



Ingress

Design Principles Behind Google's Massively Multiplayer Geo Game

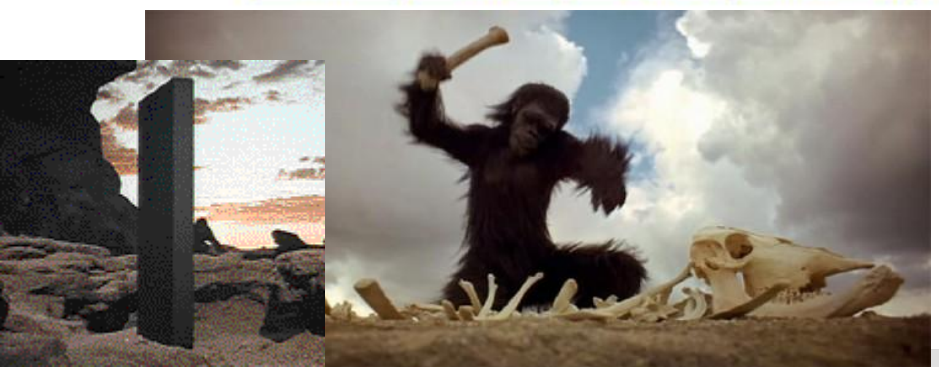
Brandon Badger
Sr Product Manager



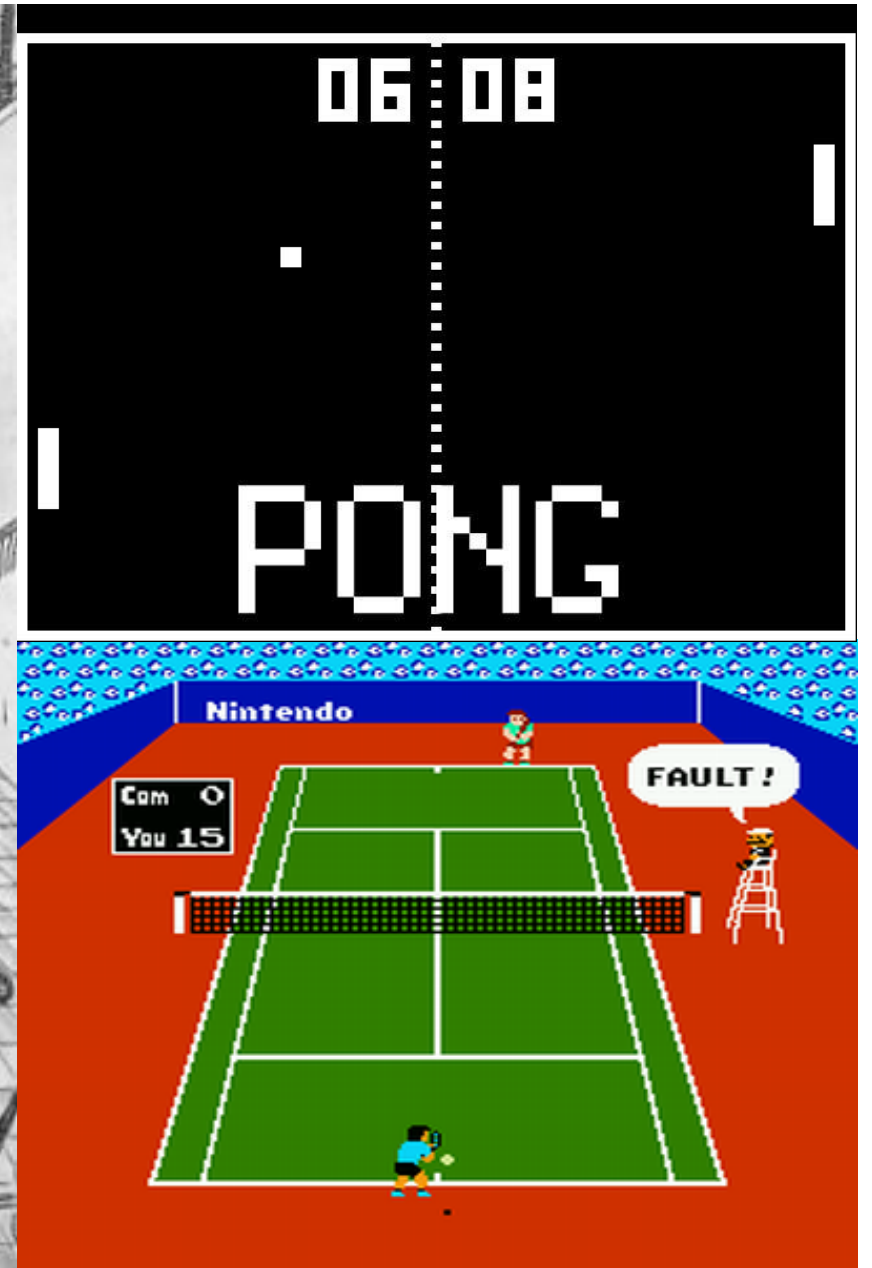
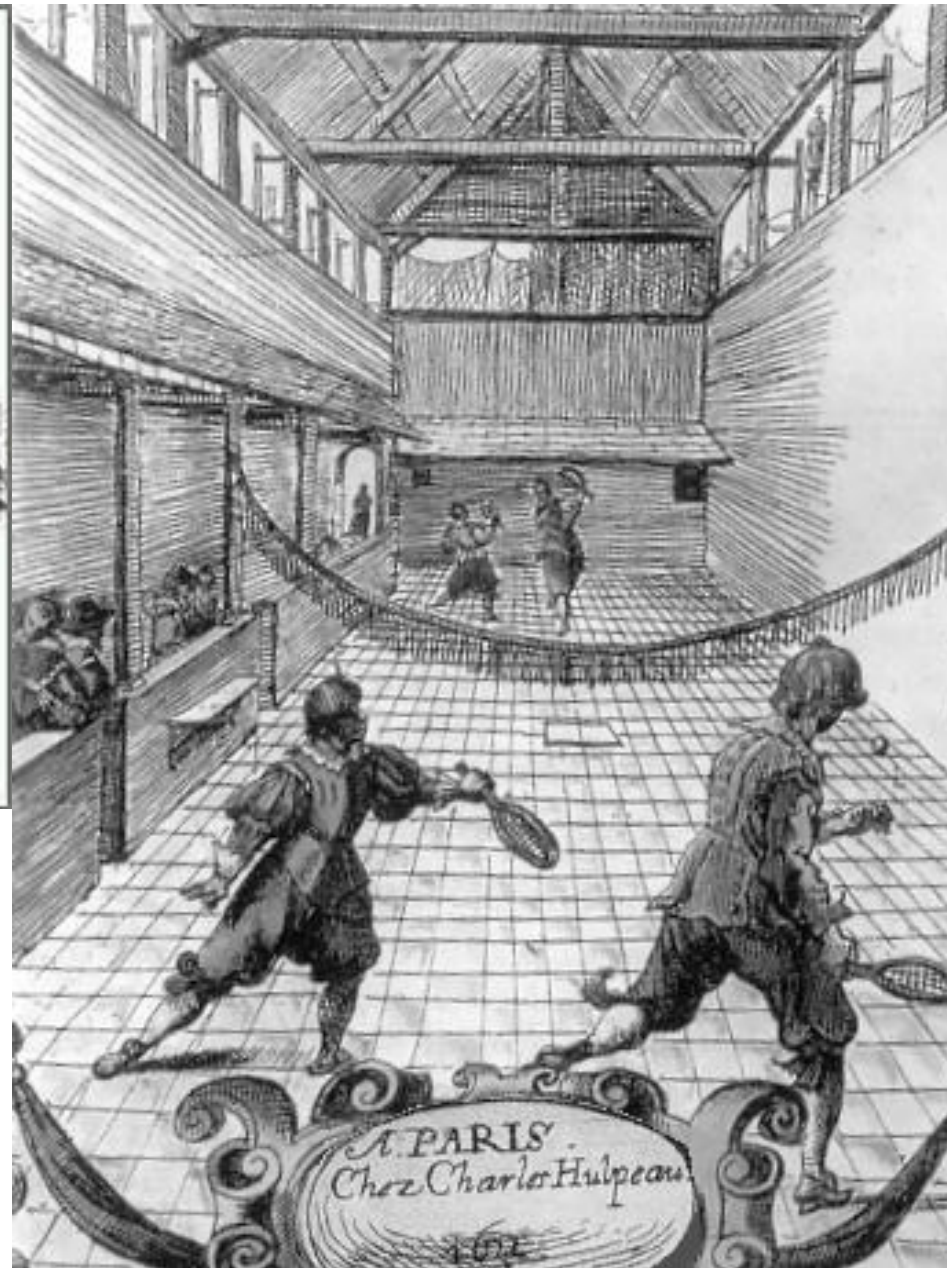
“ With change comes opportunity.”



Technological Progress



Technology and Human Games



Gaming Technology Progress

VIDEO GAME timeline

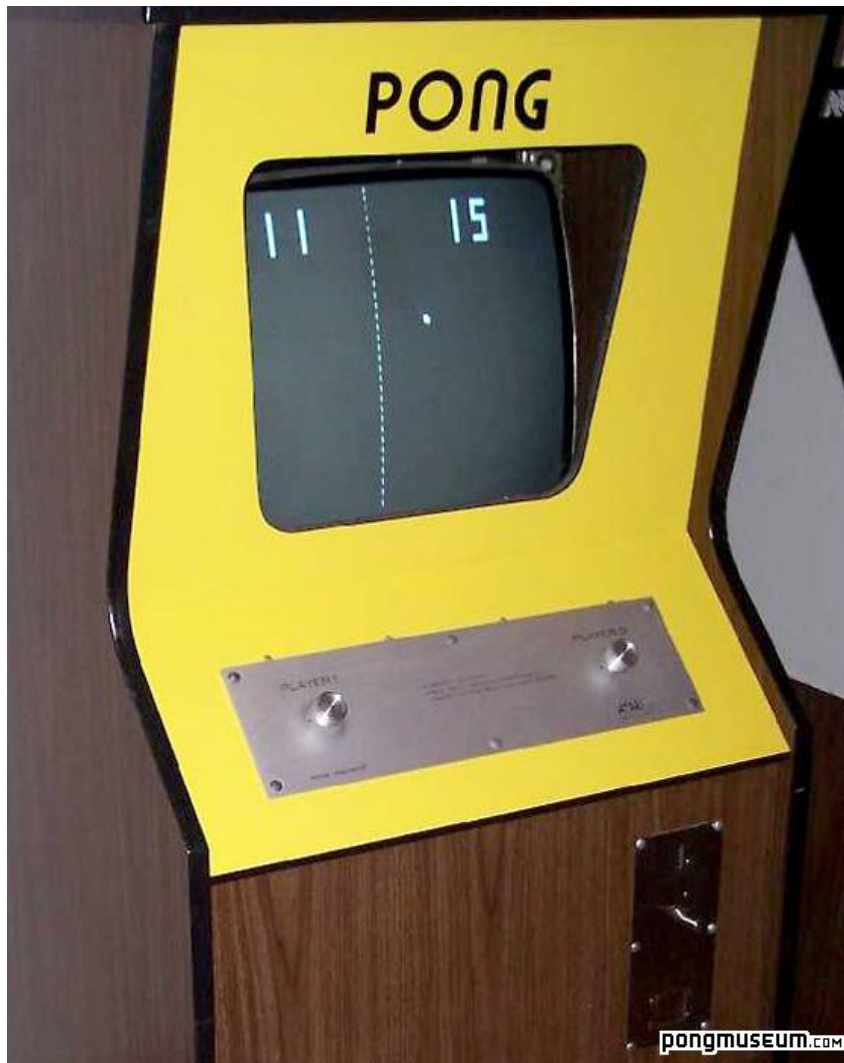
As the world of video games continue to evolve, we take a look back at popular consoles and video games that helped make Nintendo, Sony, and Microsoft the giants they are today

