I arrived in Bamako in the afternoon of September 11, 2017.

I took an early flight out of Basel, then spent a short layover in Paris. I flew out of Charles De Gaulle Airport at 10:00 am. We were supposed to land at 13:45, but our flight would be delayed by more than a half hour. Then, getting out of the airport hadn't been straightforward either.

On the way from the airport, I realized in Bamako that it had been a long time since I last saw the roadside in broad daylight. I got quickly absorbed in the roadside show. First, we were driving across the still green fields surrounding the road, the varying layers of ochre dust characteristic of the region. Driving away from, Senou, the once rural area in which the airport was built, we headed for Bamako. The city lies between two ridges or chains of hills from both sides of the Niger River. The rocky topography allows for a picturesque succession of valley and hill.

The city is shaped and marked by its topography. The granite in the surrounding hills and the red earth under the feet (at the foothills) color the landscape. After a stay in Bamako, one is likely to leave distinguishing marks on one's clothes, shoes and even bags and suitcases.

Bamako has a garbage problem. The municipal authorities have launched several programs to keep streets clean and waste out of sight, but the results are so far mixed at best. The city largely sinks under the weight of garbage. It is not alone in this situation on the continent. Its remedies are also far from being unique. Over the last three years, waste disposal has been contracted out to the Moroccan company Ozone. Despite promising beginnings, the situation looks only slightly better than before.

The reality is that the determining factors remain in place. Most residents complain about waste as a cultural problem – at least a behavioral issue that needs to be addressed before any technical solution can be found.

For example, a scene I frequently observe at dinner: people eat and throw bones and waste on the ground or an apron under the common dish. The remains are then collected and thrown into the garbage can. Probably the alternative wouldn't save more time but it would reduce the labor if the rests are collected in a container, then disposed off after the meal.

On the roadside, water bags have replaced bottles and it's hard not to see this as a worsening factor rather than an improvement. The white and blue water bags are now outnumbering the once ubiquitous black plastic bags that invaded the landscape from the markets and shops a decade or so ago.

I told my colleague that I am doing research for a project related to the repair and reuse of smartphones. He recommended that I tour the downtown office of Malitel. It is a central location in the old administrative and commercial center. I took a taxi downtown, and it took about half an hour to get there. The place is busy and noisy. The block is located on a road heavily traveled by minivans serving as public transportation and personal traffic between the city center and the new administrative heart of the city, Hamdallaye ACI 2000. Traffic was dense and I wasn't sure how to approach the repairmen. Yes, they are exclusively male as I quickly found out. Young men who learned their skills by doing.

The Malitel service building offers the conventional face of the smartphone business. There was a solid presence of clients in the fairly large waiting space. The functional space can be almost anywhere. Customers draw tickets depending on the reason of their visit and wait. There were many women at the different counters.

In Mali people use mostly prepaid services. Since 2016, all SIM cards are required to be registered. The measure was driven by a security imperative. It had been a hectic period, when a deadline was given to providers and customers to comply with the new regulation. Last year, the same Malitel office was full of scores of people lining up to register their SIM cards. Most had at least two cards (Malitel and Orange). In the end, the much-dragged on process was completed after several delays and extensions. The phone companies benefitted from it as I realized after calling for a service issue last year. The operator called me by my name right after taking my call. It reminded me of the first days of caller display when in the US such behavior on the part of operators upset a lot of callers. Even those who were aware that the call operator at the standard could identify them did not wish to be called by name by a stranger. The operator had to pretend that the caller was anonymous and needed to give their name and other personal information.

I had a small issue with USB mobile Internet modem I bought at the same office last year and couldn't get it to connect. It turned out to be a fairly simple problem. They had to reactivate the SIM card because it hasn't been used for a while.

Back outside, the crowds milled around, young men attending the many vending stalls and narrow repair shops. I tried to spot out someone who was willing to talk about the work but actually I quickly realized that these are operators in the informal sector of the economy. They looked alert at the foot traffic and the gestures of passers-by. The ones I saw didn't seem very keen on side talk at that moment. I walked among the SIM card resellers. Hawking SIM cards makes for a meager source of income. Nowadays providers give away cards during promotions that are now part of the daily effort to eke out revenue in a tightened market. Long gone the early days of GSM when acquiring a Malitel SIM card required intermediaries and cost up to 250 CHF.

