

## Co-creative

There is no doubt that the co-creative dynamics at work within the Defko

**Prospects and Stakes** Ak Niëp Lab reflect the image of an Africa that is totally in tune with modernity, but that remains rooted in its own culture.

**Niëp Lab:**

**Dynamics at the Defko Ak**

The maker ~~or do-it-yourself (DIY)~~ movement refers to individual or collective **do-it-yourself** practices that make use of digital manufacturing in fields as varied as daily life, research, and industry. These practices are deployed in physical spaces called makerspaces. This generic term designates technological spaces of open innovation that are alternatively called fab labs, hubs, accelerators, incubators, hackerspaces, biohackerspaces, living labs, or coworking spaces. Makerspaces are generally equipped with digitally controlled machines, such as 3D printers or laser cutters, computer equipment, electronic kits, and a variety of other equipment or tools, like saws or sewing machines. Beyond the material aspect, makerspaces are characterized by their community dimension: regardless of their field, people with similar interests can come together to socialize, to collaborate, and to discuss common themes and problems. However, the maker movement—it is worth mentioning—is not a new phenomenon. As Michel Lallement says, “We have always been makers.”<sup>[1]</sup> This is all the more true in the African context, where resourcefulness, DIY, recycling, and repairing/mending practices are anchored in daily life. With an estimated over 100 makerspaces in Africa,<sup>[2]</sup> this ever-increasing expansion cannot go unnoticed.

### A New Space of Research in the Social Sciences

Since the early 2000s, the maker movement has been the subject of several scholarly studies and publications demonstrating its strong economic, educational, empowerment, local development, and justice potential. On the sociopolitical level, as Ron Eglash and Ellen Foster show, the maker movement offers Africa anchoring points for building a sustainable and more egalitarian future.<sup>[3]</sup> A.M. Stercken puts it thus, “Innovation spaces enhance users’ social, intellectual and psychological capabilities, not to mention their economic capital.”<sup>[4]</sup> This idea is also endorsed by key figures in the African technoscientific ecosystem, such as Ndubuisi Ekekwe, who founded the African Institute of Technology (AFRIT). He believes that the maker movement can play an important role in the empowerment of African citizens.<sup>[5]</sup> On the educational front, we should not overlook several works that advocate setting up makerspaces in African libraries as a way of improving the quality of education.<sup>[6]</sup> Finally, on the economic level, makerspaces have become a widespread form of support for technological entrepreneurship in Africa.

### The Defko Ak Niép Lab

In this text, I endeavor to describe the prospects and issues surrounding the process that catalyzes creative agility in those who frequent makerspaces. To this end, I visited the Defko Ak Niép Lab,<sup>[7]</sup> which was created in 2014 by Kër Thioossane Villa for Art and Multimedia and is located in the SICAP Liberté II district in Dakar. Two research experiences inspired me here: the first was a series of interviews and observations that I carried out at the Defko Ak Niép Lab during my **fieldwork**. It was on this basis that I approached the question of the collaborative possibilities opened by fab labs. The second was the result of a debate on “Digital Arts and Crafts in Senegal: Fab Lab between Promises and Local Prospects,” held during the Afropixel #6 Festival in May 2018. This brings me to the issues raised by this collaboration with the Defko Ak Niép Lab.

### The Collaborative Potential of the Defko Ak Niép Lab

Sophie Boutillier and Claude Fournier define collaboration as the set of interactions between the members of a small working group set up to operate in a given situation.<sup>[8]</sup> This collaboration aims to favor actors’ autonomy by allowing them to overcome constraints of hierarchy, time, and space.<sup>[9]</sup> With regard to collaboration within fab labs, the Defko Ak Niép Lab provides further insight into the specificities of the African context. Indeed, around the Defko Ak Niép Lab a rich educational ecosystem comprising artists, startups, associations, and universities has formed. Whence the idea that inclusion is the *sine qua non* condition for the emergence of collaborative practices.

#### Inclusion as Basis for Collaboration

Through pivotal values such as equality, solidarity, and sharing, the Defko Ak Niép Lab clearly manifests its willingness to be as inclusive as possible. Indeed, Kër Thioossane’s fab lab places the priority on people, regardless of gender, age, academic level or discipline. Thus, that the participants working together on fab lab activities have varied but complementary profiles is a pleasing thing. Beyond the feeling of equality infusing its members, the Defko Ak Niép Lab also presents a real island of solidarity and family-like belonging. This inclusive dynamic stimulates an impulse to share (knowledge, information, equipment or space) and a duty to engage in mutual aid, such

as may be at the origin of peer learning/teaching. It is a matter here of a pedagogical strategy for transmitting knowledge, skills, or attitudes between learners in a group or members of a work team. This is how several members of the Defko Ak Niép Lab themselves acquired knowledge about 3D printing, electronics, and programming on Arduino cards.