<p>1972 The world's first home video game console, the Magnavox Odyssey, sold 330,000 units in its lifetime</p> <p>1974 Gran Trak 10, the first racing arcade game, is released. It is the first arcade game to use ROM.</p> <p>1974 Maze Wars is released. Considered to be the earliest first person shooter.</p> <p>1979 Notable Releases: Asteroids, Lunar Lander, Monaco GP, Flight Simulator</p>	<p>1977 Nintendo releases Color TV Game 6, packing 6 variations of "Light Tennis" (pong)</p> <p>1980 Notable Releases: Pac-Man, Missile Command, Defender, Centipede</p> <p>1981 Notable Releases: Galaga, Donkey Kong, Frogger</p> <p>1983 Nintendo releases the Family Computer console in Japan and is later released in the United States as the Nintendo Entertainment System, 62 million units sold</p> <p>1984 Notable Releases: Dragon Buster, Tetris, Balloon Fight, Gauntlet, 1942, Paperboy</p>	<p>1985 The Sega Mega Drive (Sega Genesis in the US) is released. Sega's most successful console sold 29 million units</p> <p>1986 Notable Releases: The Legend of Zelda, Out Run, Bubble Bobble, Dragon Quest, Metroid</p> <p>1990 Nintendo releases the Super Famicom (SNES), the best selling console of the 16-bit era sold 49 million units</p> <p>1993 Notable Releases: Ridge Racer, Star Fox, Virtua Fighter, Atari Jaguar 3DO</p>	<p>1994 Notable Releases: Killer Instinct, Virtua Fighter, Earthworm Jim</p> <p>1996 Nintendo releases the N64. The last significant cartridge based home console was released in colors, it sold 33 million units sold</p> <p>1996 Nintendo releases the Gameboy Color</p> <p>2000 Sony releases the PS2, 138 million units sold and is the best selling console to date</p> <p>2001 With their first venture into the video game console market, Microsoft releases the XBOX, 24 million units sold</p>	<p>2004 Sony releases the first handheld console to use an optical disc, the Playstation Portable</p> <p>2005 Microsoft releases its second console, the XBOX 360</p> <p>2009 Nintendo releases the Nintendo DSi and Sony releases the PSP Go.</p>	<p>2004 Other Releases: Perfect Dark, Chrono Cross, Shies of Arcadia</p> <p>2001 Other Releases: Resident Evil, Crash Bandicoot, Sega Super GT</p> <p>1996 Other Releases: Neo Geo, Game Genie, TurboExpress, Bonk's Adventure, Super Mario World, F-Zero</p> <p>1994 Other Releases: Rainbow Six, Metal Gear Solid, Menogears</p>								
1st Generation		2nd Generation		3rd Generation		4th Generation		5th Generation		6th Generation		7th Generation	

<p>1967 German-born television engineer Ralph Baer and his coworkers design the first video-game console that works on a standard television and dub it "Brown Box". They develop a chase game, allowing players to control two squares chasing each other on the screen. A modified toy gun is made and able to distinguish spots of light on the screen. 12 Other games are made</p> <p>1976 Atari releases Breakout. The prototype was designed by Apple cofounders Steve Jobs and Steve Wozniak. Blackberry's current variant is called Brick Breaker</p> <p>1977 Atari releases the Video Game Computer System (Atari 2600 or UCS). It is the most successful video game console of its time</p> <p>1976 Notable Releases: Space Invaders, Space Wars, Bee Gee</p> <p>1962 Notable Releases: Q-Bert, Tron, Megamania, Dig Dug, Pole Position, Joust</p> <p>1965 Nintendo releases the NES in the US. Super Mario Bros. is released and sells 10 million copies before year's end, eventually being the top selling video game until 2008 with 40 million copies sold</p> <p>1967 Notable Releases: Megaman, Street Fighter, Metal Gear, Final Lap, Castlevania, Contra, Final Fantasy, Phantasy Star, Maniac Mansion</p> <p>1991 Notable Releases: Road Rash, Street Fighter II, Tecmo Super Bowl, Sonic the Hedgehog, Sega CD</p> <p>1992 Notable Releases: Mortal Kombat, Virtua Racing, Hiru's Dream Land, Mario Kart, Air Combat, Philips CD-i</p> <p>1994 Sony releases the PlayStation Console and is heavily influences the end of the cartridge, 125 million units sold</p> <p>1995 Notable Releases: Chrono Trigger, Time Crisis</p> <p>1997 Notable Releases: Goldeneye 007, Final Fantasy 7, Oddworld, Grand Theft Auto, Gran Turismo</p> <p>2001 Nintendo releases the Gameboy Advance. With several different variants and colors, 81 million are sold</p> <p>2002 Notable Releases: SOCOM, Animal Crossing, Kingdom Hearts, Vice City, Splinter Cell, Medal of Honor</p> <p>2004 Nintendo releases the Nintendo DS sporting a touchscreen and stylus</p> <p>2006 The Sony PlayStation 3 and the Nintendo Wii are released just 8 days apart. From each other, both enter the 3 way console war</p>	<p>1972 One of the earliest arcade video games, PONG, is a simple tennis game that became the first commercially successful video game</p> <p>1977 Atari releases the Video Game Computer System (Atari 2600 or UCS). It is the most successful video game console of its time</p> <p>1980 Mattel releases the Intellivision video console, releasing a total of 125 games during its lifetime</p> <p>1983 Sega Releases the SG-1000 to the Japanese market finding only minor success</p> <p>1986 Sega releases the Sega Master System as a competitor to the NES</p> <p>1989 Bundled with Tetris, Nintendo releases the Game Boy and is an instant success, selling 118 million world wide</p> <p>1999 Sega releases the Dreamcast. Considered to be ahead of its time and the pioneer of online gaming, the Dreamcast sold 10.6 million units</p>	<p>1994 Other releases: Sega Saturn, Neo Geo CD, Sega 32X</p> <p>2001 Nintendo releases the Gamecube Nintendo's first console to use optical discs, 21 million units sold</p> <p>2004 Nintendo releases the Nintendo DS sporting a touchscreen and stylus</p> <p>Other Releases: Paper Mario, Devil May Cry, Halo</p> <p>Other Releases: Fable, Halo 2</p>	<p>1999 Sega releases the Dreamcast. Considered to be ahead of its time and the pioneer of online gaming, the Dreamcast sold 10.6 million units</p>	<p>2001 Nintendo releases the Gamecube Nintendo's first console to use optical discs, 21 million units sold</p> <p>2004 Nintendo releases the Nintendo DS sporting a touchscreen and stylus</p> <p>Other Releases: Paper Mario, Devil May Cry, Halo</p> <p>Other Releases: Fable, Halo 2</p>	<p>2001 Nintendo releases the Gameboy Advance. With several different variants and colors, 81 million are sold</p> <p>2002 Notable Releases: SOCOM, Animal Crossing, Kingdom Hearts, Vice City, Splinter Cell, Medal of Honor</p> <p>2004 Nintendo releases the Nintendo DS sporting a touchscreen and stylus</p> <p>2006 The Sony PlayStation 3 and the Nintendo Wii are released just 8 days apart. From each other, both enter the 3 way console war</p>
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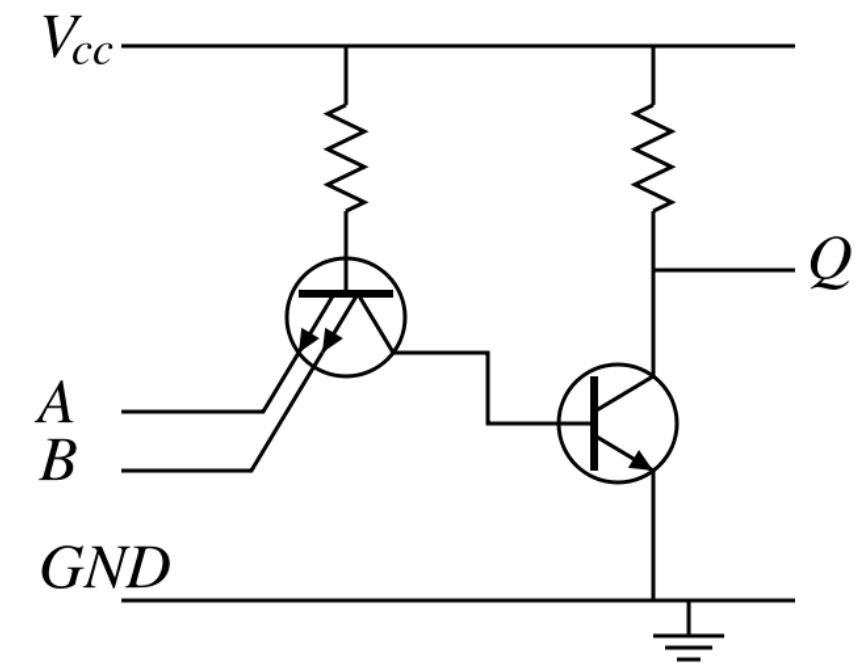


What made Pong possible?



Transistor-transistor Logic (TTL)

- TTL was invented in 1961 by James L. Buie.
- Foundation of computers and other digital electronics.
- Pong developed by Atari in 1972.

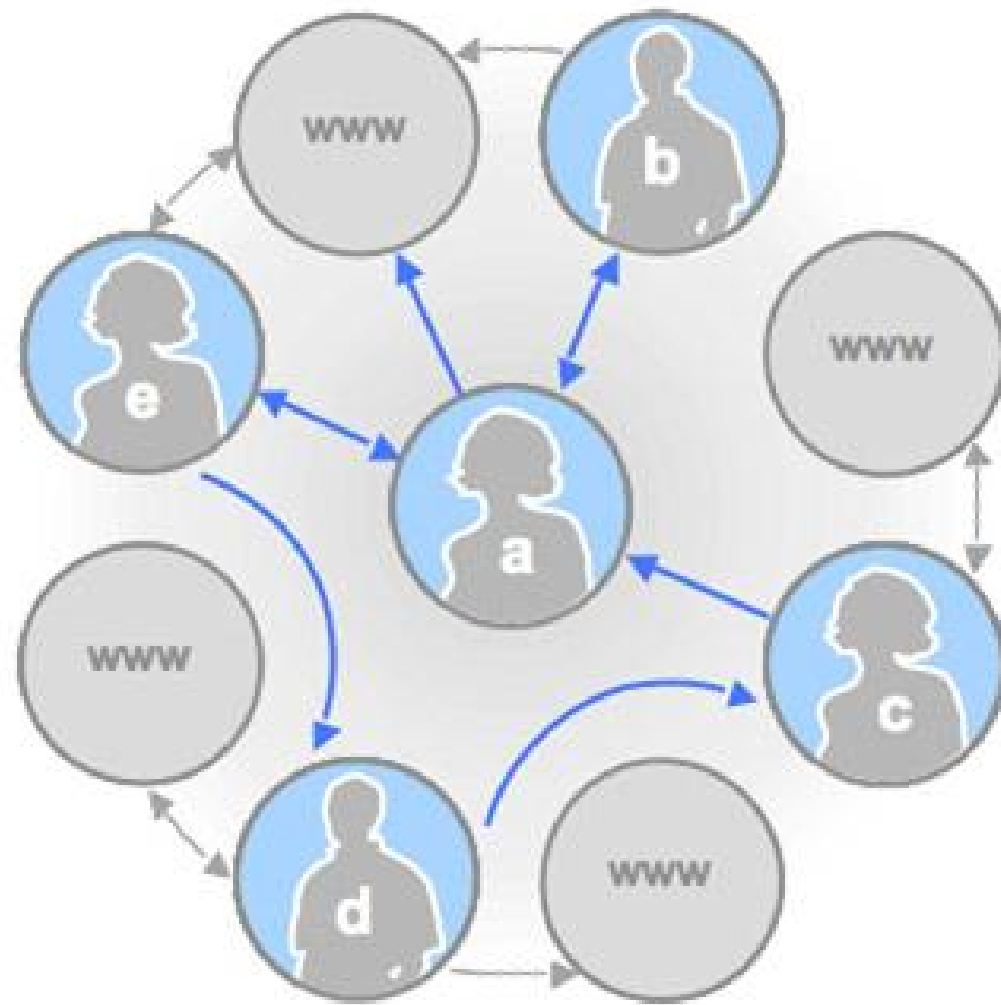


Transformational Technology

Wii Remote



Transformational Technology Social Graph



Technological Progress Smart Phones



What Will Technology Make Possible Next?

