

Constraints, not Freedom: Designing Virtual Environments for Distributed Co-Creation

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Supplemental materials
and descriptions



How can we make user-generated-content (UGC) systems worth investing real time and attention in?

We introduce *interaction architecture* as a framework to answer. Across a decade of design-research projects on user-directed creative platforms, we discovered a "blank-slate paradox": maximizing a user's freedom can undermine the creative ecology in which they participate. We respond with *five productive constraint patterns* — **spatial, propositional, relational, technical, thematic** — for structuring, motivating, and moderating distributed co-creation in real-world deployments.

Spatial: integrating site conditions



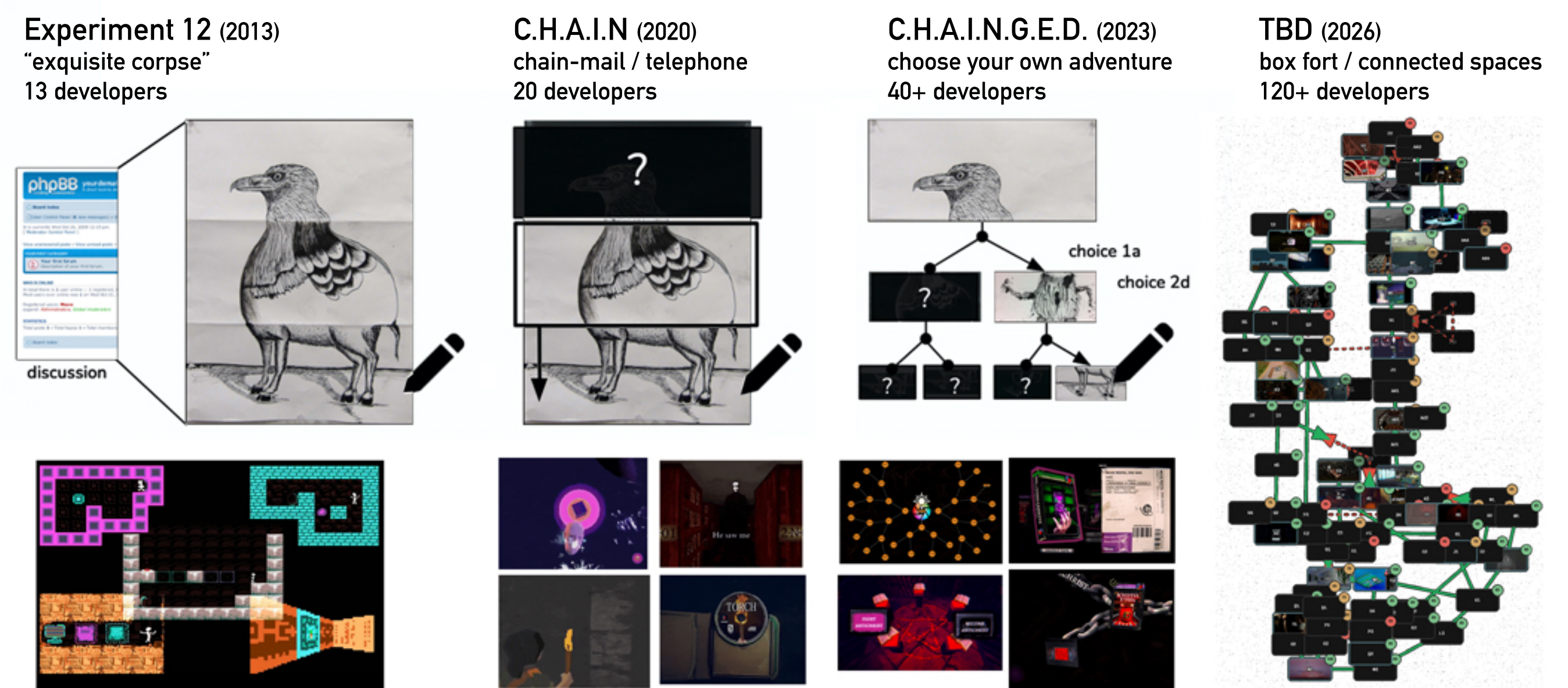
Graz Sculpture Park
Academy of Fine Arts Munich and Peter Kogler
Student Sculptures Developed On Site, Rapid and Responsive



Wikar's "AR sculpture garden" model.
QR code as asset URL, alignment marker, audience onboarder, experience boundary.
Sensitizing creators to context, scale, and site.



