

**FROM MARGINALIZATION  
TO SELF-DETERMINED PARTICIPATION**  
**Indigenous digital infrastructures and technology  
appropriation in northwestern Ontario's remote  
communities**

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In this article I am going to discuss, from an anthropological perspective, how Northwestern Ontario's First Nations have taken control over the planning, creation, distribution, and uses of digital information and communication technologies (ICT) such as broadband Internet. This, on the one hand, facilitates the self-determined participation of remote First Nation communities to processes of ICT connectivity and, on the other hand, contributes to the “digital de-marginalization” of these indigenous communities. The analysis focuses on (1) the contexts, (2) the infrastructures, and (3) (selected) practices related to the appropriation of ICT. It intends to contribute not only to the understanding of what can be termed “digital indigenous or indigenized modernity” (Budka, 2015), but also to an anthropologically informed understanding of being human in a digital world (Miller & Horst, 2012).

For my first field trip to Northwestern Ontario in 2006, I decided not to fly but to take the train from Toronto to Sioux Lookout, Northwestern Ontario's transportation hub. This ride with

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“The Canadian”, which connects Toronto and Vancouver, took about 26 hours and demonstrated very vividly the vastness of Ontario. I could not believe that I had spent more than an entire day on a train without even leaving the province. Finally, I arrived at Sioux Lookout, where I would be working with the Keewaytinook Okimakanak Kuh-ke-nah Network (KO-KNET), one of the world's leading indigenous Internet organizations<sup>1</sup>. After my first day at the office, KO-KNET's coordinator wanted to show me something. We jumped in his car and drove to the outskirts of the town where he stopped in front of a big satellite dish. Only through this dish, he explained, the remote First Nation communities in the north can be connected to the Internet. I was pretty impressed, but had no idea how this should really work. While the satellite dish was physically visible to me, the underlying infrastructure of interconnected, digital information and communication systems was not. In the weeks and months to follow, I learned about the technical aspects of Internet networks and broadband connectivity, about hubs, switches, and cables, about towers, points of presence, and loops. And I found out that Internet via satellite might look impressive, but is actually the last resort and a very expensive way to establish and maintain Internet connectivity for remote and isolated communities.

This study of KO-KNET and one of its services is part of a digital media anthropology project that was conducted for five years, including ethnographic fieldwork in Northwestern Ontario and in several online environments. Between 2006 and 2008, I travelled to 12 of Northwestern Ontario's 49 First Nation communities to interview local technicians, administrators, activists, and digital

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<sup>1</sup> Keewaytinook Okimakanak (KO), meaning “Northern Chiefs” in the Oji-Cree language, is a tribal council which was established by the leaderships of Deer Lake, Fort Severn, Keewaywin, McDowell Lake, North Spirit Lake, and Poplar Hill First Nations. Between 1994 and 1995 KO created the Kuh-ke-nah Network (K-Net), which is an Oji-Cree expression for “everybody”. To include the acronym of its founding organization, the KO tribal council, K-Net became KO-KNET in 2012. Nevertheless, most people still refer to the network as K-Net.

technology users. I took part in meetings and workshops, and I did participant observation in local offices, schools, and public Internet access places to get a deeper understanding about the meaning of digital infrastructures and Internet technology appropriation in the specific contexts of Northwestern Ontario. I quickly realized that it has been a constant challenge and struggle to create, develop, and maintain the local telecommunication infrastructure and communication services such as community radio, satellite TV, and broadband Internet (e.g., Budka, 2009; Budka *et al.*, 2009). I also learned how important organizational partnerships and collaborative projects are and what role social relationships across institutional boundaries play. In short, I learned about the infrastructures which are actually necessary to finance, provide, and maintain Internet access and use. Infrastructure, KO-KNET's coordinator told me:

Really defines what you can do and what you can't do (personal communication, 2007).



KO-KNET's satellite dish in Sioux Lookout, Ontario (Philipp Budka, 2006)

### **Indigenous (digital) media technologies from an anthropological perspective**

Now if the Aboriginal People could retain their tradition, take the technology and go that way in the future. That would be good (Community Development Coordinator, personal communication, 2007).

In the field of media and visual anthropology, anthropologists are interested in how indigenous, disfranchised, and marginalized people have started to talk back to structures of power that neglect

their political, sociocultural, and economic needs and interests by producing and distributing their own media technologies (e.g., Ginsburg, 1991, 1997, 2002a, 2002b; Ginsburg *et al.* 2002; Michaels, 1985, 1994; Prins, 2002; Turner, 1992, 2002)<sup>2</sup>. To “underscore the sense of both political agency and cultural intervention that people bring to these efforts”, Faye Ginsburg (2002a: 8, 1997) refers to these media practices as “cultural activism”. “Indigenized” media technologies provide indigenous people with the possibility to make their voices heard, to network and connect, to distribute information, to revitalize culture and language, and to become politically engaged and active (Ginsburg, 2002a, 2002b).

