

# **Developing Game Worlds: Gaming, Technology and Innovation in Peru**

## **Research Summary**

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### **Abstract**

Because of its underground origins, the Peruvian game industry provides an alternative, more organic gateway to developing technology industries than forms of the “technological sublime” that have been recurrent over Peruvian technological history. Driven by creative rather than commercial objectives, people interested in game development figure out ways to get around gaps in existing training options to acquire the interdisciplinary skills they need to create games – setting up alternative infrastructures to connect to each other, share information, and set up collaborations. Peruvian developers are also experimenting with ways to gain access to global networks and markets, which affects their design decisions and how they present themselves to peers and customers around the world. Games designed to present local cultural elements for international audiences – referred to in this project as “borderland games” – have become sites where tension around self-presentation gets played out.

Game studios are experimenting with various configurations of business practices, figuring out empirically what arrangements put them on the better path to engage international partners and secure creative and financial sustainability. Studios are collaborating with each other to address structural barriers affecting the industry as a whole, which is putting them in a stronger position to engage government agencies and gain support to address structural issues.

This relatively unknown industry has been able to introduce complex skills and work around structural gaps and obstacles to create the foundations for a potentially viable technology and creative industry. How, exactly, the industry will develop remains to be seen, but its evolution can provide interesting lessons for the emergence of digital creative industries in developing economies.

**The Peruvian video game industry is at a key moment in its evolution, where a series of previously disconnected initiatives are beginning to acknowledge each other and consolidate into a sector, more self-aware of its own identity, challenges and position in the global gaming industry.** The challenge in researching the industry and its network of stakeholders and practices has been to determine how this specific moment has come about, and perhaps even more importantly, whether this transition moment represents a jumping off point towards the next stage in the industry's evolution, or rather just a fluke in the normal chain of events. And whether this next big thing is actually attainable is a key matter not only to game creators, but to technology practitioners in general, as it represents the test on whether the Peruvian economy can seed, sustain and grow various forms of technology-based industries.

Not only does the Peruvian video game industry exist, but it has also managed to grow consistently over the last few years, despite its relative invisibility and a series of structural issues that limits its growth. **The growth of the industry has been primarily driven by transactions in social capital as opposed to financial capital, as people who are part of this industry are driven by creative desires rather than potential financial returns when deciding they want to be a part of the production of this medium.** The Peruvian game industry has been able to come together and grow because people were driven by a creative passion to take on more risk than they would have had they been making strictly rational decisions, in the economic sense. While the costs they bear and the risk they assume are perhaps higher than they should be, they make up for it through the increased learning and creative returns they find in engaging with an emerging technological practice that connects them to global communities of makers.

The world of Peruvian game development turned out to be extremely rich and diverse, full of creative people bursting with energy and drive to transform it into new creative products. What they didn't know, they learnt, and what they did know, they shared. Of course, it was not without issues and complications. By putting weaving together the narrative of the game industry and surrounding game development community as a coherent whole, this research points to three core ideas that have proven to be the most salient, after spending several months of qualitative research in the form of dozens of interviews with developers and other people connected to the industry, site visits, and event and activity observation in Lima, Peru, between May 2013 and February 2014.

**The first core idea is the story of the Peruvian game industry itself, and how it has managed to slowly and organically come together over the last couple decades despite systematic lack of support and considerable prejudice from multiple actors.** The game industry has been able to push forward through the establishment of a series of **alternative infrastructures** that facilitate its operations, and by building heavily on tight social networks that transact in social capital everything they're incapable of acquiring through material means. The story of the industry, and the loosely structured community that surrounds it, is a collection of stories from primarily young people who've grown up playing games and feel strong emotional connections to them – and then, at some point, decide they want to express themselves through this medium. It is their creativity that, in most cases, drives them to adopt a risky decision such as wanting to make a living out of developing a technology and a medium that is virtually unknown in their local context. Over time, these networks have grown tighter and have managed to build some nascent institutions that formalise and provide continuity to many of the informal arrangements

on which the industry was built – providing a critical platform for old and new actors to achieve a sustainable practice and pursue more ambitious creative objectives, reaching out to international markets and having their games downloaded by players around the world.

