IHMC/Perigean Technologies Concept Maps
  - Experimental 3D Model Visualizations

OpenVCE

OpenVCE Web Portal – Roles of Elements

Collaboration Tools – Roles of Elements

Web Pages – definitive edited content and index pages (editorial control)

News and Calendar – Activity Awareness

Discussion Forums – threaded discussions within community

Wiki – community knowledge creation and refinement

Blogs – individual web logs

Status – current activity

Comments – can be added to most elements

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

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

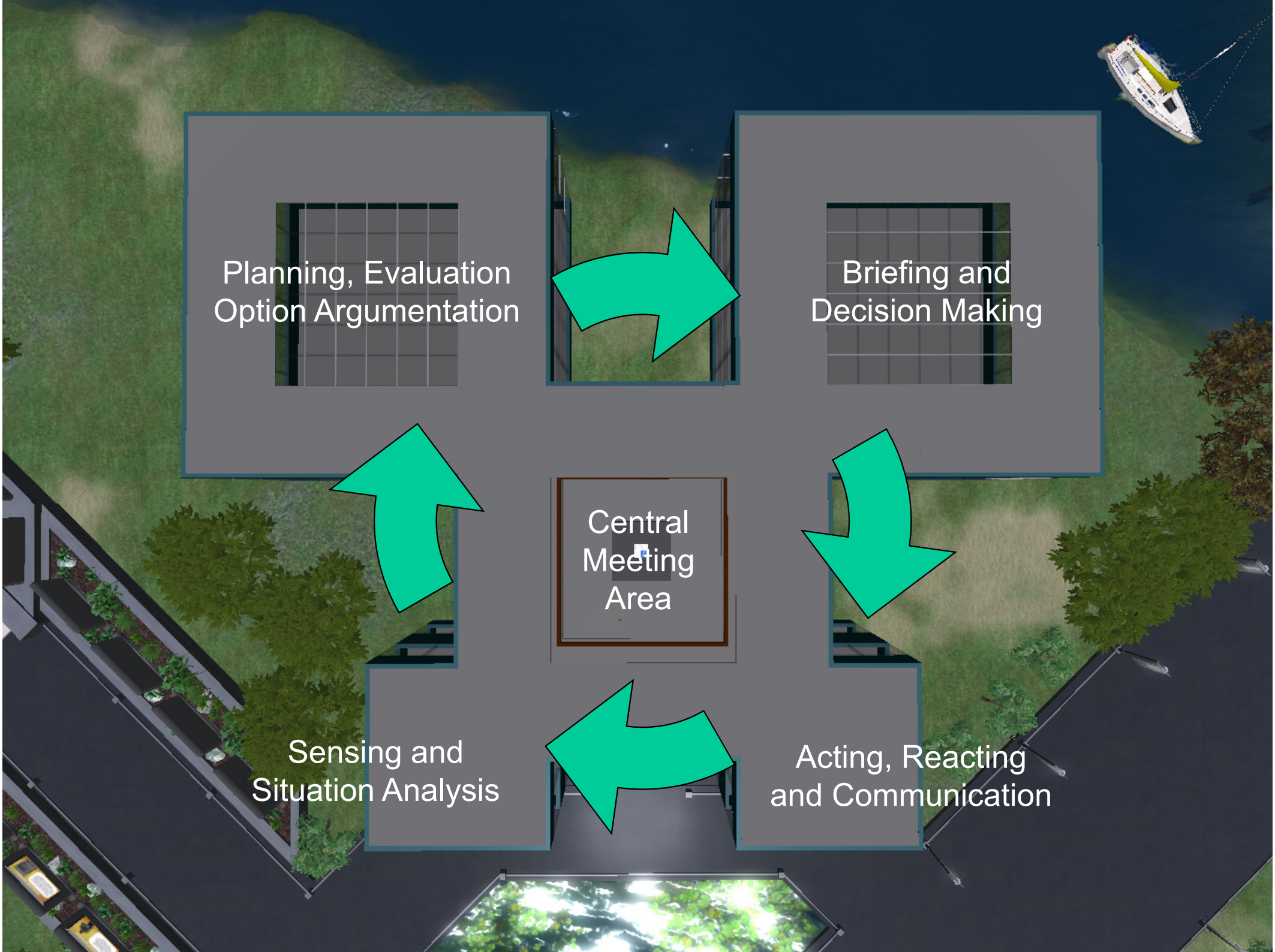
OpenVCE
OpenVCE
OpenVCE
OpenVCE

OpenVCE
open virtual collaboration environment

I-Room: Mixed-initiative Collaboration A Virtual Space for Intelligent Interaction

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$
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I-Zone, VCE - General
Search
I-Room: A Virtual Space for Intelligent Interaction
Trinity Rooney
Owner
Theo Outlander
Diana Grizot
Firery Broome
Honda SL Design Team
JohnFrej Herzfeld
Light Sequent
Innovator
Serious Starsider
WorkingRelationships
Deb Quintessa
OpenVCE
Al Austin