#### Collaborative Work and Co-creation

In fab labs, inclusion combined with peer learning/teaching forms the basis for collaborative action, one of the most important forms being collaborative work. The notion of collaborative work varies depending on whether the collaboration takes place within one organization or between several organizations. Through its collaboration with local actors, the Defko Ak Niép Lab is resolutely part of a co-creation approach, which Thorsten Roser et al. (2013) define as a process of collaborative innovation. Below I present two examples that illustrate this dynamic.

#### Spacecraft Reproduction/Construction

First, the designing of a mobile research and development unit, the so-called Spacecraft, aimed to provide a space of transition between the STEM (science, technology, engineering, mathematics) sector and the informal metal and digital waste recycling sector. The design was developed by architects DK Osseo-Asare and Yasmine Abbas in the context of their work at the Agbogbloshie open-air waste dump near Accra, Ghana, and produced by their platform, the Agbogbloshie Makerspace Platform (AMP). In 2018, Kër Thioossane, in collaboration with AMP and artisan designer Bassirou Wade, produced a special Spacecraft edition—*Spacecraft\_Ker Thioossane*—for the Afropixel #6 Festival. Bassirou Wade is a *tegue* (“blacksmith,” in Wolof) from Dakar. Bassirou describes his contribution as follows: “This is how I usually work with artists who want to do something. If you’re an artist, a draughtsperson, and you want to make giant structures, if you have the ideas, I can help you with the material. I know about material as I’ve been involved in many jobs. I can give you advice on the material and put you on the right track, to carry something out.” His comments reveal an idea and practice of collaborative work as a sharing of functions. This same blacksmith also welcomes the opportunity to use the equipment at the Defko Ak Niép Lab to carry out



Participants and team of Defko Ak Niép at the *Dakar Typo Remix Makers* workshop. Afropixel #6, Kër Thiossane, Dakar (SN), February 26–March 10, 2018.

his own projects. This highlights the coworking opportunities that the Defko Ak Niëp Lab offers.

Second, a UCAD (University of Dakar) professor wanting to bring out a water wheel to produce hydraulic energy visited Kër Thioossane to benefit from their fab lab's expertise. His request he expressed as follows: "We are assembling a wheel that we are going to put in a river; as it turns, it will drive a small alternator to produce electricity. First we need the wheel, and then we're going to change the wheel configurations; that's going to require a lot of measurements. This is our prototype, but accuracy is a problem. You see, sometimes it spills over in one direction, sometimes in the other. The blades are not identical, the assembly, the cutting is not precise, and you can see that when it turns, it gets stuck." His comments reveal that he rooted his approach to his project in teamwork.

### A Theater of Sociocultural Tensions

That the Defko Ak Niëp Lab offers various opportunities for collaboration is, it will be agreed, a godsend for the various local players. The debate that was held on "Fab Labs: Between Promises and Local Perspectives" at the Afropixel #6 Festival in May 2018, brought out certain limits to the functioning of fab labs in Senegal—that is, beyond the economic model, which remains central everywhere. Indeed, the speakers highlighted several discontinuities between the principles of the fab labs and Senegalese sociocultural realities.

The first cultural discontinuity is linked to the lack of digital literacy of many local actors. The manager of the Ngaye Mekhé factory indicates as much by saying that, for more than two years now, he has had a laser cutter (one of the fab labs' flagship devices) that he cannot use because it has broken down and there is no one with the requisite skills to repair it. In other words, the availability of technological equipment does not always guarantee its appropriation and use by local actors. This is a symptom of the second-level digital divide, which is related to different ways of using or practicing technology; it differs from the first-level divide, which concerns access to equipment.

A second discontinuity appears on the managerial level. Based on their different experiences, the speakers in the debate were unanimous about the fact that managing a fab lab horizontally and openly is almost impossible. A very strong hierarchical system, modelled on the hierarchical relationships in African society, would seem more appropriate for a smooth



Wall mosaic, Defko Ak Niëp Lab, Kër Thioossane, Dakar (SN), 2018.

functioning of fab lab structures. A model, in other words, that is similar to a family and that is headed by a respected leader who organizes and governs life in the community. This managerial choice highlights the cultural difference that exists between the horizontal values advocated by fab labs (sharing, collaboration, transparency, openness) and the vertical values of respect that are strongly rooted in African society (hierarchy, taboos, birthright, the right to secrecy, etc.).