Many ingredients in smart phones for creating innovative gaming experiences.

- Proximity sensor
- Motion sensor / accelerometer
- Ambient Light sensor
- Moisture sensor
- Gyroscope
- Microphone
- NFC
- Cameras
- GPS
- Wi-fi



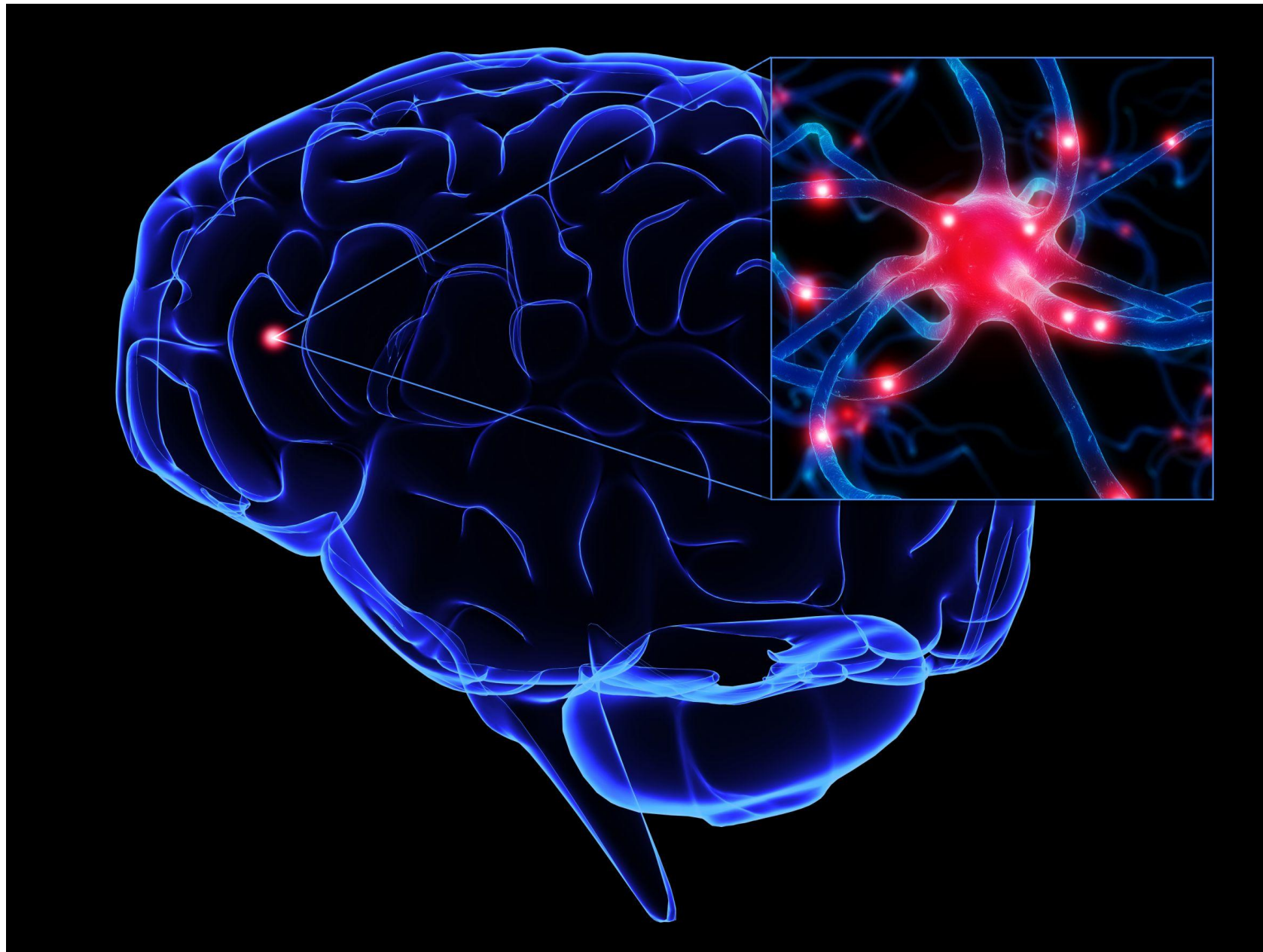
What Will Technology Make Possible Next?





Why do humans play?

Play Creates New Neural Connections in the Brain



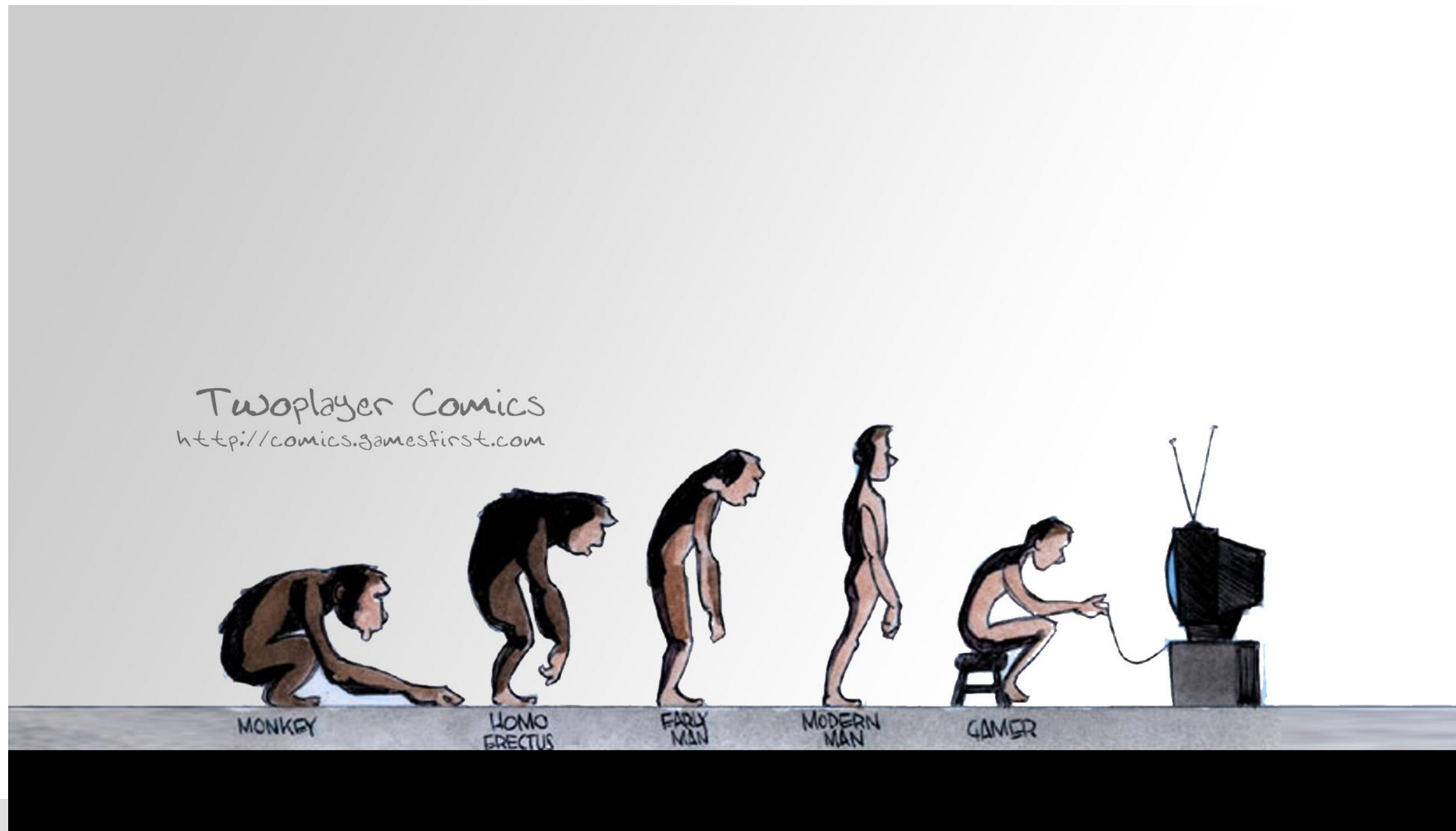
Arena for Social Interaction and Learning



Safe place to discover and develop talents and skills.



Where do games fall short?





Niantic Labs @ Google

Creating "Adventures on Foot"

A Brief History of our Team and Mission

Niantic Labs - Creating "Adventures on Foot"

Foundational Mission:

- Explore opportunities using Augmented Reality.
- Get people off the couch.
- Reconnect people with their local community.



We don't need to be tied to a desk by technology.



Contextual Computing and Augmented Reality



Help people get outside and burn some calories.



Reconnect people with their local community.

