

# A participatory-based approach to ethical technologies appropriation in a lower digitised fieldwork

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**Abstract.** Socioeconomically underprivileged communities are often disadvantaged by the spread of sharing economy. Projects centred on designing more inclusive and ethical digital technologies do exist but struggle to spread on a large scale. This paper introduces the idea that scarcely digitised environments may be a privileged grounds to facilitate the adoption of alternative technologies, and outline the design of a participatory process to reach this goal in the context of a small Portuguese island.

## Introduction

The term sharing economy is born to describe free exchanges among peers, but in few years has been extended to globally spread, for-profit intermediation platforms (Oh & Moon, 2016). Sharing economy is increasingly criticised for its payout distribution advantaging big investors (Felstiner, 2011) and for downsides mostly affecting already disadvantages categories, and the worsening of working conditions (Felstiner, 2011). On the opposite side, the use of digital technologies to tackle social challenges is spreading as well but, in spite of that, people do not automatically consider the adoption of alternative digital tools also due to the capability of companies to impose themselves as monopolies. The importance of supporting people in making technologies-adoption informed choices (Bødker,

2006) has been already pointed out, but the projects explicitly targeting on this objective are still a minority. From this perspective, scarcely digitised social environment constitute fascinating potential laboratories for alternative future experimentations. I focus therefore on Madeira island as a possible case study where facilitating the appropriation of sustainable digital technologies among the population.

## Socioeconomic structure and digital usage in Madeira

Madeira is a 250k inhabitants archipelago 1000 km far from mainland Portugal. To understand its economic structure and digitisation level, I mainly relied on quantitative data<sup>1</sup>, interpreted through one year of informal observations.

Madeira is the second richest region of Portugal (Eurostat) due to the abundance of tourism. Nevertheless, 28% of the population is at risk of poverty (INE-DREM 2014). This situation is probably related to the presence of big-scale touristic industry, characterised by huge accommodation structures owned by few families. This productive structure requires a high number of scarcely qualified workers, and this possibly influences the low education attainment: 61% of Madeirans left school when finishing primary education (14 years old) or even before.

In Madeira, 79% of households have some internet access and is therefore under the European average (85% Eurostat). Observing people in public spaces confirms the scarce digitisation. For example, smartphones are mostly used as old mobile phones. Despite smartphone is the most common digital tool (57% of the population own one) only 37% has a data plan, suggesting the existence of economic barriers to digitisation. Coming to internet use: 75% of the population used the internet at least once in a lifetime (vs 82% of European average), but only 61% use it daily (vs 71% of European average). Coming to digital divide predictors: age, education and income are strongly related to having ever used the internet, but their influence decreases once this first barrier is overcome. Education level has a very strong relationship with having ever used the internet, and a moderate relationship with access to internet and devices.

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<sup>1</sup>When not differently specified, information refers to a second level analysis performed on a survey investigating the use of Information and Communication Technologies (INE 2018)

## Research question and expected contribution

My research question is centred on the idea of applying participatory methods to foster the appropriation of ethical digital artefacts. Namely: “How participatory design methods and techniques can foster the appropriation of sustainable digital practices in a scarcely digitised community?”

Determining the contribution of an ethnographic-based research in advance is not easy. Nevertheless, focussing on an entire geographic area, it could be framed as community-based research (DiSalvo et al. 2012), and in case participants will express similar concerns to tackle collectively, it could contribute to the public design (Teli et al. 2015) debate. Targeting the outcomes of ICTs on a disadvantaged community, I hope to contribute to the third-level digital divide (Deursen et al. 2015) discussion. Moreover, the applicative part of the investigation could provide some contribution to platform cooperativism (Scholz et al. 2017) discourse.

## Methodology and next steps

This research can be split into three main activities:

1. The first ethnographic observations supported by second level quantitative data analysis were fundamental to stimulate the current investigation direction. I will therefore proceed with the community study that will allow to identify needs and values that could leverage participation. The analysis of qualitative data will be sided by a quantitative framework that is already outlined.
2. During the core of my research I plan to use artefact ecologies (Jung et al. 2008) within a participatory framework to foster participants in changing digital habits according to their values. I will: I) support participants in designing their current artefact ecologies; II) understand whether there is something that is worth to change; III) support the design of new artefacts ecologies. Workshops and focus groups, will be designed according to participants attitudes and skills (Cremers et al. 2014).
3. An evaluation of the process and outcomes through Bossen's (Bossen et al. 2016) categories. I will consider the PD process as *implementation*; the differences among first and final artefact ecologies will be considered as *output*, and the change of digital habits and its consequences as the

*outcome*. I will involve people with different socioeconomic background, digital skills, and engagement in the project in focus groups and interviews.

In the next months I will adopt more structured ethnographic methods to understand local society, and to find potential participants which I will interview, based on previous observation as well as on literature review insight. The literature review will be restructured according to the themes emerging from the fieldwork in a circular process. Nevertheless, I foresee that appropriation, participatory methods and artefact ecologies will remain its core. Moreover, I will perform an extensive analysis of ethic and sustainable ICT tools and practices.

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## References

- Bødker, S. (2006). When second wave HCI meets third wave challenges. In *Proceedings of the 4th Nordic conference on Human-computer interaction: changing roles* (pp. 1–8). ACM.
- Bossen, C., Dindler, C., & Iversen, O. S. (2016). Evaluation in participatory design: a literature survey. In *Proceedings of the 14th Participatory Design Conference: Full papers-Volume 1* (pp. 151–160). ACM.
- Cremers, A. H., Jansen, Y. J., Neerincx, M. A., Schouten, D., & Kayal, A. (2014). Inclusive design and anthropological methods to create technological support for societal inclusion. In *International Conference on Universal Access in Human-Computer Interaction* (pp. 31–42). Springer.
- Carl DiSalvo, Andrew Clement, and Volkmar Pipek. 2012. Participatory design for, with, and by communities. *International handbook of participatory design* : 182–209.
- Eurostat (2017) from <https://bit.ly/2i8Xlm7>
- Felstiner, A. (2011). Working the Crowd: Employment and Labor Law in the Crowdsourcing Industry. *Berkeley Journal of Employment and Labor Law*, 32, 143.
- INE (2018) from <https://bit.ly/2ITMcpu>
- INE-DREM (2014) from <https://bit.ly/2GsQPkNy>.
- Jung, H., Stolterman, E., Ryan, W., Thompson, T., & Siegel, M. (2008). Toward a framework for ecologies of artifacts: how are digital artifacts interconnected within a personal life? In *Proceedings of the 5th Nordic conference on Human-computer interaction: building bridges* (pp. 201–210). ACM.
- Oh, S., & Moon, J. Y. (2016). Calling for a shared understanding of the sharing economy. In *Proceedings of the 18th Annual International Conference on Electronic Commerce: e-Commerce in Smart connected World* (p. 35). ACM.
- Scholz, T., & Schneider, N. (n.d.). Ours to Hack and to Own. Retrieved 6 October 2017, from <http://www.orbooks.com/catalog/ours-to-hack-and-to-own/>
- Teli, M., Bordin, S., Blanco, M. M., Orabona, G., & De Angeli, A. (2015). Public design of digital commons in urban places: a case study. *International Journal of Human-Computer Studies*, 81, 17–30.
- van Deursen, A. J., & Helsper, E. J. (2015). The third-level digital divide: who benefits most from being online? In *Communication and information technologies annual* (pp. 29–52). Emerald Group Publishing Limited.