**The second core idea is not only how this industry was possible at all, but also how meaningful it is that it's there.** From an economic point of view, there should be no Peruvian video game industry: the cost of getting the operation in place is far larger than the potential financial returns it can get. And the larger share of that cost is related to skill acquisition: the game industry depends on a number of interdisciplinary skill sets that are simply not popular enough in the local economy to provide steady streams of qualified talent. In other words: the building blocks required to have a sustainable game industry are just not in place. And yet, there it is. Exploring the practice of game development in Peru through an ethnographic approach has uncovered networks of learning and production that would otherwise remain invisible, and enabling a reconstruction of the reasons why this anomaly has been possible. The Peruvian game industry exists because it is *not* driven primarily by financial or commercial motives. People in the industry are consistently not looking for profits, but rather for sustainability. But **their activities are nonetheless still economically significant, and still have a larger impact in their ecosystem:** the interdisciplinary skills related to game development that are being introduced into an economy – related to software development, project management, computer animation, and so on – become available not only to the development of games, but to other creative industries as well. Because of this, we can consider the possibilities this sort of **creative communities** – loose assemblages of people brought together by their shared interest in a creative practice – offer for the emergence of

new creative industries, especially in the context of developing economies.

**The third core idea that surfaced through this research is related to the singular relationship with technology that people in the Peruvian game industry are developing, both for the context of a developing economy lacking a significant technology base, and as compared to other creative industries.** There's a recurring pattern in Peruvian technological history of treating technologies as black boxes that are deployed at varying scales, with the expectation that they will generate radical transformations in social and cultural conditions and bring about a “modern” nation. The game development community breaks with that tradition: it has been built from the ground up, without any major backing project or implementation, and has grown out of individuals reverse engineering forms of both technology and process. The result is that members of the game development community have a much more straightforward, informed, and organic relationship to technology: without everyone being a hacker or a coder, people come to understand what technologies can do for them, and how they fit into their everyday lives. This represents an interesting template to rethink how we understand the deployment of new technologies in developing economies: **rather than push for radical transformations coming from black boxes, we need to think about the entanglements between local cultures and practices, social networks and institutions, and technologies and processes.** The result is, perhaps, less sexy than the imaginary possibilities of airdropping shiny toys into remote locations, but if the Peruvian game industry is any indication, it can be more sustainable and have a stronger impact not only in people's relationship with technology – but also how they relate to larger, opaque systems that affect their daily lives.

As for the game industry itself, one of the chief interests of this research was not only to understand the industry, but also to be able to identify the core challenges it was facing and, ideally, whether there were any opportunities to address those challenges and accelerate the growth of the industry. To that effect, there are a series of recommendations for the game industry as a whole as to things that, based on this analysis, need to happen in the next few months or years for the industry to really take off and consolidate itself as a productive, growing creative industry within the Peruvian and Latin American economies. These are nine ideas based on the challenges identified through research and are grouped into three core pillars the industry needs to pay attention to: building a critical mass of developers and studios, increasing the quality of their production and process and engaging international markets, and raising the industry's visibility and public profile in the local context.

## Critical Mass

While the industry has experienced sustained growth over the last few years, it still does not have enough critical mass to really become a driving force of the local technology industry. Further still, the limits to how much talent is available and willing to work in game development is one of the main limiting factors to how much the industry can grow overall. Building a critical mass of new developers and new studios is therefore an important part of strengthening the industry and providing a pipeline of new talent capable of sustaining new growth in the future.

- **Strengthen industry touch points.** Initial points of contact with the industry, such as game jams and events from the local chapter of the International Game Developer Association (IGDA), not only need to continue but grow in

size and scope, and can become a very important venue for existing studios to introduce themselves to new audiences and showcase their work. During the 2014 Global Game Jam, a satellite site was active in the city of Arequipa, south of Lima, where some of the only universities in Peru teaching Computer Science are located and where a new community of game developers is now coming together. The GGJ is a great opportunity not only to begin to engage sites outside of Lima, but also to think about the event as an intake process, setting up mechanisms to welcome and incorporate newcomers into the community and encourage them to remain engaged with the game development world.