As one part of a wider set of sociocultural and political practices, indigenous media practices, such as the production of videos, films, or websites, are closely connected to the mediation of culture and the construction of (collective) identities (Ginsburg, 2002b). Indigenous media thus contribute to the reflection and the transformation of the conditions of indigenous lives (Ginsburg, 2002a). Faye Ginsburg (2002b: 217) underlines her “media activism” approach by arguing that “when other forms are no longer effective, indigenous media offers a possible means – social, cultural, and political – for reproducing and transforming cultural identity among people who have experienced massive political, geographical, and economic disruption”. The mediation and (re-) construction of culture and identity through “modern” media technologies also include cultural elements and characteristics of the dominant, non-indigenous societies which are recombined with indigenous, “traditional” elements. The “indigenous media as cultural activism” perspective therefore proposes an open and dynamic understanding of culture.

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<sup>2</sup> For recent discussions of the history, the development, and the implications of indigenous media see also Alia (2010), Cardús i Font (2014), Hafsteinsson (2013), Wilson & Stewart (2008).

In his recent work on communicative and journalistic practices of the Aboriginal Peoples Television Network (APTN) in Canada, Sigurjon Baldur Hafsteinsson (*op. cit.*: 11) criticizes that research about indigenous media which “largely ignored questions proposed by indigenous peoples themselves”. Research has rather focused on the conceptualization of indigenous media in relation to and through “Western” notions. He identifies three types of narratives about indigenous media: (1) the colonial, (2) the activist, and (3) the democratic. While the colonial narrative emphasizes the destructive domination of “Western” media technologies and resonating ontologies (e.g., Weiner, 1997), denying thus indigenous agency, the activist narrative highlights indigenous media's potential for structural change, cultural representation, and political inclusion (e.g., Ginsburg, 1997). But, as Hafsteinsson (*op. cit.*) argues, the activist narrative neglects to consider individual and local changes and related social transformations and consequences invoked by indigenous media.

In his attempt to understand “the importance of media of indigenous social and spatial relations”, Hafsteinsson (*op. cit.*: 11) follows Eric Michael's approach (e.g., 1985) of considering media's cultural, societal, and linguistic particularities and limitations as well as the sociocultural rules, norms, and regulations of knowledge and information production and circulation in an indigenous context. That is, Hafsteinsson advocates indigenous people's own articulations of media practices. Building on Arjun Appadurai's concept of “deep democracy”, he understands indigenous media practices as basically democratic practices of “inclusion and participation” (Hafsteinsson, *op. cit.*: 66-68). APTN, as an indigenous owned and controlled, national TV network and broadcaster that has to consider the cultural diversity of Canada's indigenous peoples and the network's non-indigenous audience, is such an example of “deep democracy”. I argue that both the activist and the democratic approach to indigenous media eventually aim at gaining insights into the sociocultural agency of indigeneity and

related media practices<sup>3</sup>. Highlighting thus also the relational aspects and characteristics of media. Indigenous people's media related agencies become particularly obvious when dealing with "indigenized" digital media technologies.

ICT, such as the Internet, provide marginalized people with possibilities to connect, cooperate, network, promote, and inform on a local, regional, and global scale (e.g., Landzelius, 2006a). Indigenous peoples, therefore, were among the first who made strategic use of interconnected, digital communication technologies, particularly in countries with the necessary infrastructure (e.g., Cisler, 1997; Prins, 2001, 2002). In the early phase of Internet distribution in the middle of the 1990s indigenous people utilized this new online medium "to provide information from a viewpoint that may not have found a voice in the mainstream media" (Cisler, *op. cit.*: 20). The Oneida Indian Nation of the State of New York was the first native group worldwide to put an indigenous owned website online in spring 1994 (Polly, 1997). A few months before the first official website of the White House went online. The Blackfeet Confederacy in Alberta established the first indigenous Canadian web presence one year later (Prins, 2002).