Academy of HRD
Rachelle Munro
Tonito Alderson
Sato Michinaga
RL <--> SL Scripter
Al Supercharge
Owner
Viking Zinner
Vue Associate
SP Pizzicato
Member
Pamela Varthader
Member
Joelle Yalin
DougCaldwell Unplugged
PeterG Ember
Acknowledged
Anders Wildcat
OpenVCE Event Reception
Open University UK
Gardy Flux
Chat Relay
Clear Clickers
I-Room Helper (off)
Team A
AO OFF

I-Room Applications

- Virtual collaboration centre
- 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

I-Room: a Virtual Space for Intelligent Interaction

Operations Centres for Mixed Agency Operations

EADS/Airbus Innovation Works G7 Summit Exercise
http://vue.ed.ac.uk/associates/eads/

Virtual Worlds for Simulation & Training

- MOSES – Military Metaverse, US Army other US government agencies
  http://www.militarymetaverse.org
  http://blog.inf.ed.ac.uk/atate/moses

- VOICCE – Virginia's Operational Integration Cyberspace Center of Excellence
  http://openvce.net/voicce

VOICCE
Virginia's Operational Integration Cyberspace Center of Excellence

- International Virtual Emergency Exercises (IVEE) and Multinational Planning Augmentation Team (MPAT)
  http://openvce.net/event-ivee1 http://openvce.net/mpat