A third discontinuity appears on the issue of inclusion. Speakers indicated a willingness to welcome everyone and be maximally inclusive by involving each person in the life of the space. However, certain realities render this desire for inclusion fragile, realities that force a reconsideration of the modalities by which some actors are included, specifically those actors who come only to acquire knowledge, to learn a profession, to create a start-up, and then leave without sharing or keeping a link with the community. The attitude of the many young Africans who thus go out in search of opportunities is described by the theory of commonality as that of free riders. There should be no surprise that inclusion in the traditional sense is not raised, a sense that often links to gender in general and to women in particular. It should nonetheless be pointed out here that the Defko Ak Niép Lab itself is run by women—a rare case in maker circles in Africa and one that is to be celebrated.

A fourth discontinuity relates to the sharing of endogenous knowledge/technology. As was stressed by the various speakers, the existence of castes in Senegal is a real obstacle to knowledge sharing. For example, in Senegal trades such as those related to leather work are transmitted from father to son. Thus, if you do not come from a family of “leather workers,” you are excluded from these circles, making it impossible to share with these families of leather workers or to acquire know-how about leather work.

There is no doubt that the co-creative dynamics at work within the Defko Ak Niép Lab reflect the image of an Africa that is totally in tune with modernity, but that remains rooted in its own culture. The aforementioned discontinuities are therefore only the consequences of a departure from the predictive models that we hope to see emerging on the continent. These discontinuities should raise questions. Is the lack of digital literacy, for example, not due to the fact that CNC (computer numerical control) was enforced (in one way or another) at the Ngaye Mekhé factory? Does the presence or requirement of digital equipment in a fab lab respond more

to a marketing or fashion need than to a need in the local communities? Similarly, the allusion to castes can be seen in a different light than just a simple refusal to share knowledge. In other words, the behavior of the leather worker caste can be justified as an identity-based withdrawal that aims at protecting itself against the monopolization of endogenous knowledge by free riders.

All in all, one could not have chosen a better case than the Defko Ak Niép Lab to illustrate the theme of the Afropixel #6 Festival: *Non-Aligned Utopias: Digital Imaginaries*. Beyond the fact that it has defied all predictions concerning the diffusion and promotion of the fab lab concept,<sup>[10]</sup> Kër Thiossane's fab lab also traces its own path by adapting to the immediate context and by remaining sensitive to the sociocultural and economic realities of local communities.

Translated from the French by Steven Corcoran.

- [1] Isabelle Berrebi-Hoffmann, Marie-Christine Bureau, and Michel Lallement, *Makers: Enquête sur les laboratoires du changement social* (Paris: Seuil, 2018).
- [2] This approximation is based on a map generated by Makery Labs ([www.makery.info/labs-map/](http://www.makery.info/labs-map/)) and one by The Fab Foundation ([www.fablabs.io/labs/map](http://www.fablabs.io/labs/map)). However, the number presented here is allegedly far lower than the real number.
- [3] Ron Eglash and Ellen Foster, “On the Politics of Generative Justice: African Traditions and Maker Communities,” in *What Do Science, Technology, and Innovation Mean from Africa?*, ed. C. C. Mavhunga (Cambridge, MA: MIT Press, 2017), 117–36.
- [4] A. M. Stercken, “Cultivating Serendipity and Efficacy Beliefs: The Impact of (Caireen) Innovation Spaces on Human Development,” MA thesis, University of Utrecht, 2015.
- [5] Ndubuisi Ekekwe, ed., “Africa’s Maker Movement Offers Opportunity for Growth,” *Harvard Business Review*, 29 May 2015, <https://hbr.org/2015/05/africas-maker-movement-offers-opportunity-for-growth>.
- [6] Helen Nneka Okpala, “Making a Makerspace Case for Academic Libraries in Nigeria,” *New Library World*, 117, nos. 9/10 (2016): 568–86. DOI 10.1108/NLW-05-2016-0038.
- [7] In Wolof, Defko Ak Niép means “do it with others.” Kër Thiossane is a Senegalese association that encourages the integration of multimedia into traditional creative and artistic practices.
- [8] Sophie Boutillier and Claude Fournier, “Travail collaboratif, réseau et communautés: Essai d’analyse à partir d’expériences singulières,” *Marché et organisations* 3, no. 10 (2009): 29–57. DOI : 10.3917/maorg.010.0029.
- [9] Christine Gangloff-Ziegler, “Les freins au travail collaboratif,” *Marché et organisations* 10 (2009): 95–112. See also F. Silva and A. Ben Ali, “Emergence du travail collaboratif: nouvelles formes d’organisation du travail,” *Revue Management et Avenir* 6 (2010): 340–65.
- [10] We ought to recall the fact that fab labs are widely promoted by the Massachusetts Institute of Technology (MIT).