- **Build thematic clusters in collaboration with government sectors.** In order to boost local demand and increase the number of finished projects, the industry could work together with various government sectors to set up themed collaboration projects, where a number of activities or design interventions built on games could be developed. For example, thematic clusters could be developed around such themes as education, health, tourism, culture, or environmental awareness, by partnering with the corresponding Ministry for each sector. This type of engagement would be mutually beneficial, providing participating studios with a very specific expertise and the opportunity to develop and ship finished products they can promote as part of their portfolio. At the same time, it increases the touch points and opportunities to collaborate with government sectors.
- **Explore migratory incentives and collaborations through the Pacific Alliance.** The Pacific Alliance, a trade block recently established by the governments of Chile, Colombia, Costa Rica, Mexico, and Peru, is eliminating barriers to trade and work for citizens

from any of these countries in any of the other countries within the Alliance. This is beginning to open new opportunities for studios from these countries to collaborate in larger projects, or to hire developers from other countries temporarily or permanently as a boost to local capacity. Similarly, an active industry policy could coordinate with government in order to encourage immigration from highly qualified technology developers and researchers who could very quickly provide support for the local technology capacity, or even support the creation of new university programs and research centres.

## Export Quality

While the technical quality of Peruvian game studios is pretty high, the industry would certainly benefit from developing clear, consistent production and distribution processes. Studios are still mostly experimenting with the business processes governing their production, and international clients and publishers are looking not only for high quality products, but also high quality processes when choosing who to partner with for projects. Closer attention to process provides partners with a guarantee of repeatable quality results, which investors are looking for as important markers in an industry that is otherwise overwhelmingly uncertain.

- **Strengthen local industry institutions.** Local institutions are extremely important for the overall health and sustainability of the industry, especially the local International Game Developer Association chapter and the Video Games Chapter of the Peruvian Software Association (or CVA), which are each fulfilling different and equally important roles. However developers and studios choose to collaborate to address some of the bigger issues affecting them, it is

very important that these institutions continue to operate transparently and legitimately, and that they become spaces for developers and studios to share information about what's working and what isn't so that the community benefits as a whole. Strong local institutions can also provide mechanisms for developers to quickly reposition themselves after failed projects, or studios to identify collaboration partners to tackle projects where they need additional capacity.

- **Develop local and international mentoring networks.** Because studios in the local industry are relatively young, they've thus far been unable to turn into useful resources in terms of mentoring newer ventures coming into the industry. While this may change eventually, mentoring networks should be actively promoted, ideally through the existing institutions mentioned above. Building these local mentoring networks will strengthen the opportunities for newer ventures but will also give existing studios direct access to new projects, talent pools and potential collaborators. Ideally, the industry can also begin systematically engaging international mentors to provide business advise and counselling to local studios, either through direct engagements or through group activities.
- **Build regional partnerships for larger projects.** Because capacity for studios across the region is limited, larger and more complex projects can be tackled through the collaboration of multiple studios across the Latin American region. Especially when working through the Pacific Alliance, described above, there might be the potential to leverage further government support and resources to become pilot cases and ambassador projects to what can be accomplished through trade networks such as this one.

## Visibility

Raising the industry's public profile is extremely important to reduce the generalised perception of risk that is affecting how much the industry can look for resources such as funding or talent. While the industry has managed to grow sustainably over many years despite keeping a very low public profile, there is definitely a limit to how much it can continue to operate in this fashion. Game developers are not known for being very interested in maintaining public personas, but coordinated efforts across many studios can help improve the public perception of the industry and of games in general, while enlisting the help of a support network of partners that will be very necessary to drive the industry to its next stage in growth.

- **Industry-wide media strategy.** Through institutions such as the CVA, studios can coordinate strategies for media outreach that do not become burdens any one studio needs to carry. Because there are many issues that need to be positioned and addressed through various media, studios can share their marketing resources and work towards unified campaigns that will have significantly greater impact than they would achieve by working alone, while at the same time still working to position their individual work.
- **Establish periodic industry check-ins with government and media.** To progressively change the perception of games and the game industry, studios could work together to organise periodic check-ins with members of the media and government to highlight results and projects members of the industry are developing. These check-in events could be useful not only to capture feedback from potential partners and supporters, but also to make visible all

the work studios are doing and the various opportunities for investors, partners and students in the game industry.