Selling SIM cards and recharge credit remains a common entry-level job for young men, and you bump into them as soon as you set foot in an airport or bus station. Wherever people gather, they appear and their offers are quite revealing. Travel sites are important venues for communication products. Roaming costs are still high and unpredictable despite all the efforts to lower or eliminate them across the West African free-trade space. The surest way to keep in touch at moderate cost is to own or acquire a local SIM card. In the past these could be freely bought at entry points. Over the last three years, with terrorist acts and threats becoming a daily concern, there has been a huge clampdown on the circulation of anonymous SIM cards. Still the fallback strategies are unlikely to fill in the security gap. At the Niger-Burkina Faso border, resellers buy large numbers of SIM cards that are sold to strangers without a personalized registration. The initial buyer of the lot is the only person actually identified.

The sale of accessories is another pan of the business. The premises are visited by customers who are looking for covers, chargers, batteries, etc., for their mobile devices.

Many customers find the shops surrounding the Malitel building more trustworthy when it comes to buying devices and accessories. But a significant segment of the market is driven by the street vendors who aggressively go after potential buyers by roaming different corners of the commercial area or even different parts of town.

The smartphone market is diffuse and complex here. It has a formal side. The mobile telephony and Internet providers propose packages to subscribers, a privileged minority among smartphone users. But most buy their devices and SIM cards separately.

The manufacturers of smartphones are differently represented on the markets of Europe and Africa. While in Europe, there is a strong clientele for both iPhones and Android smartphones, the African market is almost exclusively Android-driven. The key player, South Korean Samsung, is well known in Africa. Early on it emerged as a stiff competitor for Nokia in the production of simple mobile phones. Today it is the leading brand among the Android devices.

But the high-end Samsung and other devices are not accessible to many. So the "popular" market is dominated by Chinese brands like Tecno, Itel (Hong Kong), Xiaomi, and ZTE phones.

Since users buy their smartphones, they also face the risks related to owning and operating a portable device. Buying devices under such conditions practically annuls the manufacturer's warranty. In case of damage or malfunction, the owner cannot simply return the device for repair or replacement. He or she has to get it repaired. This is why the repair market is so large and multifaceted on the continent. It is as important as, if not more than, the sale and resale market.

Returning to the street of the Malitel building, I peeked into several stalls and shops, some well organized, ordered and even slick, others a pile of broken-down devices and used parts and accessories. On the edge of the block I found a fairly isolated stand, an old wooden table over which old smartphones piled up. The stall keeper doesn't pretend to do any other business than selling broken and dead devices for spare parts. He was laid back and relaxed, seemed more engrossed in the relentless traffic at the cross-section of the old Ministry of Education and the Carrefour des Jeunes. So, away from the hectic strip of peddlers, I found my first conversation partner. He agreed right away when I asked him if I could take a few pictures of his space. These are the first images, which I must add do not necessarily reflect the used smartphone market, one that is equally preoccupied with appearance and appeal in addition to functionality.

He displayed the makeshift assortment. Every now and then an acquaintance from around the corner would stop for a chat. One or two stooped over the table and sifted through the frames and screens. A third one joined, carrying a portable HP inkjet printer. He said that he didn't need it anymore, so he had decided to sell it. He proposed it to the stall owner, then to me. He saw the JBL sound box I showed the stall owner before he arrived. He offered to exchange it for his printer. His printer worked while my loudspeaker is a broken piece. I retorted that there was no way for me to ascertain that his printer worked. He took up the challenge and invited me to follow him to a nearby place where he could plug the printer in and print out a test page. I declined the offer, telling him that I really did not need a printer since I had more than one at home. My real aim was to find someone to fix the speaker. At that time, he looked again at the device, the power slot damaged by someone forcing the wrong adapter into it. The device could not be recharged.