- Simudyne SimuGrid in OpenSimulator

Phoenix Firestorm-Release v4.4.2.34167 - Ai Austin
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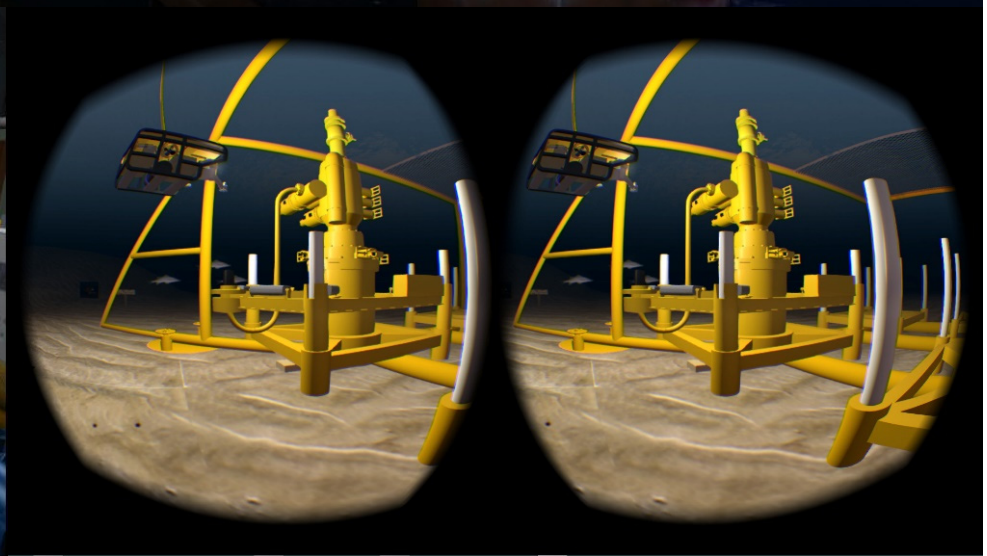
Search
Douglas Maxwell@http://cc.opensimulator.org:8002/
Ai Austin@http://cc.opensimulator.org:8002/
Fred.Appleby @hg.viewtwo.net@http://hg.viewtwo.net:8654/
Stephen.Xootfly @vibe.bio-se.info@http://vibe.bio-se.info:9000/
Nikolay Suslov@http://cc.opensimulator.org:8002/
Oronoque and@http:// ula tor.org:
Lyr Lobo@http://cc.opensimulator.org:8002/
Dahlia.Trimble @hg.osgrid.org@http://hg.osgrid.org:80/
Angel GlobalCoach@http://hg.osgrid.org:80/
Dan Lake
Cinder.Biscuits @lfgrid.com@http://lfgrid.com:8002/
Robert Adams@http://hg.osgrid.org:80/
BlueWall.Slade @gateway.bluewallvirtual.net@http://gateway.bluewallvirtual.net 8002/
Gwenette tp://hg.osgrid.org:80/
BlueWall.Slade @gateway.bluewallvirtual.net:8002: Cinder - thanks for working with us to get parts in the viewer :)
BlueWall.Slade @gateway.bluewallvirtual.net:8002: .
Fred.Appleby @hg.viewtwo.net:8654: Good idea Robert
Cinder.Biscuits @lfgrid.com:8002: of course, and i still have more to do.
Stand
Nearby Chat
MOSES