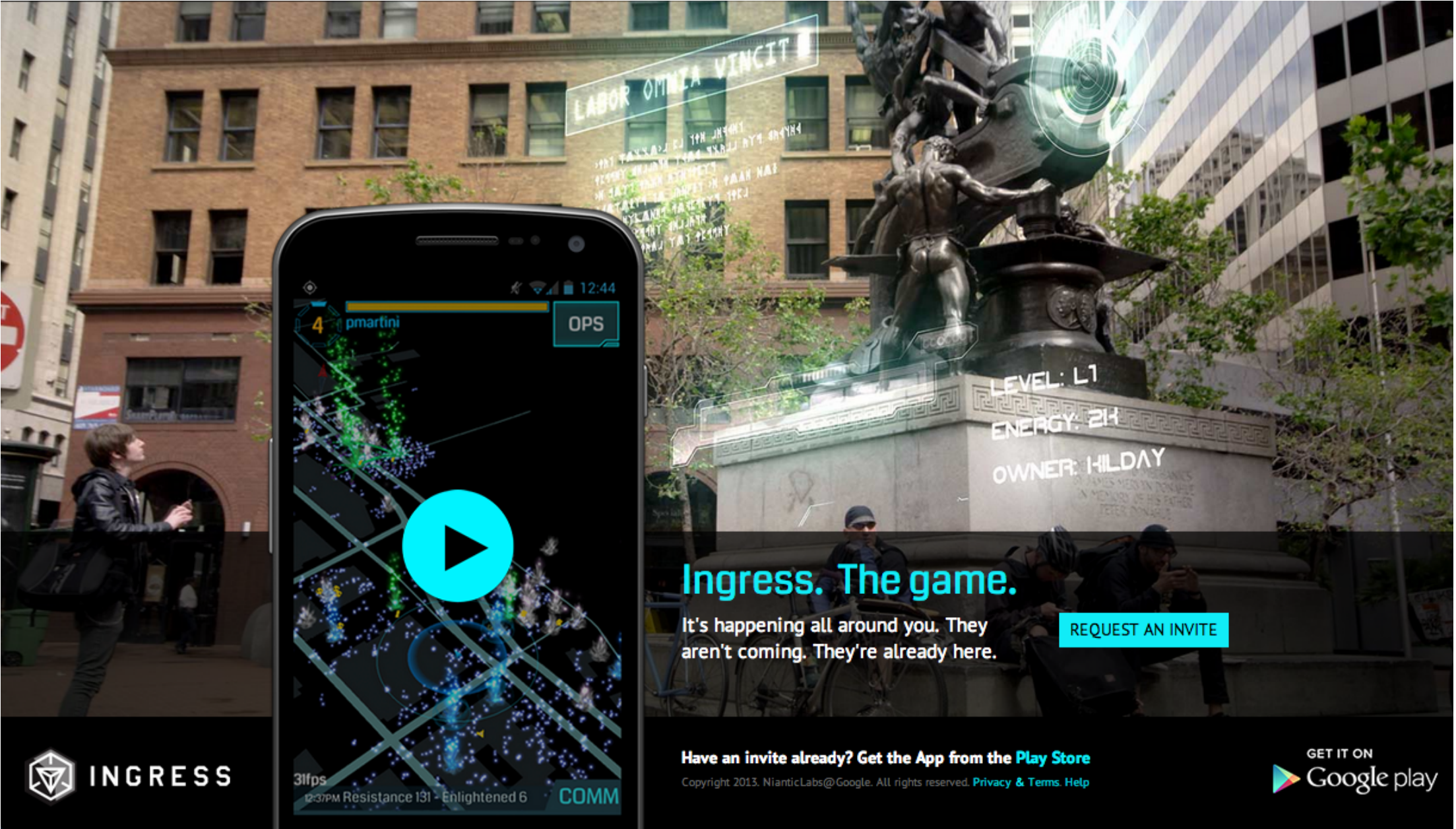




Ingress

"The world around you is not as it seems."

Ingress - "The world around you is not as it seems."




The advertisement features a smartphone in the foreground displaying the Ingress game interface. The phone screen shows a map with various portals, a player's name 'pmartini' with a level '4' and 'OPS' button, and a large cyan play button. The background shows a city street with a large bronze statue. AR overlays on the statue include the text 'LABOR OMNIA VINCIT', 'LEVEL: L1', 'ENERGY: 24', and 'OWNER: HILDAY'. A person is seen in the background looking at their phone.


Ingress. The game.
It's happening all around you. They aren't coming. They're already here.

[REQUEST AN INVITE](#)

Have an invite already? Get the App from the [Play Store](#)
Copyright 2013. NianticLabs@Google. All rights reserved. [Privacy & Terms](#) [Help](#)

 **INGRESS**

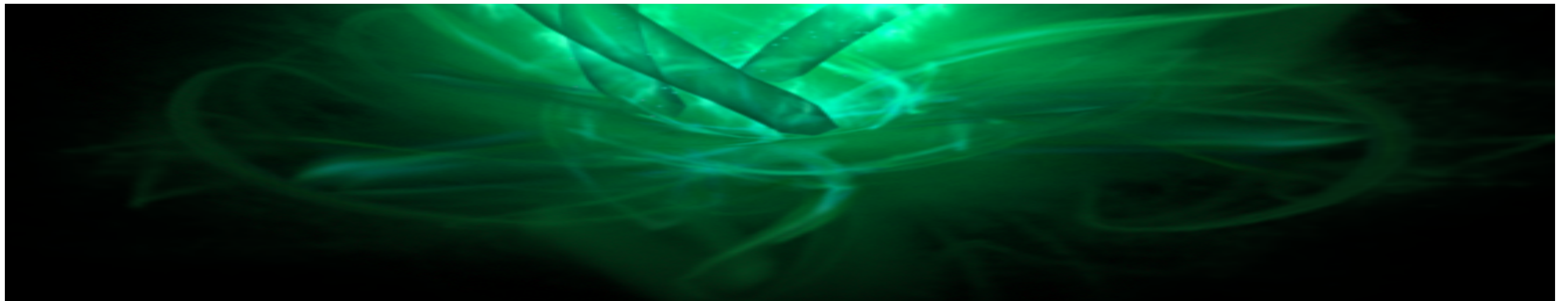
31fps
12:37PM Resistance 131 - Enlightened 6 **COMM**

GET IT ON  **Google play**



Ingress - Overview

A mysterious energy has been unearthed by a team of scientists in Europe. The origin and purpose of this force is unknown, but some researchers believe it is influencing the way we think. We must control it or it will control us.



Ingress - Choose your side

- **“The Enlightened”** seek to embrace the power that this energy may bestow upon us.
- **“The Resistance”** struggle to defend, and protect what’s left of our humanity.



Ingress - The World is a Game

Move through the real world using your Android device and the Ingress app to discover and tap sources of this mysterious energy. Acquire objects to aid in your quest, deploy tech to capture territory, and ally with other players to advance the cause of the Enlightened or the Resistance.



Ingress Portals - Public Art



Ingress - Strategy

- Work with other agents to create Links and Control Fields.
- Track the progress around the world, plan your next steps, and communicate with others using an Intelligence map.



Ingress - Investigation Board

- The Investigation Board (<http://www.nianticproject.com>) is filled with cryptic clues and secret codes.
- The story evolves everyday.
- Powerful secrets and game tech can be found and unlocked.



Ingress - Form Alliances

Groups of people acting together can be more effective than individuals acting alone. Cooperation across neighborhoods, cities, and countries will be needed to achieve the ultimate victory.





Key Learnings

Game Mechanics can encourage cooperation.

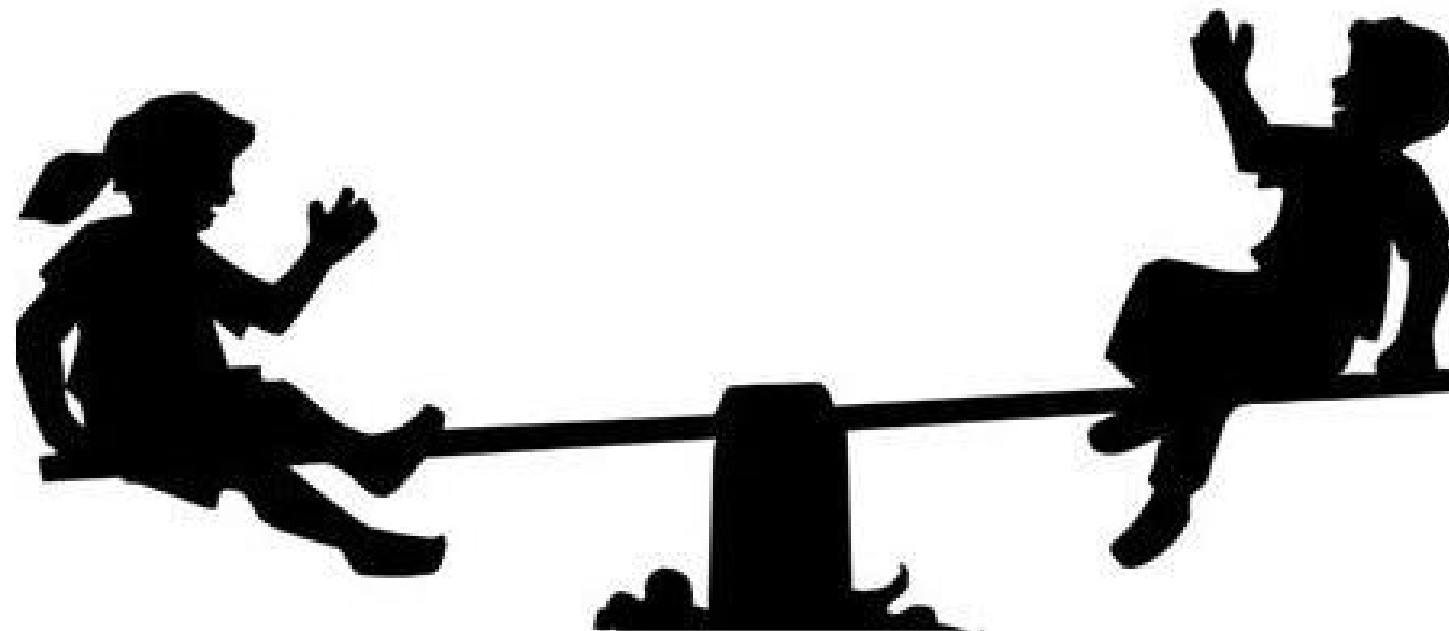
- Original design allowed one player to fully capture a Portal location on his/her own.
- Adjusted to require 8 players to work together to build the most powerful Portals.



Balance - Tuning all the Variables

Create configurable knobs that can be adjusted based on player data and feedback.