- **Encourage and sponsor further industry research.** There has been very little research done on the game industry in Peru, from any perspective, but slowly that is starting to change, as more university students are beginning to focus on game-related topics for their thesis and other research. But resources are still very limited and there are very few scholars and researchers in the local context who are experienced in this sort of work. Strengthening industry research, both commercial and academic, will provide studios with ongoing data points to evaluate how they're doing as a sector, and how their market and community are evolving and changing over time. Strengthening ties between industry and academia would help provide a direct line of communication to new research and to industry trends that might otherwise be invisible to studios immersed in the development process.

## Creative Communities and Economic Complexity

This work has attempted to show that not only is there an existing and growing video game industry in Peru, but also that this industry grew out of the creative objectives of its members and largely out of non-commercial interests in its early stages. **For the purposes of statistical or economic measurement, this industry has been largely invisible, and it has received very little support from the government or from outside investors.** The primary currency people have invested has been social, as people have invested significant amounts of time over many years in order to learn, teach, experiment, and develop

games often with no other intention than to see the product realised.

**But inadvertently, people in the industry were also doing something extraordinary: they were introducing new skills into an economy that weren't there before they started.** And while they were doing it entirely for creative, non-commercial reasons, the skills they developed are not circumscribed to only non-commercial projects.

The Peruvian game industry is an illustration of how informal creative communities – groups of people coming together based on a shared interest of pursuing some specific creative practice – can contribute to the economic complexity of a city or a country. Work on economic complexity interprets the outputs of an economy not in terms of raw materials but in terms of the skills that are necessary in order to produce a commodity (Hausmann and Hidalgo 2011a; Hausmann and Hidalgo 2011b). Because one skill can be required for the production of many different things, the more skills available within an economy, the larger the number of possible permutations and products that economy can produce. By the same measure, the more diverse the pool of skills available, the better an economy can react to sudden changes in market demand, re-purposing workers from areas with smaller demand to areas with larger demand that roughly require the same skills. Complex economies – that is, economies that have a more diverse pool of skills available – therefore have an easier time experimenting with product innovations because there are more permutations they can build on, while also being more resilient because there are more ways in which they can allocate their existing pool of abilities.

One of the biggest challenges for less complex economies is catching up to their more complex peers. For the production of more

complex products, it will always be simple for firms to invest in those economies where skills are already available. That means more complex products are in general produced by a smaller number of economies, while less complex products are produced by a larger number – meaning they entail much higher competition, and a race to the bottom in terms of wages over who gets to attract the largest investment. **For less complex economies to catch up, they need to invest significantly more resources in skill acquisition and skill development, through education programs and infrastructure investments that can often be extremely costly and offer no guaranteed returns in the short term.** At the same time, while less complex economies are trying to catch up, more complex economies continue to innovate and introduce new skills and combining them into new products.

**The game industry in Peru has managed to circumvent all of that – or, at least, they've managed to circumvent the enormous skill gap in the Peruvian economy that, through strictly economic motivations, would've taken several years to close, if it happened at all.** If it came to strictly economic motivations, firms in the local economy would've had no financial reason to invest in developing the infrastructure required to introduce video game development skills. But because the transactions were creatively motivated and socially driven, individuals coming together into this creative community were able and willing to assume a much higher risk. Because people's decisions were not structured by short-term cost/benefit analysis, they could afford to take as long as they wanted simply understanding how technologies and development processes operated. And because they had no motivation to limit access to that knowledge, they would then go on to share what they had learnt with other people joining their creative community. The result may be considered

economically inefficient, but it created a social fabric that sustained the community through its early years and into the emergence of a new industry that would've otherwise not been able to come together at all.