RGU
ROBERT GORDON
UNIVERSITY ABERDEEN

VUE

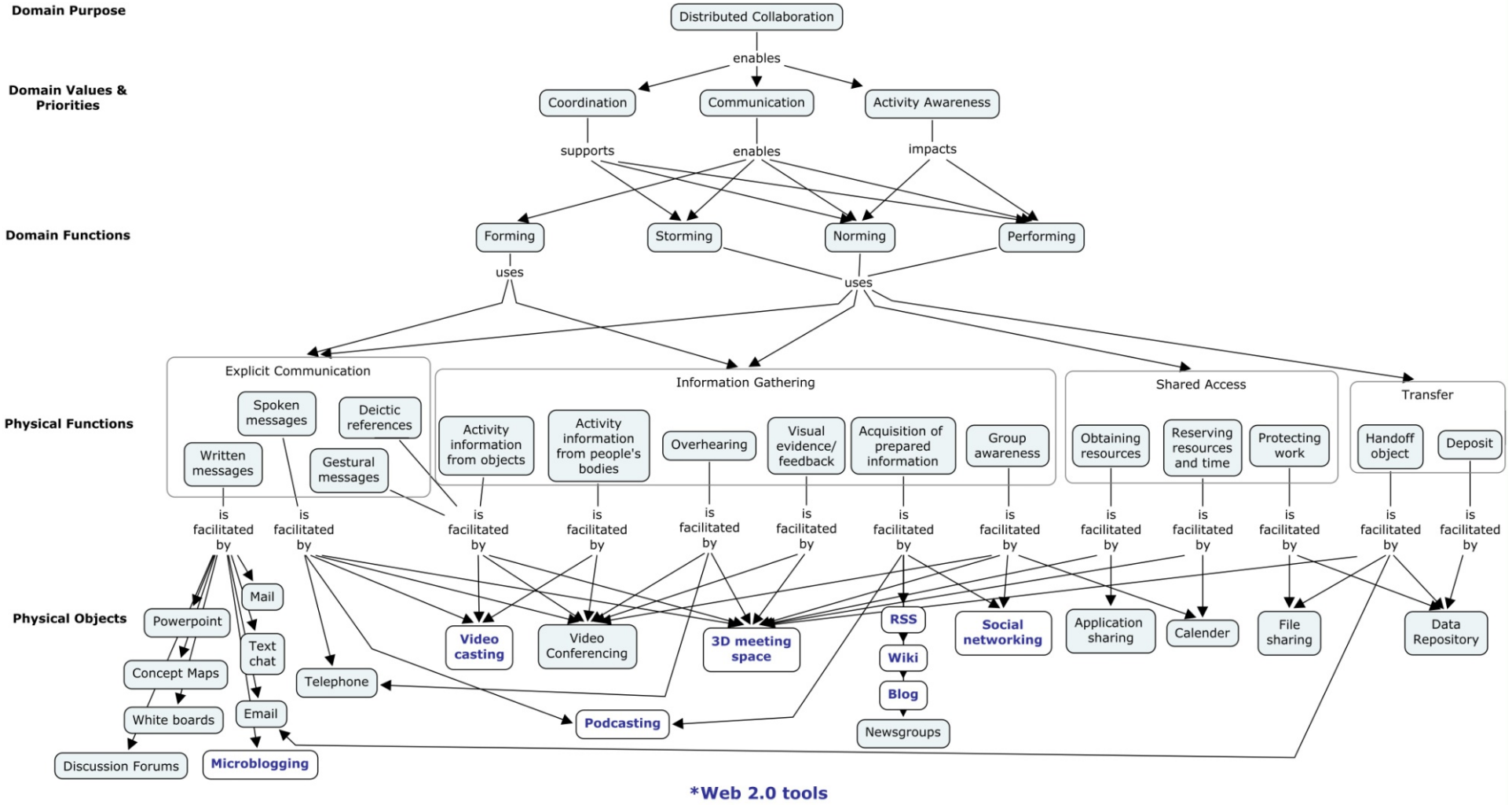


Social Networking
Collaborative Systems
Instant Messaging
Community Knowledge
Agent Presence
Semantic Web
Content Management
Teleconferencing
Intelligent Agents
Web Services
3D and Virtual Reality
VoIP
http://openvce.net

Further Slides for Details

- More information on Work Analysis Phases I and II
- OpenVCE Experimental Evaluation
- I-Room: More Sample Screens
- DICE Project: Simplified I-Room

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.