In Basel, when I returned to the store where I had bought it, I was told the damage was caused by the introduction of a foreign object. It was my fault, not the result of a manufacturing defect

or technical failure. The sound box was barely one year old when, right before my trip, a young inserted the wrong plug into the power slot, damaging it. The store that sold it declined any liability for the damage caused by the forceful introduction of a foreign object into the slot. This "intervention" voided the warranty that would have covered it otherwise. We took the speaker to a repairer who fixes a lot of electric and electronic devices. His engagement against the throwaway culture is clearly stated as the motivation behind his repair and tinker station. But he too found the case hopeless. The compact sound box is too tightly wrought together. He wouldn't be able to open it to fix the smashed metal piece. So after a series of fruitless attempts, I decided bring along the sound box as test object. It isn't a smartphone but uses the same mini USB charger as my old Android smartphone. I had no idea how they would manage to open the compact speaker, but I would ask anyway and see what they would say. I had no expectations regarding the outcome. I only knew that there was no alternative for it in Switzerland. I packed it in my suitcase before departing for Bamako.

"Go see Mohamed"

When I look back on the experience, I am myself surprised at the roundabout way in which I discovered the work of a smartphone repairman in Basel. I didn't have a telephone to repair though the one I use once in Mali is six years old, quite slow and with cluttered memory and a pretty weak battery that needs recharging at least once a day even after minimal use. Still it had never been physically damaged and looked almost new amongst the many devices piled up on rough wooden tables, mostly for sale as spare parts.

My test case was the speaker I brought along. As soon as I arrived, I asked around first where I could find smartphone repairers in my district. I was told there would be persons on all selling and fixing devices and accessories. Still the safest bet could be around the Malitel building in the old commercial district. Two days later I hailed a taxi for a 30-minute ride to the edge of the main market.

As usual the Malitel stretch was a hectic beehive. Young men carrying sacks or pushing carts full of ware milled around, calling after passers-by, that is, prospective customers. Others stood or sat in front of their stalls and repair shops. On my first tour, I didn't feel any desire to approach the streetwise peddlers. I flipped through smartphone covers, but unable to find one for a newer phone, I kept walking from one group to the next. The sellers on foot seemed to shift around assortments from the same stock.

I had my first actual conversation at the fringes of the stretch.

The man piled up old and broken smartphones on a table and sat his back to the wall of the municipal youth center known as Carrefour des Jeunes. He looked more like an observer or inquirer than a seller of (damaged) goods. He seemed almost surprised when I stopped and asked if I could sift through the pile. He simply waved me to go ahead. Only after a while, as my hand went through different rows of old phones, did he ask me if I am looking for a particular part. He thus made it clear that he sold for parts. At that point I told him directly that I had two interests. One is to find out more about the business of repairing smartphones, that is, a research interest. Did he know where the old telephones came from? He really didn't seem to care much about this detail. He told me that he got old phones that people bought in Mali or brought from other places. But he couldn't tell

which ones were which. Then, after allowing me to take a few pictures of his stand, he too strongly recommended that I revisit the stands around the Malitel building. Again, almost as an afterthought I told him about the speaker with the damaged power slot. He asked me to show it to him. Just as I took out the box, a man showed up with an HP inkjet printer he wanted to sell right away. He quickly redirected his pitch at me, under the amused gazed of the stand owner. In the end, he asked me about the speaker I had in hand. Why don't we have an exchange? I could walk away with a functioning printer and he would manage to get my dysfunctional speaker fixed. I retorted that I actually had no proof that his printer worked. Far from discouraging him, I seemed to have given him a new glimmer of hope. Yes, why not go together to his colleagues around the corner and check for myself. I realized that I wasn't going to win this argument, so I made it clear that I had no use for a printer. I was traveling and needed to get my speaker repaired.

At this point, the stand owner intervened anew. He remembered a repair shop 300 m away, right by the Cathedral. But the place is tucked behind the electronics hardware house, Immeuble Malimag. I would have to ask my way. The man with the printer seemed taken aback, but again in his businesslike fashion offered to bring me to the place. "I myself need to go that way," he muttered. I couldn't help feeling suspicious but I didn't have anything to lose. I followed him up to Malimag, then the way meandered along narrow allays until we reached a strip of backyard. Beside a store with wide glass windows and a sizable display of smartphone accessories, the place seemed rather desolate, quite narrow and poorly lit. It looked more like a thin strip from a backyard now eaten up by rows of small shops. There were simple wooden benches along the wall on which shopkeepers, customers and guests sat side by side.