Relational: building off one another



We organize experimental projects where hundreds of distributed game developers work collaboratively without oversight. The projects' relational structures and rules coordinate at scale.

Technical: overcoming set restrictions

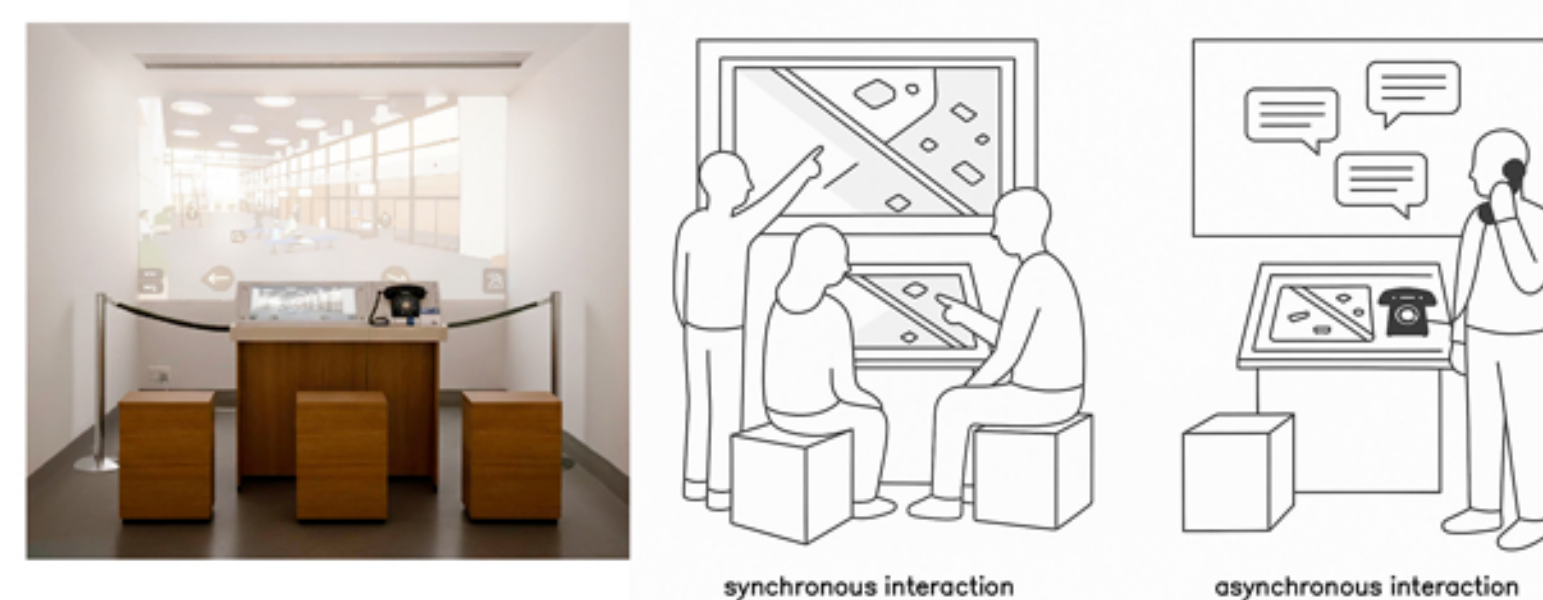
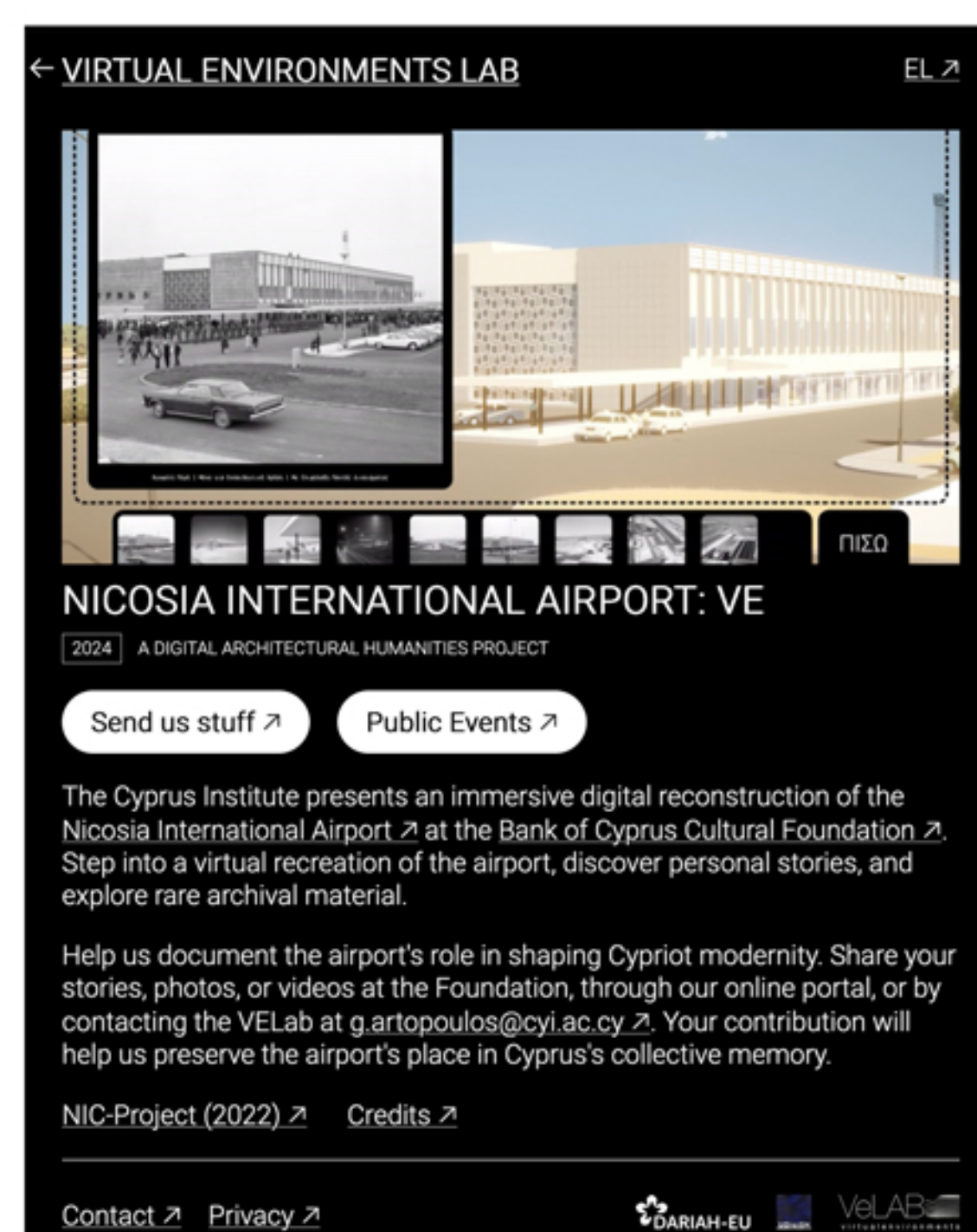