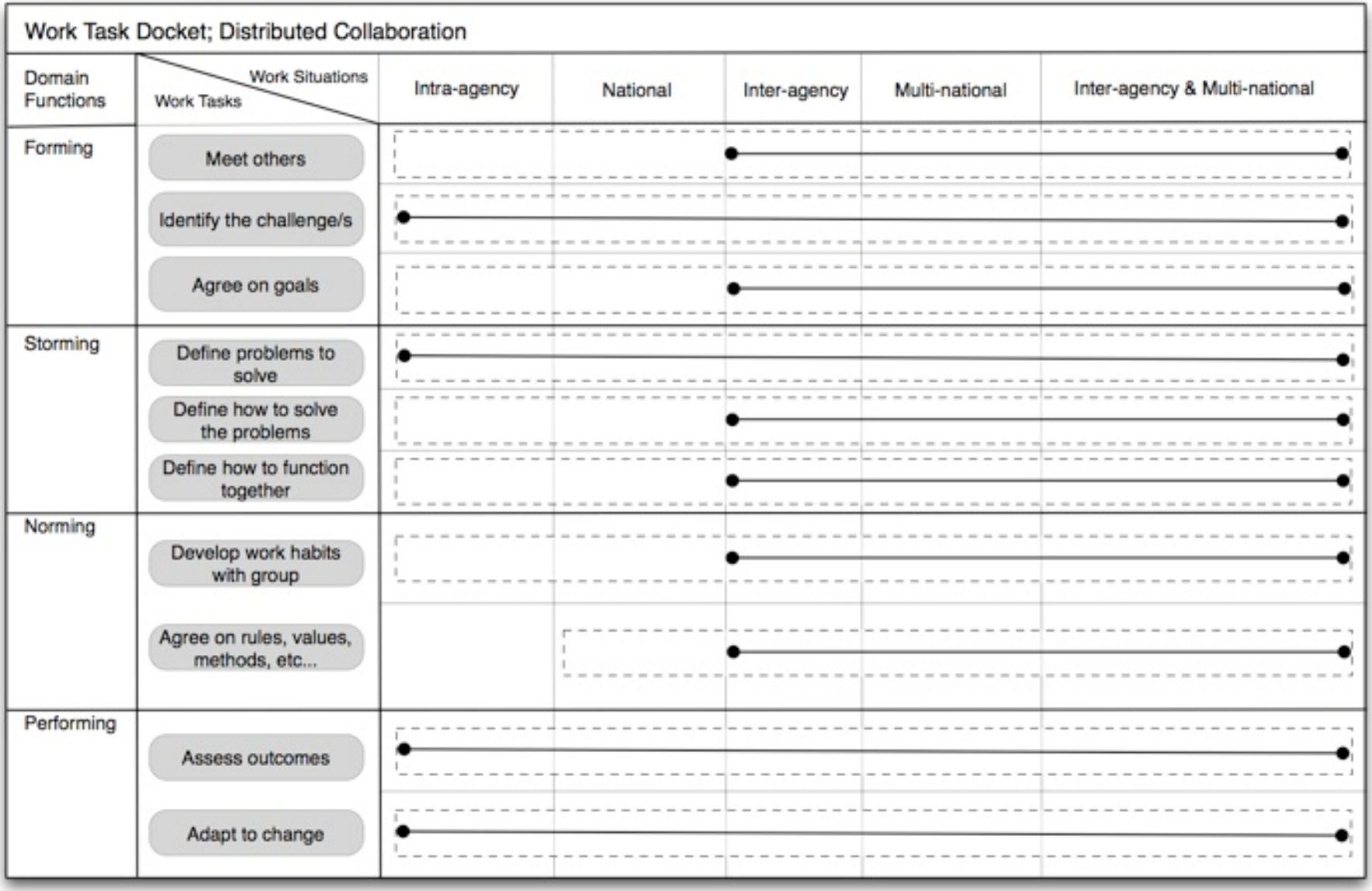
Work Organizational Analysis – Phase II

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.