He took me to the bigger of two workstations and bid me farewell. I felt relieved to be left alone at last. Then as I showed the repairman my sound box, he shook his head and mumbled something I didn't quite make out. When I pressed him, he said that he only dealt with laptops. No telephones. Yes, I stood there dazed, as all my old doubts returned. I was being tossed around like a naïve newcomer on the market. I should know the cause was lost from the outset, as I heard our neighborhood "activist" repairman back in Basel. Nothing to be done about this piece of junk!

Still, for some reason, I watched on as he kept dismounting the screen of a very dusty laptop. Wasn't there anyone who repaired mobile phones in this place? He simply replied, "Go see Mohamed." I had no idea who Mohamed was and where I could find him. I had to ask again. Then he pointed to the next door. I wasn't even surprised when the person I asked told me that Mohamed had just left.

"Playing with time and chance"

Mohamed came in time. He looked pretty young; as I could guess, about 17-18 years. As I rushed to expose he damaged slot, he cast a furtive glance at it and muttered: "I can repair it but this will be expensive." He then added "3,000 francs*." To my relief, to be frank: I had anticipated a much higher sum. He reentered his shop to check something. When he returned, I told him that he could try, but I really hoped it could be fixed. No comment.

Mohamed returned a couple of minutes later, picked up the sound box, then disappeared behind a counter fenced off by a wire mesh grid. I sat on the bench outside, somewhat resigned. It was like I did not expect someone to take on this desperate case and had been exchanging text

messages with a colleague I wanted to meet at the end of his workday. He seemed at best amused.

"We don't have repairers, we have tinkerers," he dropped at one point. I replied that I was giving the young man a chance. At least, from all I had heard about repair shops, I would wait it out, instead of returning another day.

In the end, he stood up from the low bench on which he sat behind the counter and asked me to come look. He had plugged in the device and the first of the light dots was blinking. He added matter-of-factly, "It is charging now." Indeed, it was, but I wanted to make sure the thing was real. So I took out my own recharge cable and asked him to plug it in. The light disappeared and blinked back on as he swapped cables. I waited another minute over the resuscitated speaker, as he stood aside, somewhat bemused. There was no point in staying there any longer. He warmed me that it would take very long to get the empty battery fully recharged. I paid him his due and took leave after two hours of waiting. It was dusk as I followed the narrow allay back to the Malimag building and the main street for a taxi.

Once home, I plugged in the speaker and we left for the restaurant in the neighborhood. As we returned hours later, the third light was blinking and at bedtime the fourth. I turned it on, listened to a couple of tracks and wrote a message back to Basel. The speaker had been repaired, better say saved. The following morning I read a jubilatory response from the family. It was not so much the device that mattered, but the realization that some repairs deemed impossible here, even by anti-throwaway activists, could be successfully done over there. Thus, in a roundabout way, I took the measure of my assignment. There is a lot more at stake than broken telephones. Perhaps there are more essential issues that the project drivers hadn't thought about as they imagined the place and role of Africa in the cycle of reuse and disposal of smartphones. There might be many other surprises in store – happy or sad, I had no idea. All the same, it is an important matter that goes beyond the curiosity researchers and artists could have about these intrusive and problematic tools. It involves skillsets and knowledge bases that no one seems to have studied up close. I wonder how the young Mohamed learned his skill and the care with which he repaired a compact and delicate device in a much cleaner way than I could ever have expected from him. Yes, it was a clean fix, which probably reflects the esthetic sensibility required in the domain. Fixing a smartphone or any "lifestyle" device involves preserving or restoring its original appeal.

*3000 CFA francs = 4.50 to 5.00 CHF

Smartphone battery, the unexpected num issue

I discovered that the availability of a reliable source of energy is the determining factor in acquiring a type of telephone. As far I can tell, only urban dwellers can afford to own only a full-screen smartphone. Rural users and frequent travelers combine a smartphone for online activities and a more basic telephone for calls and

text messages. Still the manufacturers clearly anticipate more demand for flat screens. The screen size of common telephones is enough to display text messages, emails without attached files, pictures and videos. The small displays suit young people in the countryside who communicate often through images and short text and voice messages over social networks. Such a telephone with a good battery is energy-efficient and more dependable than a *real* smartphone, which needs recharging all day long.

In this regard, although smartphone are more affordable and more frequent in the countryside, their use remains selective. As secondary devices, they are turned on for periodic online "incursions" and turned off in the meantime.