SOUP is a rigid creative format. Artists start with identical "rooms", then define images and sounds to make it theirs.

Creativity flourishes as they discover expressive tactics together. They release in packs, like group shows.

SOUP rooms have become a charrette in game design studios because they teach the fundamentals of creative economy and group work.

Propositional: reacting to authority



Our team modelled an inaccessible heritage site from limited documentation, then positioned the public as experts who could help us complete it.

Over two years in exhibition, the public contributed 300+ oral testimonies, corrections, and uploaded media, allowing us to integrate previously-undocumented details into our virtual reconstruction and dataset for posterity.

This offers a methodology for digital heritage that aligns with institutional commitments toward public engagement.

Propositions operationalize asymmetry between creator and audience. Through careful composition, a creator's materials can become instruments that focus, then collect, audience reactions as research contributions.

Thematic: fitting into a "scene"



Over 400 published contributors across 4 demo discs and 8 projects. ~2 million players, ~100 million "let's play" views

The Haunted PS1 is a freeware indie game collective that curates submissions to a resurrected "90s demo disc" release, generating overwhelming interest from developers.

Our 4800+ members became a "community of practice" with creative gravity, pulling competing creatives towards experimentation.

HPS1 is a "scene" that supports small-scale creatives with a clear venue and an engaged audience.