Because of the marginal status within the nation-states indigenous peoples live in, they have become "early adopters" of digital, globally networked ICT. And there seems to be a connection between indigenous peoples' global(ized) movement and related activist projects and the strategic utilization of ICT (e.g., Forte, 2006; Wilson & Stewart, *op. cit.*). Maximilian Forte (*idem*: 146) speaks of "Internet indigeneity" because the Internet and related technologies play "an increasingly central role in enabling the global diffusion of ideas of indigeneity". Indigeneity and indigenism have become umbrella terms which encompass the global, sociopolitical movement of indigenous people as well as related processes of identity formation and community building. Digital media

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<sup>3</sup> For detailed definitions and in depth discussions of indigeneity and indigenism see, for instance, De la Cadena & Starn (2007).

technologies are thus important tools for transnational and translocal networking and the global, self-controlled dissemination of indigenous issues.

Kyra Landzelius (2003: 8; 2006b) refers to indigenous peoples' "self-authored engagements" related to ICT practices as "indigenous cyberactivism". In doing so, she distinguishes between "outreach" and "inreach" activities (Landzelius, 2006b). Indigenous outreach initiatives with and through ICT include public relations and tourism management, sovereignty campaigns, liberation movements, and common-cause partnerships between indigenous and non-indigenous groups. A very prominent example for outreach activities is the Zapatista movement and its strategic utilization of computer networks and online communication services in cooperation with supporting networks of non-governmental organizations in the middle of the 1990s (e.g., Cleaver, 1998). Indigenous inreach ICT practices are oriented towards an internal public. These inreach activities cover public services (e.g., e-health and e-learning), cultural revitalization, reconciliation, pan-indigenous networking, and personalized communication and representation. One of the world's most successful indigenous Internet organizations, which facilitates broadband Internet connectivity as well as different online services for remote First Nation communities, is KO-KNET. To provide these services, it is first of all necessary to build and sustain a local digital infrastructure.

### **Digital infrastructures for Northwestern Ontario's remote First Nation communities**

This place is so remote and small and away from the outside world. But technology is moving with fast pace around here (Technician, personal communication, 2008).

Over the last 20 years, KO-KNET has been aiming to build digital infrastructures particularly for remote indigenous communities in Northwestern Ontario as well as to provide different Internet-related services such as telemedicine, online learning, and

videoconferencing (e.g., Beaton, 2004; Beaton *et al.*, 2009; Ramirez *et al.*, 2003). While KO-KNET firstly supported only First Nation communities of the KO tribal council and the Sioux Lookout District (about 25 000 people) in Northwestern Ontario, it has started to expand its services to the rest of Northern Ontario and even to neighbouring regions and provinces. Northern Ontario encompasses the territory of the Nishnawbe Aski Nation (NAN), which again corresponds to the areas of James Bay Treaty No. 9 and Ontario's portion of Treaty No. 5, a region of the size of France with a population of about 45 000. The majority of NAN's residents are members of Ojibwa, Oji-Cree, and Cree speaking First Nations, living in 49 communities, each with between 100 and 2 000 people. Most of these settlements are remote “fly-in communities” that have reserve status. “Remote communities” in Northern Ontario have no year-round road access and are generally north of the 50th parallel and/or over 50 km from the nearest service centre.

Northern Ontario is situated on the Canadian Shield which is mostly covered with boreal forest and crossed by numerous rivers and lakes. Because of these geographical conditions it is expensive and challenging – sometimes even impossible – to connect the remote northern communities with southern towns and centres. The larger communities have elementary and secondary schools up to the age of 14, nursing stations for basic medical and health care, grocery stores, churches, administrative buildings, and airfields. Smaller communities might have none of these. To continue education, visit a doctor or a medical specialist, to do some shopping, or to visit relatives, Northern Ontario's First Nations people frequently have had to travel to urban centres in the south. Many even have to leave their home communities for good to find a permanent, better-paid job or to go to college or university. This remoteness thus leads to isolation, not only infrastructurally-wise but also in terms of feeling isolated, being behind the urban centres in the south, not being connected to the rest of the country.

Because we are isolated up here we don't see the movement in the rest of the world. And so we think that we are doing really well



because we compare it to what we did last year. They don't realize that in the city things have jumped two notches ahead and we only jumped one notch ahead. And so the city is constantly getting ahead of us. In terms of skills and the way they do things (Sandy Lake First Nation Resident, personal communication, 2007).

During the summer months, travelling in Northwestern Ontario is only possible via airplane, which is a cost-intensive way to travel. Plane tickets from the northern communities to Sioux Lookout can cost up to C\$1 000. Food and basic goods also have to be flown into the communities, where they are sold according to their weight. Thus a litre of milk or a sack of potatoes become expensive items. Only during the winter months, when rivers and lakes are frozen, a network of winter roads connects the settlements with each other and the southern towns. But travelling on these winter roads by car over frozen lakes and rivers can become dangerous with temperatures dropping well below - 20°C.