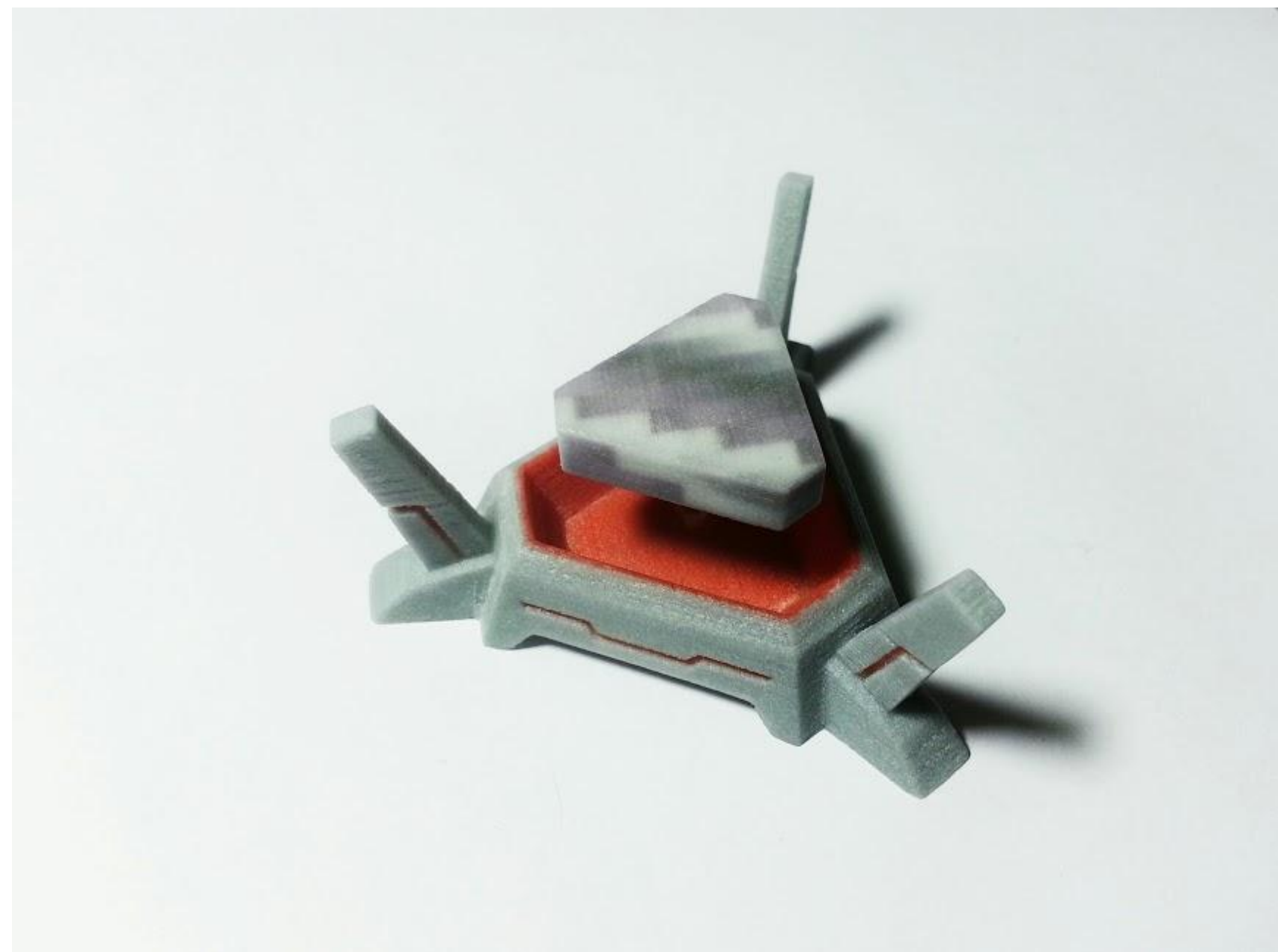
- Attack vs Defense
- High vs Low Level Players
- etc.



Create a Social Experience



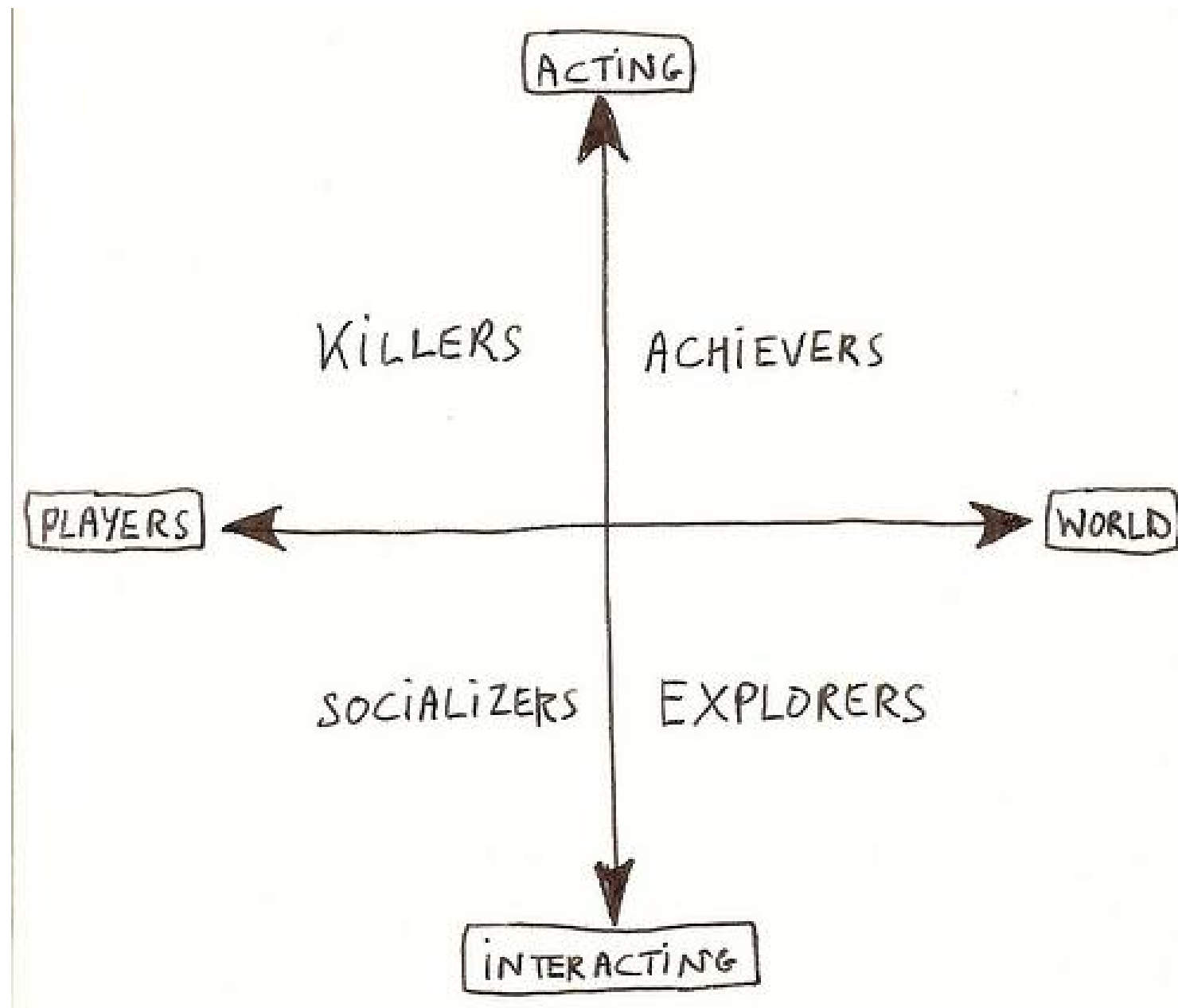
Promote Creativity in the Community



Rich Player Progression



Bartle's Taxonomy of Player Types



Portal Discovery

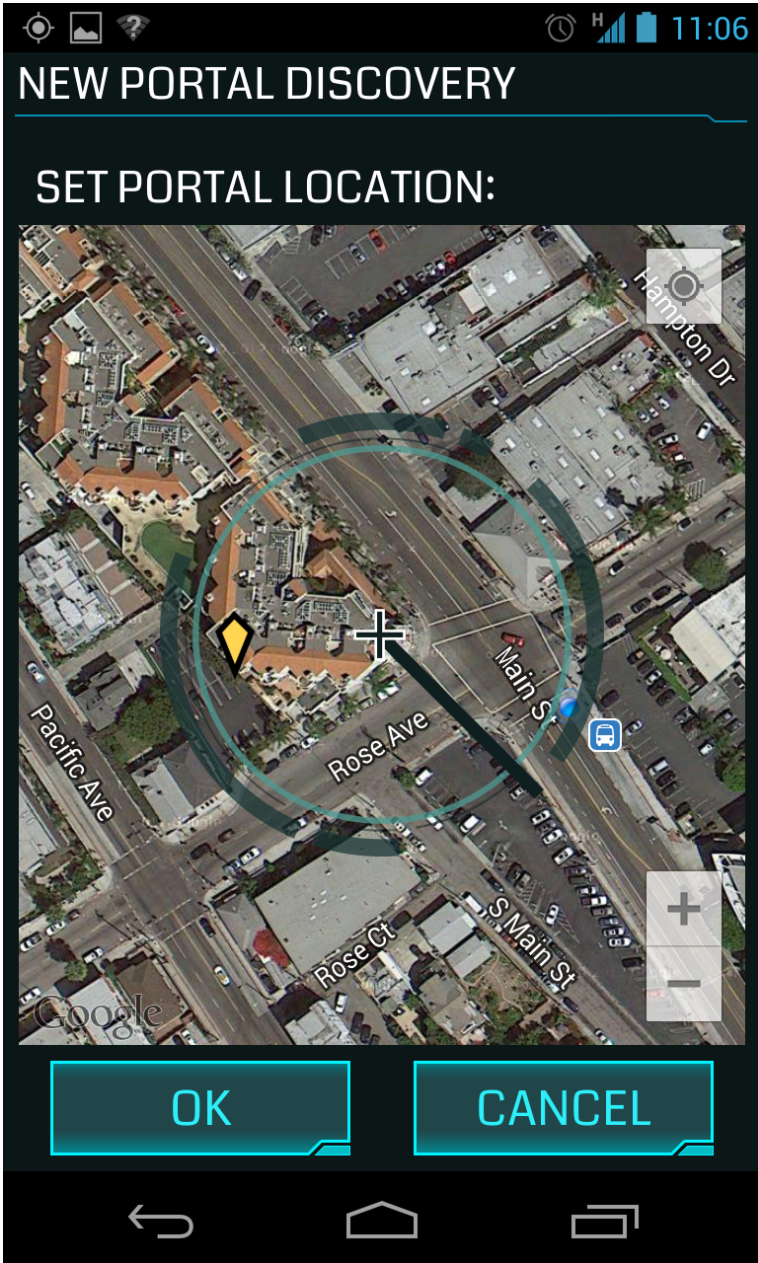
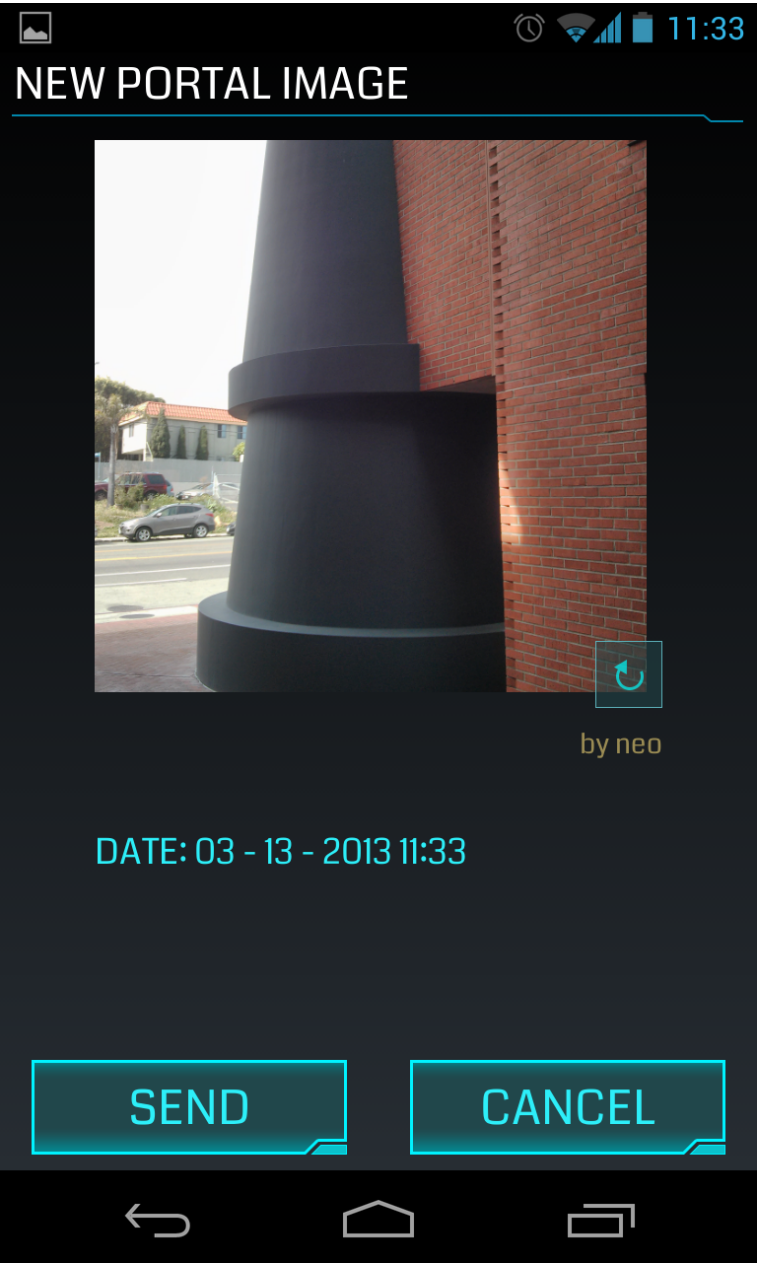


**Smallest Portal
Ever...**

Portal Keys - Collect Them All!