I adopted the same strategy during my recent stay in Gao. I actually often commuted between Gao and neighboring villages when I could still catch a weak and intermittent signal for Internet. Thus, I could receive and send emails, usually at night. This was not possible a year and a half ago, and it seems all the more surprising since in the city itself the overall speed and reliability of mobile telephony and Internet has declined considerably over the last year. Connections have become unpredictable and poor in quality. Going online is more arduous than it was before. In early October 2017, the situation worsened to an extent that popular talk shows turned into long sequences of calls that got immediately cut off after the radio hosts answered.

In the village I found myself using up a full battery without being able to download an email with a 1 MB attachment. Since it had taken me about three hours to charge the telephone on a solar panel, this was an exceedingly time and energy-costly experiment. For others who pay for each recharge and a limited data volume, the price would just be too high. I now understand why I receive at best only 100-200 KB pictures from the person who had been sending me them for a documentation that could well used high-resolution photos. It wouldn't actually make sense for him to spend on all the connection time required to transmit these.

Nevertheless, the use of smartphones and the online services they enable is not strictly dictated by convenience and economic calculation. Those who use social media go to great lengths to stay connected regardless of the sacrifice in time and scarce resources. This has been a common feature of the mobile phone phenomenon in low-income countries since the beginning. The boom in mobile telephony and Internet has often defied conventional rules and rational expectations. Tradition telecom companies actually missed out on the initial explosion of the market because they didn't anticipate the mobile clientele to behave so differently from the existing customer for landlines.

To my surprise, batteries emerged as the focus of passionate discussions about mobile telephones. The device by itself has little intrinsic value. To be functional, it needs a sturdy battery that holds its charge for at least a day. So there are many anecdotes of good original batteries being deceptively replaced and sold at charging stations and repair shops. People seemed to be obsessed with their batteries, invariably around the risk of losing not the device but this one component.

One lively conversation had been triggered by a question I asked about a telephone battery I picked up in the open. The two women in front of me reported personal experiences with presumed theft of batteries. Others joined in, relating what they had heard about the illicit swapping of batteries. They didn't hesitate to name the suspects, to whom they would never

entrust their devices. One woman said that since she bought her new telephone, she would never leave it unattended at a charging station. If the battery died, she would wait until she could visit her sister in town, unless she could keep an eye on her telephone at the charging station. Even then, she was never sure that some smart young men wouldn't use a trick to distract her and snatch her battery. As a result, she could spend two days without a charged telephone if she didn't have a reliable person to charge it for her.

Reflecting on this recurrent motif, I realized that the stories also point to the fact that people owned practically the same Android-operated models, this time Tecno, Itel and Samsung. Tecno was by far the most common brand where I was, like Nokia in its golden age ten years ago. Since then, the once-ubiquitous Finnish mark had been toppled first by the Korean Samsung, which, in turn, is nearly swept away by the Chinese Tecno.

The stories stuck me for sure. A woman brought her Tecno telephone, which she said disappeared from her shed and was found again with the SIM card. But the battery compartment was empty. At first, she only suspected that a child picked up the device to play with it, losing the battery inadvertently. But the battery was the one sizable component that might be removed so easily. On this premise, she was initially optimistic that hers would be found. It would just be a matter of time. She even promised the neighborhood children a reward for bringing back the missing battery. Then, to her dismay, the battery never turned up again. Now she was convinced that she had been a victim of battery theft. The culprit must have known about her telephone and dissimulated the crime this way. To be sure, there is no proof one way or the other.

These stories about stolen and unduly swapped batteries made me focus further on battery as probably the most fragile link in the chain of smartphone use in the area. It also made me correct a preconception I had about the quality of batteries. I used to think that in general the currently common Chinese brands had weak batteries. Actually this didn't seem to be the case. Apparently, these phones can have long-lasting batteries, if only the original piece is left in the device.

Speaking of waste, I hadn't seen many telephone bodies and batteries lying around in landfills. Just a few pieces of telephone among the rubbish in the village compared to the masses of plastic bags that invariably clutter the bushes and street corners.