Labelling Ontario's north as “high cost serving area”, the province of Ontario, the Canadian government, and the private sector have been reluctant to invest in the infrastructural connectivity of the northern communities (Fiser, 2009; McMahon, 2011). But as the KO-KNET case shows, the remote communities can be connected to the infrastructural networks of the south. To establish and sustain such infrastructures, it is necessary to cooperate with different stakeholders and to include the local communities and their representatives right from the beginning.

At the beginning of the 1990s, the telecommunications infrastructure in Northwestern Ontario was completely lacking connectivity, computers, and sometimes even phones. So KO's and KO-KNET's “vision that was to become realized ... was of a First Nations controlled IP network that would ride atop existing leased terrestrial and satellite carrier infrastructure” (Fiser, *op. cit.*: 123). And KO-KNET actually managed to secure more and more funding, mainly by competing for provincial and national project funds, to build the much needed and eagerly awaited ICT infrastructures:

... kids are asking for computers, asking for Internet. ... kids go back home and bug their mum and dad for Internet line at home (Technician, personal communication, 2008)<sup>4</sup>.

The biggest project in this early phase was an Industry Canada's SMART Communities demonstration project which KO-KNET managed to acquire in 2000 as the only indigenous competitor with a grant of almost C\$5 million to be matched with an additional C\$5 million from other resources (Fiser, *op. cit.*; Ramirez *et al.*, *op. cit.*). This project and several follow-up projects allowed KO-KNET to develop online learning and telemedicine services as well as to establish e-centres for public Internet access in selected First Nation communities. But it also opened federal doors in terms of networking and cooperation (Fiser, *op. cit.*). It is important to note that governmental subsidies usually include the hope that one investment will make up for another – usually more expensive – investment. To (co-)subsidize digital infrastructures, for instance to facilitate telemedicine services, holds the promise of saving governmental money for other investments such as doctors' visits to the remote communities. Because of this remoteness, telemedicine and telehealth have always been at the top of the communities' and KO-KNET's ICT priority list, as the following quote from an interview with a First Nation's Community Telehealth Coordinator indicates (personnal communication, 2008):

... we should get priority before everybody else. Because someones life could be on the line for a video conferencing unit ... I mean a video conferencing ... like a doctor may need to see a big gash on my arm or something like that. To see if he wants to see them to come in personal. Technically, the nurses know how to proceed. And we are just here to try to assist them in their field, where they need help and the doctor to see ... I noticed it's really great for follow-ups. So that the patient doesn't have to travel to the South. Fly to the city, find some money, like spending money on the food or the taxi or whatever. If that's not covered by insurance or whoever covers the transportation. And they need sitters or whatever. You don't have to

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<sup>4</sup> For KO-KNET's funding and project history as well as for the Canadian ICT policy context see Fiser (2009).

go through all that stress just to have a ten minute, “How are you doing? Fine, can I see your wound? Oh, you are doing great! So see you again in six months”. Rather than going through all that hassle you come to the nursing station and you miss maybe an hour with the work or whatever, instead [of] missing two whole days because you wait for the plane. So like I said, it's very great for follow-ups. A lot of people like it for follow-ups.

Today, digital infrastructures in Northwestern Ontario facilitate land-line and satellite broadband Internet as well as Internet cell phone communication, constituting thus the regional backbone for all Internet-related services and programs. The actual backbone remains the Internet connectivity infrastructure controlled, maintained, and managed by Bell Canada from Canada's urban centres. KO-KNET is only leasing specific connections which are up to eight times more expensive for the remote First Nation communities than for urban population groups (e.g., Fiser, *op. cit.*).

By simple definition infrastructures are “built networks that facilitate the flow of goods, people, or ideas and allow for their exchange over time” (Larkin, 2013: 328). Infrastructure is not technology, it can rather be understood as “objects that create the grounds on which other objects operate” (*idem*: 329). These objects, furthermore, operate in systems. Infrastructure therefore is a system which enables the functioning of technological objects and things. Susan Leigh Star (1999) argues that infrastructure as the relation of things might be to some extent not visible. From her point of view, this invisibility is one of infrastructure's key properties. Brian Larkin (*op. cit.*), on the other hand, contends that infrastructure, or at least parts of it, is in many cases highly visible, like the KO-KNET satellite dish in Sioux Lookout. Larkin (*idem*: 336), therefore, speaks of “hypervisibility”. This (in)visibility of infrastructure depends on individual situations and conditions and is often mobilized for political reasons.