Players Can Help Build the Game



One World vs Many Virtual Worlds

The screenshot displays a virtual world interface with a map of Europe as the central focus. The map is populated with numerous colorful portals (blue, green, yellow, and red) scattered across various countries. The interface includes a top navigation bar with a 'neo' logo, a level indicator '6', and two numerical values: 27,182,794 and 27,349,464. A search bar contains the word 'europe'. The map interface includes 'Map' and 'Satellite' view options, a compass, and a zoom control. A 'COMM' chat window is open at the bottom left, showing a message from '[secure] Baball: @SEB314' and a 'Restrict to map' checkbox. A 'Transmit' button is visible below the chat. At the bottom right, there is an 'Input passcode' field. The map shows labels for various countries and cities, including Iceland, Sweden, Norway, Finland, Estonia, Latvia, Lithuania, Poland, Czech Rep, Austria, Hungary, Romania, Bulgaria, Greece, Turkey, Georgia, Azerbaijan, Turkmenistan, Uzbekistan, Tajikistan, Kazakhstan, Kyrgyzstan, and Iran. A text overlay on the map reads 'Showing L7-L8 Portals. Zoom in to see lower level Portals'.



Global vs Local

COMM ▾

All **Faction**

Restrict to map

12:48PM [secure] Bonkyboy: Hm. Jeg holder på fortsatt og nåda. Statistisk sett er det vel mulig men dette er rått...

12:48PM [secure] Durus: @jacjyd good thing I didn't give out sensitive info, but they monitor our faction comm anyway so I'm not sure how much difference it makes

12:48PM [secure] Rentokil: wakakakak

12:48PM [secure] H2sDeath: @ajs94 I break, you build

12:48PM [secure] Kraon: Albrecht versucht sich jetzt an den einfachen Dingen, rund um Saaleklinik. :D

12:48PM [secure] Mikos: @Jordan17 V systémovém nastavení, Přístup k poloze, deaktivovat položku Poloha podle mobilní sítě a wifi

12:49PM [secure] Triggerblast: @link1 regolir75@gmail.com

12:49PM [secure] elPadrino1: a lot more xm

12:49PM [secure] w6npn3u9: @lamR3m уже

12:49PM [secure] Daimonion: würde gerne zerstören und komplett setzen.

12:49PM [secure] LocalnHero: ieps!! hola a tots! soc molt nou ab això... si un portal es del meu color... puc fer quelcom?

12:49PM [secure] lattissimo: @Aundymeister yes near its relative. I ment closer that usual.

12:49PM [secure] Lipek: @dannelberry help me linking Derby and warrington

12:49PM [secure] arfa2: вот и новая фракция амазонок..)))

start broadcasting here **Transmit**

Estonia
Latvia
Lithuania
Belarus
Ukraine
Romania
Bulgaria
Greece
Turkey
Lebanon
Israel



App Engine - Scalable Infrastructure

Google tools and cloud services allow your game to scale.



A Rich Story Builds a Deeper Experience



YouTube is a Powerful Story Telling Tool



Ingress - The Book

The screenshot shows the Google Play Store interface for the book "The Alignment Ingress" by Thomas Greanias. The page is divided into several sections:

- Header:** Google Play logo, search bar, and navigation tabs for SHOP, MY MUSIC, MY BOOKS, MY MAGAZINES, MY MOVIES & TV, and MY ANDROID APPS.
- Book Cover:** A vertical image of the book cover for "The Alignment Ingress" by Thomas Greanias. The cover features a glowing green skull and the text "NEW YORK TIMES BESTSELLING AUTHOR THOMAS GREANIAS WITH HANK JOHNSON AND CONRAD YEATS THE ALIGNMENT INGRESS A NOVELLA FROM THE NIANTIC ARCHIVES".
- Price and Purchase Options:** The book is priced at \$2.51 (down from a list price of \$2.99). There are buttons for "\$2.51 BUY" and "FREE SAMPLE".
- Reader Reviews:** A section titled "Reader Reviews" with a "Write a Review" button. It displays three reviews:
 - David Williams - May 2, 2013:** 5 stars, "Loved it! I would definitely buy a sequel no questions asked."
 - Walden Riedel - April 28, 2013:** 4 stars, "Good backstory. Very well though out, weaving in actual ingress happenings to part of the story. A bit jumping with the story but it's done on purpose to weave the story of two, and the real purpose of Queen of Shiba's 'mines'. An enjoyable read but a bit short, looking forward to up coming titles tying into ingress. A must read for those whom have payed attention to media drops and the story from them."
 - Andreas Hakansson - April 28, 2013:** 4 stars, "A good read. However all the Google references could have been left out"
- Share and Social Media:** A "SHARE" button with a Google Plus icon and a count of 635, and a "Tweet" button.