Thus, though potentially damaging to the environment, telephone batteries are still far less frequent than ordinary batteries used in flashlights, radios and tape recorders for four decades now. These really plagued the landscape and no one seems to know what to do about them. I remember in 2008, during a five-month stay in the village, we filled bags with used batteries from our immediate neighborhood. The only problem, we didn't have anywhere else to bring them. In the end, we decided to bury them in a big hole. With hindsight, I wonder if our remedy wasn't worse by increasing the concentration of toxic material in one spot. Just to say that without a recycling program for hazardous material, the problem will only be displaced, not solved.

Smartphones in landfills or recycle bins…

Still, looking at any rubbish dump, it is uncannily easier to find phone batteries than any other parts or components. This is a rather unexpected

discovery since my inquiries aimed at mapping the circuit of (whole) used devices. The stories about accidental or deliberate removal of batteries are one thread. But the batteries I saw lying around intrigued me in a different way. They prompted questions about the environmental impact of this tricky element. Being in a village made the observation somewhat easier. I could walk around within and on the edges of residential areas, along the rice fields and the shifting banks of the Niger River as the flood waters moved to the edges of the village.

So, when it comes to batteries, the landscape was already marked by several decades of battery-operated devices on which villagers depended more than urban dwellers did. For example, flashlights are indispensable navigation tools in the countryside. In town, even in case of power outage, it is quite unlikely to see people on the street lighting their way with flashlights. In the countryside, it would be considered reckless to move around without a flashlight. It is like venturing into the wilderness without a stick or other defense. In the 1970s and 1980s, ingenious tinkers created lighting systems running on batteries. Likewise with small ventilators turning on batteries. It wasn't meant to bridge the critical power gap, but it showed that villagers never resigned themselves to life outside of the electric era. The use of non-rechargeable batteries intensified from the 1970s to the 1990s. This coincided with the boom in low-energy electric and electronic consumer goods: pocket lights, wristwatches, portable radio receivers and tape recorders. It is a historic moment in which the countryside experienced a technological shift on par with the city. The battery democratized access to electronics, though the gap widened when it came to equipment requiring the connection to a power grid. Ventilators, floor lamps and even phonographs never became popular in rural areas. Every now and then, a group might rent such equipment for a music or film festival in a village but this would require a generator or heavy-duty batteries; that is, significant extra costs and logistics. Only a special event could justify such an effort.

Nonetheless, the advent of cheap electronic goods from Japan revolutionized entertainment and communication practices four decades ago. I remember in the mid-1970s when our neighbor owned the single transistor radio that I knew of in my village, near Gao. He was a veteran of colonial wars who earned a pension from the French army but his investment in the device was probably more a reflection of his self-awareness as a traveled and cultured fellow. Even as he retired to the village and the quotidien of peasant life, he continued to tune in to the world. In the afternoons and evenings, we would unroll the 100-meter long cord that served as antenna and stretch it up to a tall acacia tree. Once done, in the proximity of the river, shortwave reception was perfect. He listened to stations that transmitted in French and Bambara, languages that my parents and other elders didn't understand. There were only daily flashes in Songhay, our local language, and they did not deliver much news. The one major station the neighborhood could understand was "La Voix du Sahel", the national radio of Niger, which broadcast in Hausa and Zarma (Songhay) and, especially, had a popular Zarma-language storytelling program around which people gathered on the weekends. At the turn of 1980, tapes of "Alfaa Zaazu", the main voice of the "faakaaray" (chat, conversation) were brought from Niamey as gifts, copied and further sold along with traditional and pop music from Africa and around the world.

In this regard, the transistor brought the noise and sound of the earth to the banks of the Niger, preparing the ground for the radio-tape recorder – in town, along with the phonograph – that created the first shared repertoire of information, music, readings, talk shows, remote courses. Coming of age in the 1970s, I too listened to just about every musical tradition on radio waves, audiocassettes and LPs. More than any other device, the portable tape recorder

democratized access to culture and forged a globalized popular playlist out of the many "best of" hits in Congolese, Cameroonian, Cuban, US-American, Jamaican, French, Spanish, Arabic, Hindi and other languages and idioms. At the turn of 1980, during a disco night in Gao, the DJ would definitely not miss the Bee Gees' Saturday Night Fever, but he would equally throw in Mike Nyoni (Zambia), Ernest Djédjé (Côte d'Ivoire), Rochereau Tabu Ley (Congo Kinshasa), Johnny Pacheco (Dominican Republic), Oum Khaltoum (Egypt), Julio Iglesias (Spain), Bob Marley (Jamaica), Police (UK), Orquestra Aragón (Cuba), Manu Dibango (Cameroon), Boncana Maïga (Mali), Sam Mangwana (Angola-Congo), Fela Anikulapo Kuti (Nigeria), Etta James (USA), Rail Band (Mali-Guinea), and so on until the wee hours really waned down.