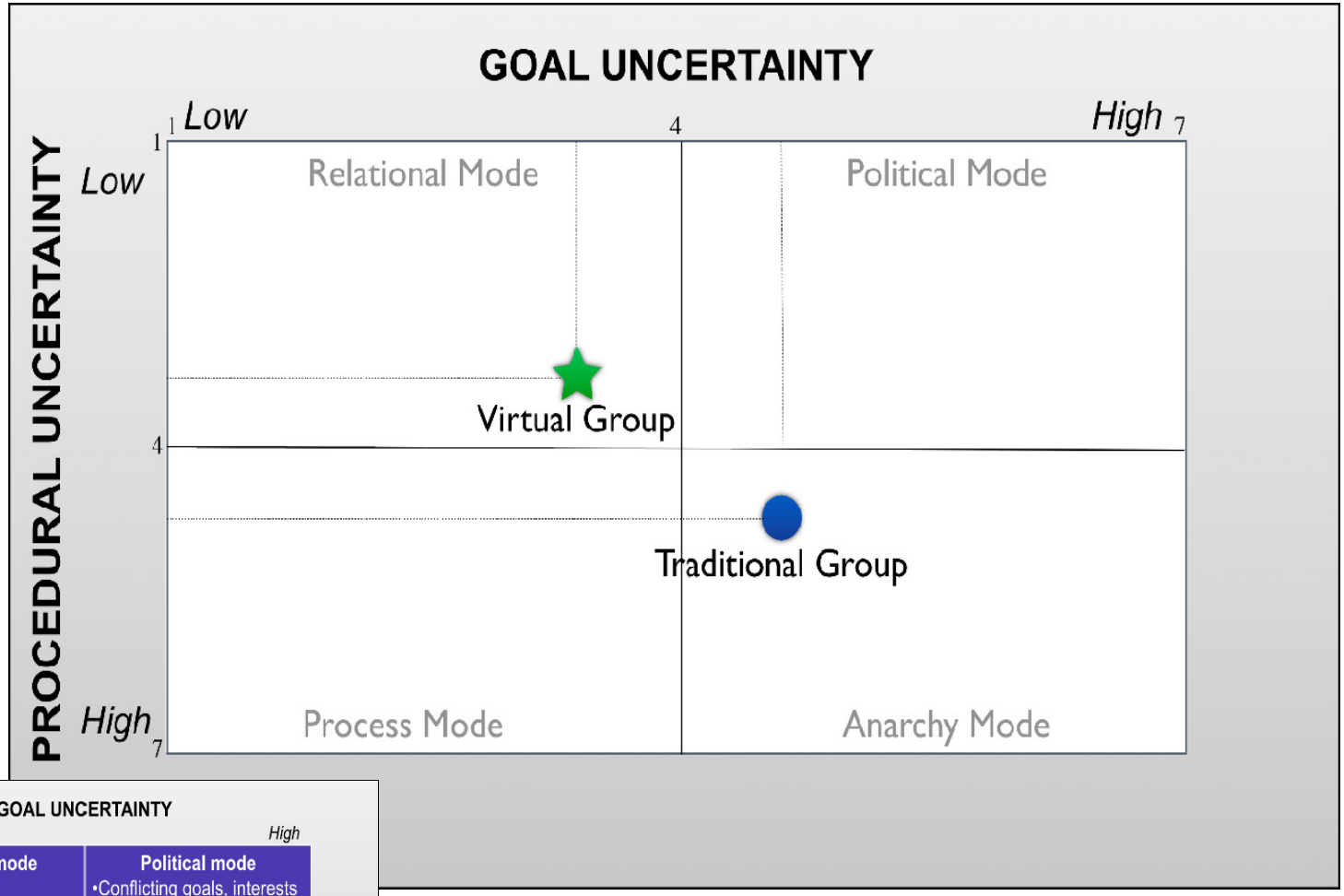
The second dimension reflects increasing geographical and organizational dispersal – from local and intra-agency through national inter-agency and on to multi-national and involving civil and military participants.