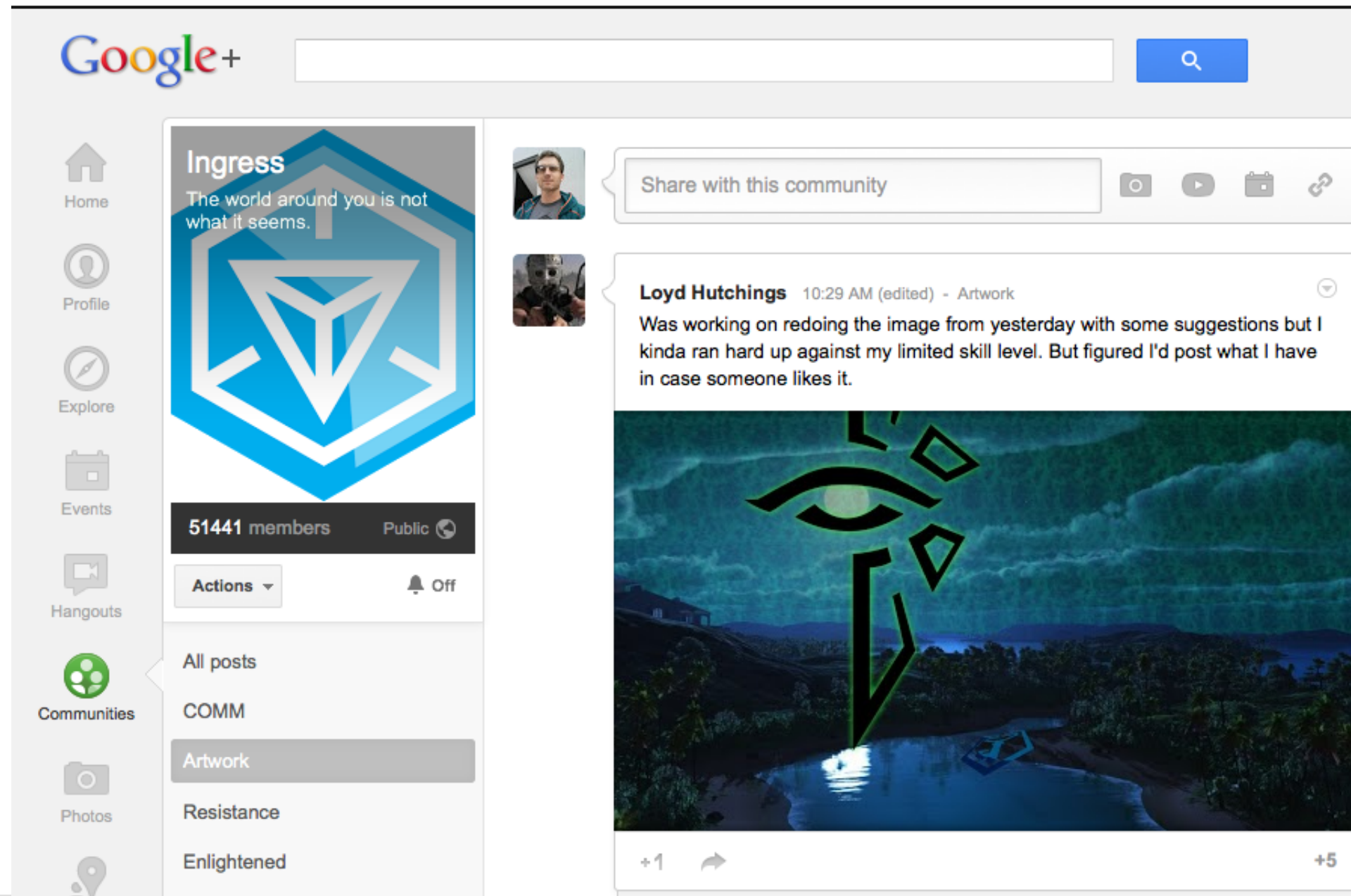


Game Events with Story Payoffs

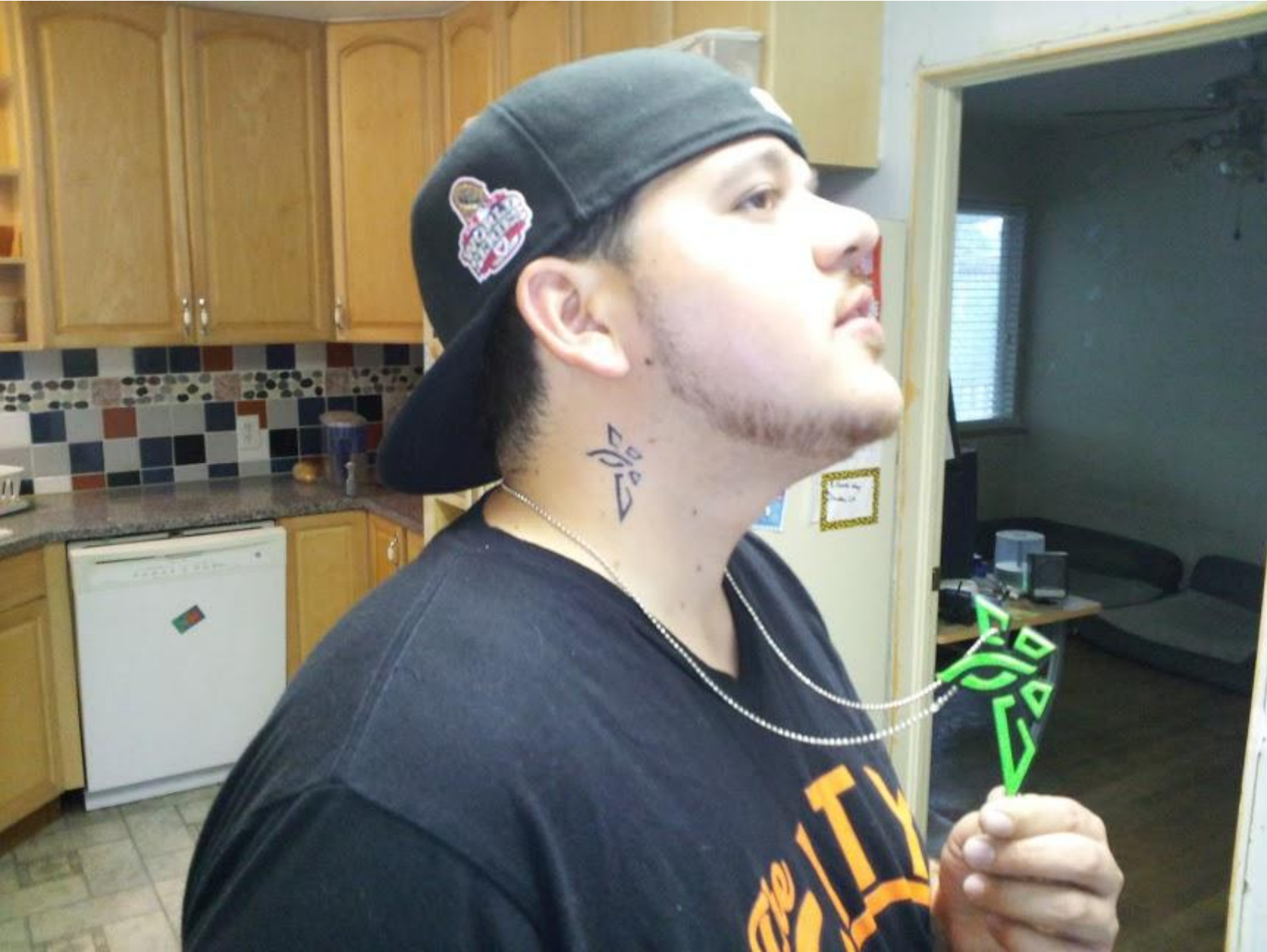
Character aligned to the side of the winning faction.



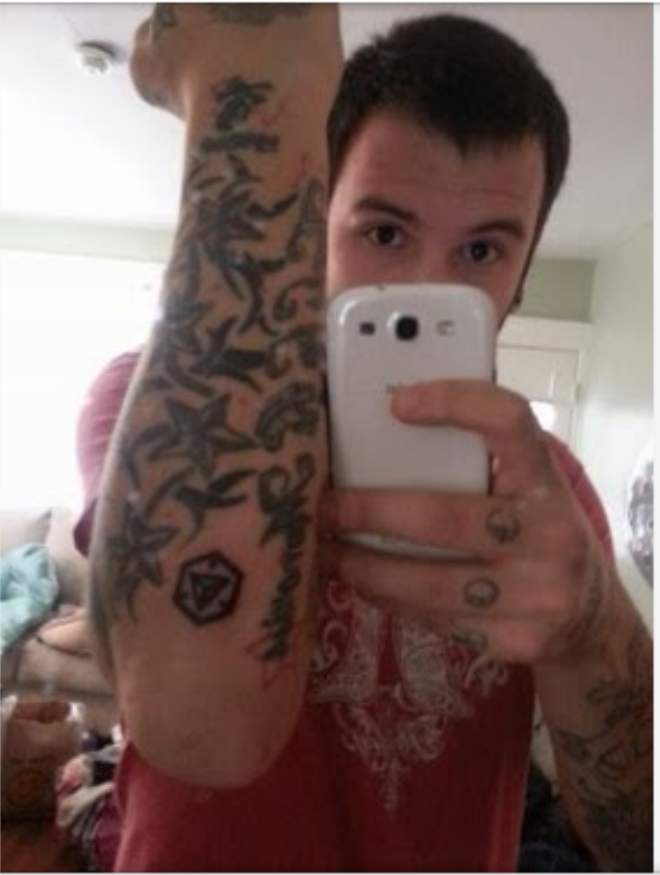
G+ is an Effective Community Building Tool



Dedicated Fans and Players



Joe Misuraca 12:16 PM - Community - [Ingress \(Artwork\)](#)
Exersizing my only talent; tattooing. Fresh#ingress logo tattoo. Hopefully soon to be followed by a faction one if I ever get me an [#ingressinvite](#)
[#ingressartwork](#)



+1 ↗ +3 ↗ 1

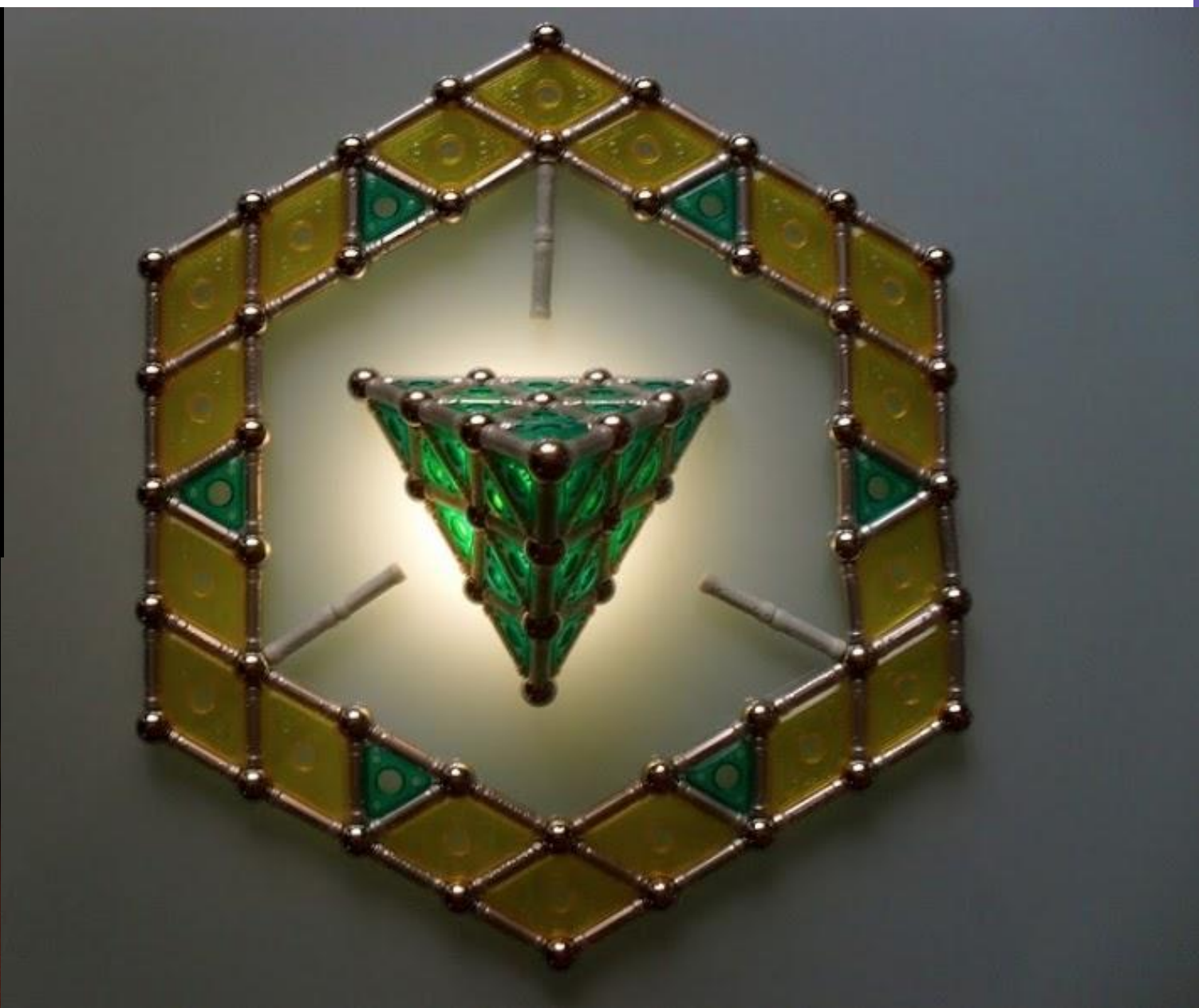
Ingress Art Contest via G+



Artwork



Artwork



Mememes on G+ - Drive Awareness

TECH SUPPORT



What my friends think I do



What my mom thinks I do



What society thinks I do



What my boss thinks I do



What I think I do



What I actually do



Gear - Help players express their love of the game.



Interactive Feedback via G+



Gordon Fletcher 1:08 PM - Artwork

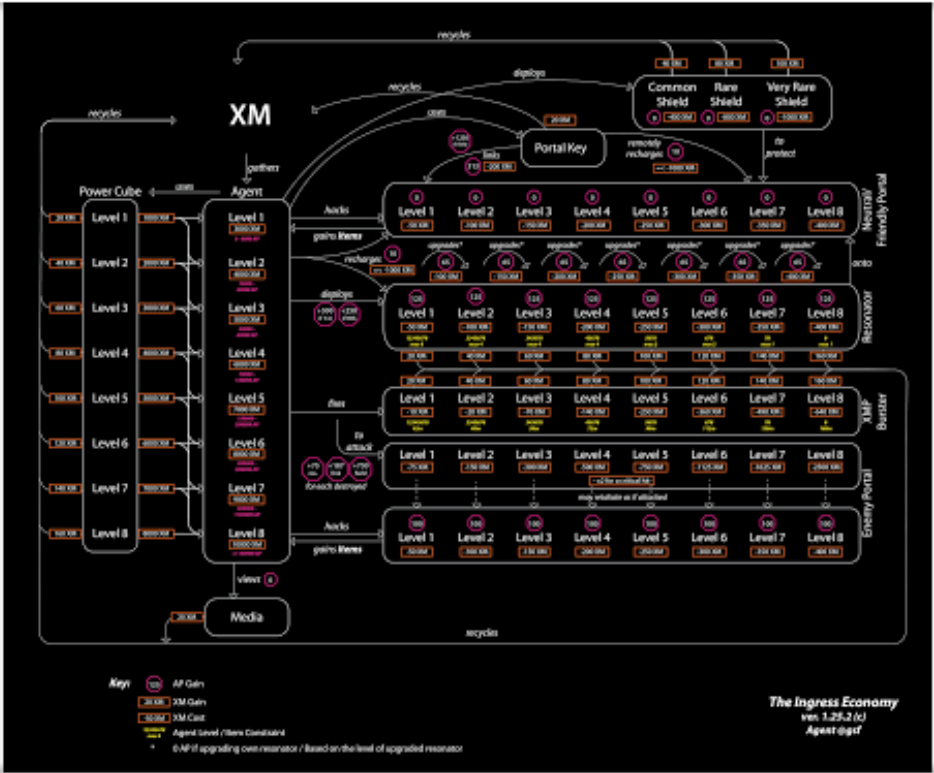
Updated Ingress Economy map fixing design errors (i.e. adding media and a missing arrow head) and reflecting the new costs of XMP use.

Still looking at how to better colour code cost and gain for XM.

All in all this really does explain why you keep running out of XM.

Now to finish the actual paper about this lot...

Canonical URL -> <http://goo.gl/YinDp>



Organize Player Events via G+



Brandon Badger May 8, 2013 - Public



Niantic Project originally shared this event:
Everyone is invited to this public event.