What creative communities such as the Peruvian game industry are doing tends to fly below the radar for most economic indicators, but this sort of potential opens up a lot of possible opportunities for creative communities operating in similar fashion in Peru and other developing economies. **Creative communities are essentially operating as very low cost research and development communities were individuals are assuming the burden of the cost and risks are mitigated by circulating knowledge and information freely with other members of the community. They're becoming networks of creative labs motivated by social rather than economic objectives, but the outputs of their work inevitably are also introducing skills that are relevant to an economy.** But because their work flies under the radar of economic indicators, and because there is little understanding of its impact from a public policy perspective, there's very little work being done in creating support structures that will bridge the social transactions into creative industries that put those acquired skills into use within the economy. If creative communities are prototyping products, services, and business models at a low cost, funded primarily by social transactions, then developing economies could build on those platforms to create new creative industries at a significantly lower cost than it would take them to set up traditional infrastructures and systems to create new industries, such as by investing in building technology clusters (Porter 1998).

There are two things we might want to especially pay attention to based on this examination. The first one is that our public policy instruments are not really well target-

ed towards supporting the work of these creative communities. In our case study, we've seen both how various public policies negatively affected the work of the early video game development community, and later how the industry has had to grow on its own for a long time without any significant support from government agencies. **Creative communities are operating in rather grey areas between commercial and non-commercial production, exploring whether specific creative pursuits are even viable at all before committing to launching start-ups or thinking about sustainable businesses.** Along the way, they tend to set up their own alternative infrastructures for production, distribution, learning, or community building whenever they find existing traditional infrastructures to be lacking, inadequate, or unresponsive. More often than not, they're operating in a space between the formal and the informal; sometimes, this can go as far as grey areas between the legal and the illegal – not because they're bent on staying within that space, but mostly because they're still trying to figure things out and regulatory frameworks are often not aligned with that exploration. **But public policy instruments can be helpful not only if they don't narrow down the space for creativity, but also in providing exit or growth strategies for communities and groups that want to formalise and pursue different sorts of opportunities, whether strictly creative or moving into the commercial.** Rather than forcing these communities to conform to existing institutional arrangements, public policy can instead be designed in terms of the organic evolutionary process these communities are going through, seeking to provide incentives, information, and resources at every stage of the process to help more communities grow through their entire lifecycle --- and from an economic point of view, to accelerate that growth so that creative innovations and skills can be brought to market at a much faster rate.

The second thing to pay attention to is the importance of doing research on these creative communities. **Based on this experience, because of the way these communities tend to fly under the radar and be almost invisible except to people who know them very closely, it is through various forms of qualitative research that there is the strongest potential to uncover existing networks, map how they operate, understand their challenges, and then attempt to propose solutions and innovations that can help those communities grow.** It is not about making all or even most creative communities turn into productive industries, but rather, it is about acknowledging the creative objectives of the people and groups making up these communities, and helping them understand how to develop a sustainable practice out of their creative interest. People who make games in Peru are passionate about making games, and this project's intention has never been to push them towards building big companies. Rather, it is about securing for creative producers the opportunities to continue to engage in the activity they enjoy so much, and to expand the access to those same opportunities to as many people as are interested in them. Working with these creative communities, and figuring out their various infrastructures, processes, and expectations, is partly an exercise in qualitative research and partly an exercise in design thinking – figuring out how systems can be articulated or improved.

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## About the Author

Eduardo Marisca graduated with a B.A. in Philosophy from the Catholic University of Peru (PUCP) in Lima. He recently finished a research project on the emergence of the video game industry in Peru and its potential as a creative industry within the Comparative Media Studies graduate program at MIT, where he was also working as a research assistant at The Education Arcade, an MIT lab researching and developing educational games. Before coming to MIT he worked at Ashoka, an international organization sourcing and supporting social innovators around the world, localising online tools for social innovation for the Latin American market. As part of the Changemakers.com technology team, he worked out of Ashoka offices in Lima, Peru and Buenos Aires, Argentina. He also started and leads the Lima Videogame Laboratory, a research initiative on video games and gaming culture in the Peruvian and Latin American context.

## Additional Information

The full version of this research can be found at <http://marisca.pe/thesis>.

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