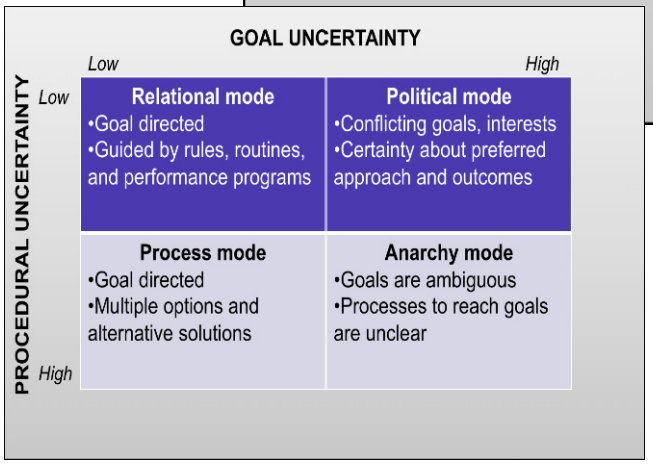
Work Organizational Analysis – Phase II



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

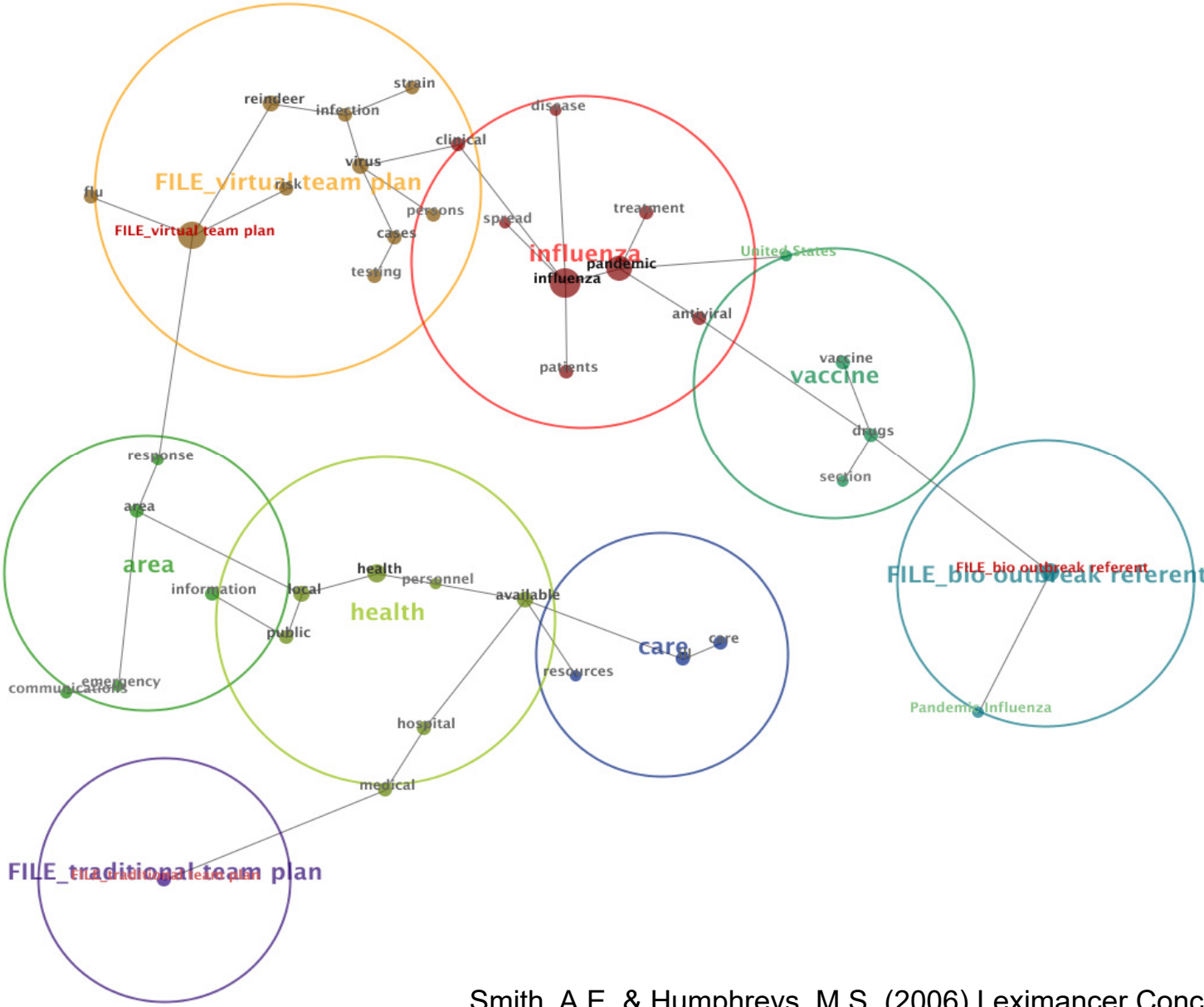
OpenVCE Evaluation: Goal & Procedural Uncertainty