Operation: Bowstring

📅 Thu, May 16, 7:00 PM

📍 Rincon Park

👤 Joe Philley, John Zuur Platten + 100 others going

Are you going?

Yes ▾

+0 guests ⇅

Invite more

📅 Check my calendar



+1 ➔

 +4 ➔ 4



Events



Game as Sport - Promote creative play.



Organize your own pickup game of Ingress this weekend.

- * Designate 10 local target Portals
- * Record the score at four time periods (14hrs, 14:30hrs, 15hrs, 15:30hrs)
- * 5 Points for each target Portal under a Field
- * 1 Point for each controlled Portal
- * Losing team buys beers



Example Game Event Format

- **FOUR QUARTER PERIODS** - 4 quarters of play. Each quarter is 30 minutes. Game starts at T0. We do a score check at T+30min, T+60, T+90min, and the final quarter ends at T+120min. The score at each quarter score period is added to the team totals.
- **DESIGNATED PORTALS** - N Portals are designated as scoring Portals. These are the Portals that the teams will battle over.
- **SCORING**
 - **FIELD OVER PORTAL** = 5 pts. Score a 5 point 'touchdown' for every scoring Portal that is covered by a Control Field at the scoring interval.
 - **PORTAL_CONTROL** = 1 pt. Score a 1 point 'field goal' for every Portal under your control at the scoring interval.



Explore Partnership Opportunities.



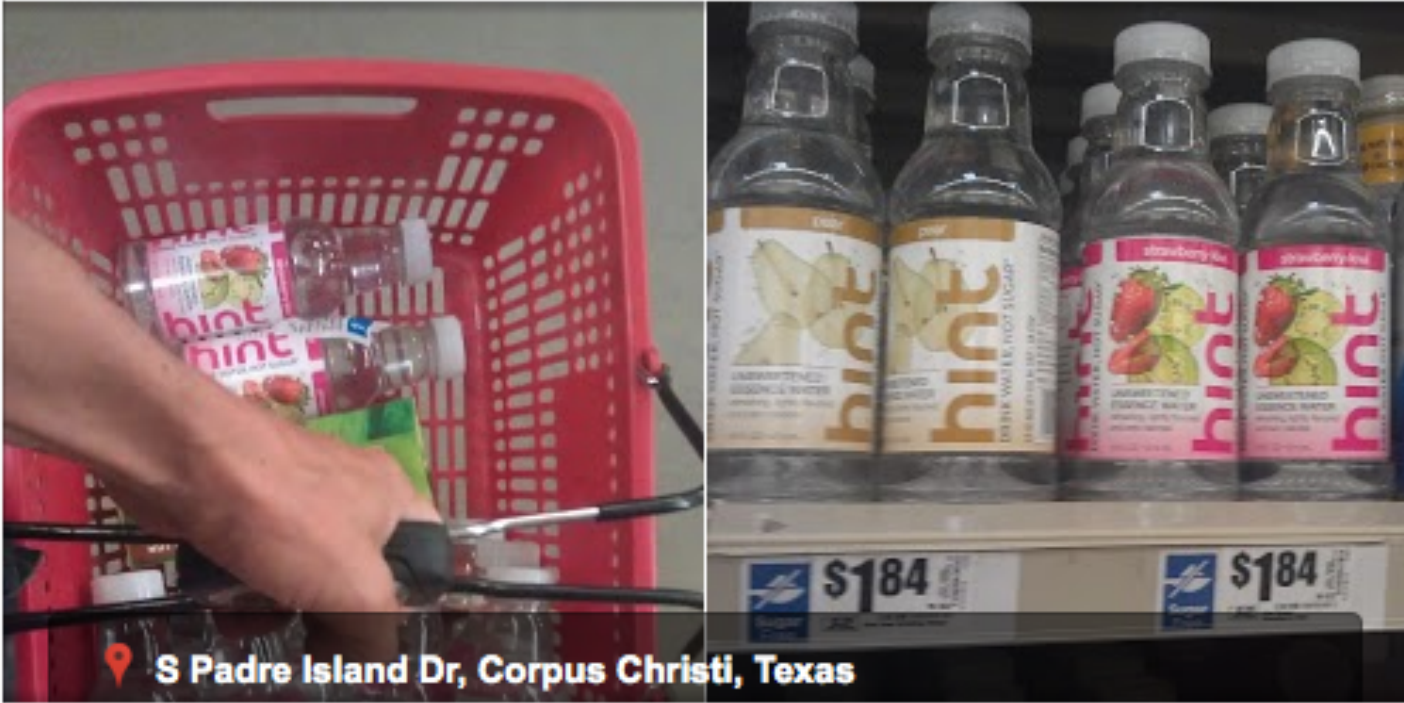
Brandon Badger Yesterday 6:45 PM - Public

Leave some for other Ingress agents.



David Brisco originally shared this post to [Ingress \(COMM\)](#):

My local store just restocked on hint water, I know because I bought all 12 ! And I have been checking everyday !



S Padre Island Dr, Corpus Christi, Texas

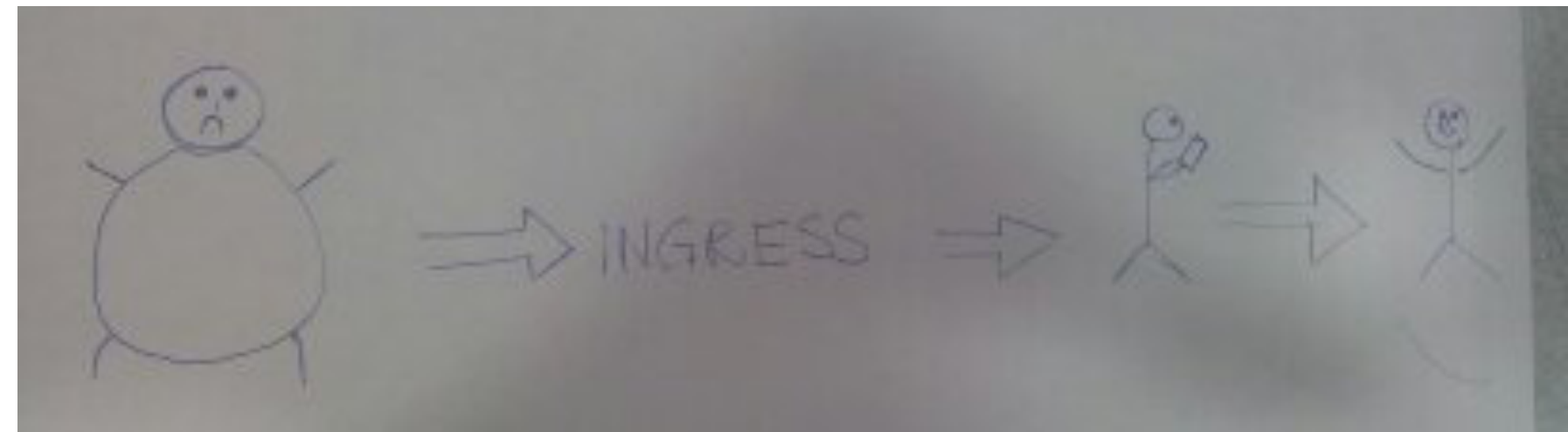
+1

+30 4



Your Game can make a Positive Impact in the World

- Bring people together
- Improve health
- Help players develop leadership and skills
- etc.



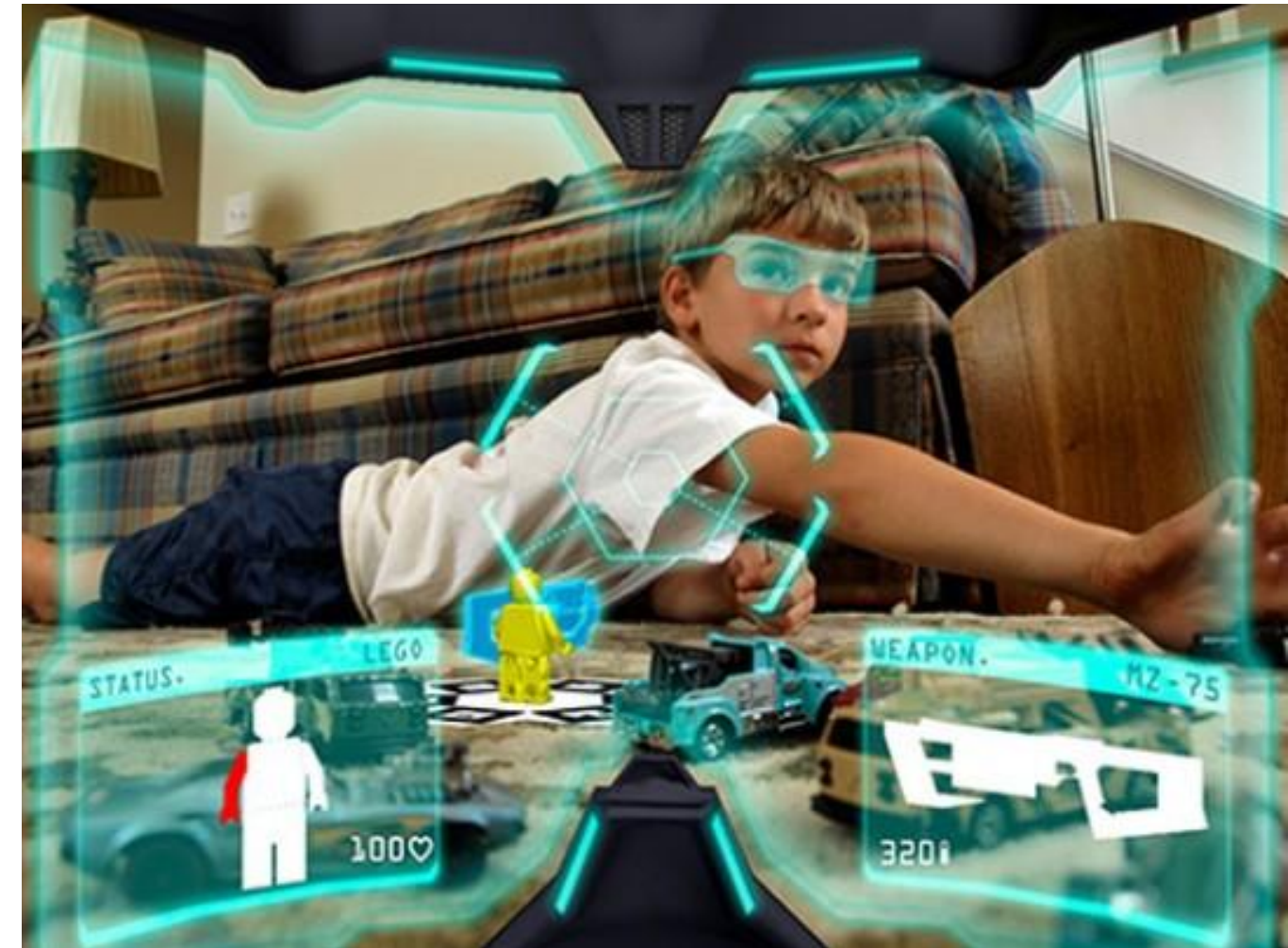


What's Next?

The Technological Tools will Continue to Progress

Your Imagination and Creativity will lead you to opportunities to build the next generation of gaming experiences.

Good Luck! and I look forward to playing with you in the future.



Thank You!