This is one point most commentators missed about the ban on music during the occupation of Gao and the rest of northern Mali by jihadist groups (from April 2102 to January 2013). Music was more than entertainment. Like sport broadcasts, music shaped our awareness of the rest of the country, Africa and the world. It is not fortuitous that the musical legends Ali Farka Touré, Boubacar Traoré, Salif Keïta and Mory Kanté all celebrated the national radio as the crucible of the modernization of Malian music. It was on the air that people heard the music of different regions played during the "Biennales culturelles" and replayed over years. This way new artists discovered and reinterpreted popular lyrics for which there are now scores of versions: Jarabi, Mali saajo, Mariama… So, when music was banned in 2012, it was not so much tapes that were seized and destroyed. The repression targeted mobile telephones, because these had already become the most intimate portable media players in private hands.

The mobile network arrived in Gao in February 2004. Both telecom operators had dragged their feet because they didn't see a lucrative market in a seemingly poor region. In the end, it was the new private company that landed there first. A few months later, the national flagship scrambled to get in. Business turned out to be much better than suspected. Despite the prohibitive costs of devices and calls, people of all walks of life were buying and using them. This led to changes in spending habits. The telephone remains an expensive convenience. Even the most frugal use of it induces noticeable costs. This hasn't changed much, even as calling units a lot cheaper today than they once were and, especially young people take more and more advantage of VoIP telephony, stretching their communication budgets this way. But to do that, they need at least a digital mobile telephone, at best a smartphone.

The devices themselves have become more affordable as a result of the influx of Chinese products into the market. Still operating them requires additional logistics. Smartphones consume more energy. Even a good battery usually needs recharging at the end of a day of intensive use and even more frequent plugging after the first year. The challenge is particularly daunting in the countryside, but there is no shortage of ingenuity when it comes to keeping one's telephone charged and receptive, albeit intermittently, even in outlying areas.

People are trying the same way now, with more durable alternatives.

Indeed, solar energy has quickly spread in the countryside over the last five years. From single panels to multiple modules supporting a fridge or large-screen television, the equipment is becoming part of rural households. Chinese modules play a major role here too. Over the last few years, they have pushed pricier European and American brands off the market. This "takeover"

raises all the questions dogging the other product lines. Are these panels too cheap and floppy even for low-income peasants? Isn't this just another form of dumping waste on the very countries that lack any facilities to dispose of, let alone, reuse, the plastic and potentially toxic remains of these products?

To be sure, these questions were raised about Chinese telephones a few years back. Now there are both high-end brands emerging among them, but also the ordinary users seem to know what they are buying. Solid devices with decent batteries, not trendy brands, matter to them foremost. In this regard, the habits of Chinese manufacturers seem to evolve too. The situation is not static or stagnant. There are many multiple players and high stakes, so there is a fierce competition at the lower end of device production. The survivors may well be those who could meet the needs of the particular clientele by adjusting features accordingly. In villages where people do not have a power outlet to plug their smartphones in, the screen might be reduced to leave room for a permanent keypad, the battery enlarged and other invisible features added to suit a specific purpose. For example, one man had a slick Samsung for downtown Bamako and an Itel for home use at the periphery of the capital. He worked for Malitel and should know what he was talking about. He told me that his Itel could catch the weakest signal possible for WhatsApp or Viber while the Samsung wouldn't even show it.

This differentiated approach to devices and accessories has taught me a great deal about the experiential knowledge of users. Features which are meaningless in a region with universal high-speed Internet become essential in the selection of a smartphone. In the early days, the Finnish Nokia met this by delivering robust and reliable devices; today it is the Chinese Tecno and company that do it. Tomorrow is wide open, with Nigerian smartphone manufacturers in the queue for the next wave, perhaps the next big one.