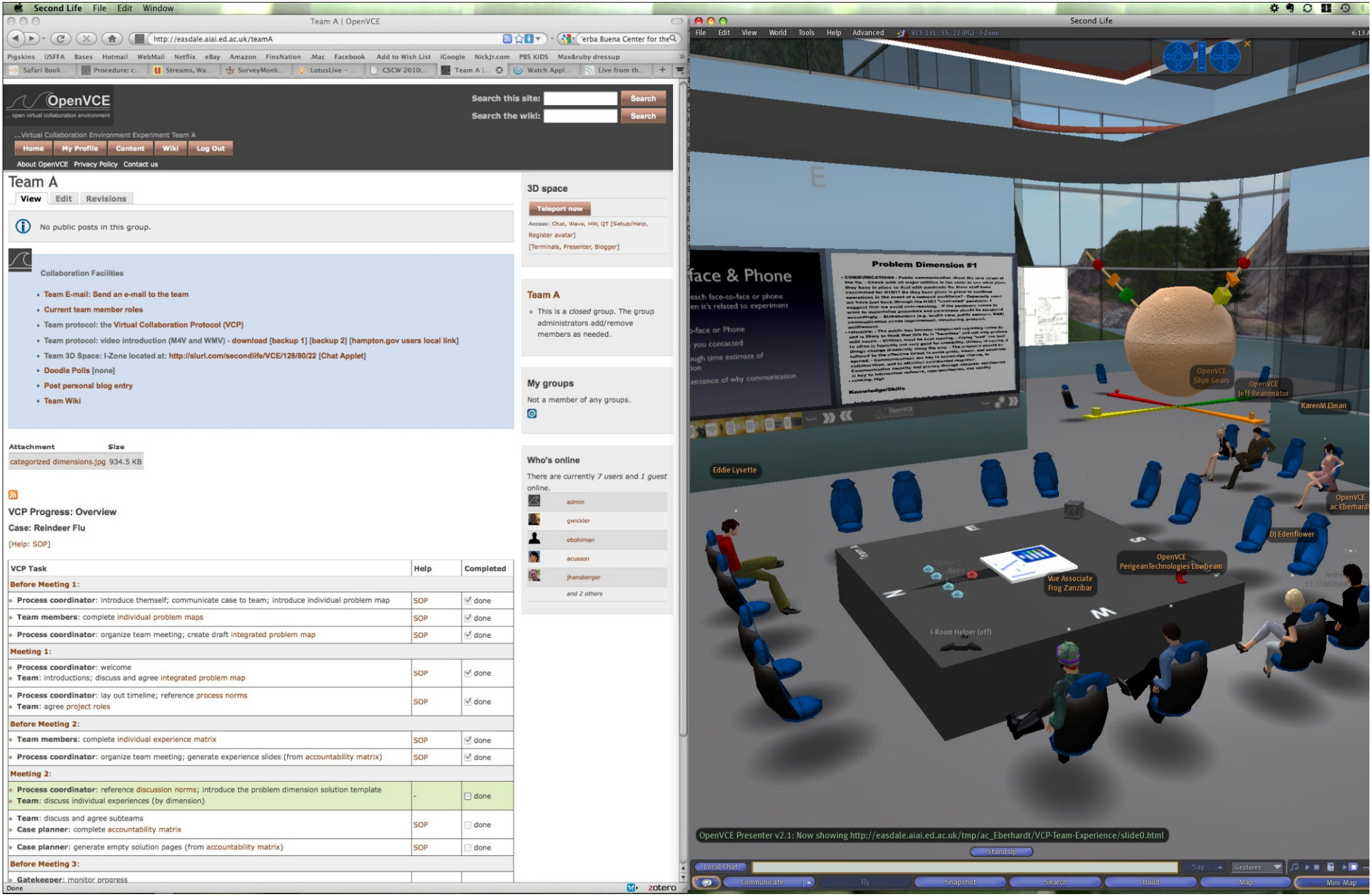


Choo, C.H.(2005) Knowing Organization

OpenVCE Evaluation: Concepts explored in Plan Document produced by each Group



Smith, A.E. & Humphreys, M.S. (2006) Leximancer Concept Mapping


Second Life File Edit Window
Team A | OpenVCE
http://easdale.aiai.ed.ac.uk/teamA
OpenVCE
open virtual collaboration environment
Search this site:
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
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
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
ebohiman
acusson
jhansberger
and 2 others
Done
zotero
Second Life
File Edit View World Tools Help Advanced
Problem Dimension #1
Knowledge/Skills
Eddie Lysette
OpenVCE Skye Gears
OpenVCE Jeff Reanimator
KarenM Elman
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

Virtual Worlds Space Simplification
Uncluttered I-Room in MOSES/OpenSim

OpenVCE

... open virtual collaboration environment

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