Defining infrastructure always means to include specific aspects by excluding others, which is determined by “epistemological and political commitments” (Larkin, *idem*: 330). Placing the analytical focus on the system rather than on the

technology offers, according to Larkin (*idem*), “a more synthetic perspective” which also allows for including non-technological elements. This is of particular relevance when investigating translational processes of system building and system development. For Star (*op. cit.*) infrastructure is a relational concept with multiple meanings and not a purely technical or technological phenomenon. It also includes the social relationships people establish in the course of creating technological connections and networks. Infrastructures are therefore closely related to organizational phenomena and processes (e.g., Pinch, 2009; Star, *op. cit.*).

The cooperations and partnerships with different stakeholders – from governmental organizations and the telecommunication industry to the local communities – enabled KO-KNET to develop into a regional social enterprise and to establish one of the world's most successful community broadband network models that is owned and controlled by indigenous people (Fiser, *op. cit.*; see also Fiser & Clement, 2012). This success can be measured by the number and the value of projects KO-KNET has been able to acquire and complete, by the established infrastructures in the remote communities, and by the initiatives which are following the KO-KNET broadband community model in other regions (e.g., Fiser & Clement, *idem*). And, of course, it is the people's everyday usage of different services which build on the digital infrastructures that indicates KO-KNET's success.

You make it available and people may use it. And that's how I always presented it. You know you give people the proper road, they will use it. And they will use it for ways you and I don't think about it. Like you know, I never thought it would ever go. And they loved it. And they were sharing pictures and stories and things like that. Like you know. And it was a really friendly environment. And people just took to it like crazy and then when machines were becoming more available as broadband became available, it was much easier to use (KO-KNET coordinator, personal communication, 2006)

Adam Fiser (*op. cit.*: 7) highlights in his study about KO-KNET the importance of governance – including questions about control, ownership, collaboration, and cooperation – which is “paramount for

the local negotiations of broadband deployment in communities”. By putting the focus on the role of governance in ICT initiatives, it is possible to reveal “an emergent and evolving communications-information infrastructure that mirrors the complexity of societies and parallels their historically contingent pathways” (Fiser, *op. cit.*: 7). For Fiser (*idem*) a feasible Internet broadband governance model has to involve governments, industry, and non-governmental organizations. Such a model includes, on the one hand, “technological and economic actors as well as the social systems” (*idem*: 37). On the other hand, this governance model pays particular attention to the relationships partners and collaborators establish and maintain. Organizations applying such a model can thus be referred to as “social enterprises” (*idem*: 36-37). KO-KNET, according to Fiser (*idem*: 39), is such a social enterprise because it includes the properties of being a “carriage level network of community networks, a system of governance, and a social economy organization”.

Fiser (*idem*: 225) concludes that KO-KNET “presents a viable model to support broadband deployment for the public good”. This has been accomplished “on the basis of social enterprise” and “in cooperation with First Nations communities, governments, and industry” because KO-KNET not only invested in infrastructures but also in the training of people to maintain infrastructures and services (*idem*: 225; Ramirez *et al.*, *op. cit.*). KO-KNET even managed to “change the rules of telecom for its constituent communities” by creating broadband community networks which are owned and controlled by the local communities under the KO-KNET governance model (Fiser, *idem*: 225).

### **Indigenous digital technology appropriation**

For a lot of people the homepages are a connection to the outside world, perhaps the only connection (MyKnet.org User, personal communication, 2007).

Within several projects KO-KNET established different programs and services that have become widely popular among First Nations people in Northwestern Ontario and beyond (e.g., Beaton

*et al., op. cit.*). Services, such as telemedicine, telehealth or e-health, videoconferencing, online learning, personal e-mail and homepages, are designed to fit the indigenous population's specific needs in a remote and isolated region. In the following section I am going to discuss aspects of digital technology appropriation by drawing on KO-KNET's most mundane service: the online environment for personal homepages, MyKnet.org (<http://myknet.org/>)<sup>5</sup>.

In discussing the case of the indigenous Tribal Digital Village (TDV) initiative in Southern California reservations, Christian Sandvig (2012) demonstrates that digital infrastructure projects, particularly on rural and remote indigenous land, are expensive and complex. The local population, which is diverse and heterogeneous in needs and expectations, has to deal with many political and economic challenges as well as sociotechnical changes. Governmental policies for the funding and implementation of indigenous Internet connectivity projects and initiatives, such as TDV or KO-KNET, often aim for the reduction of poverty, the improvement of education, or the creation of jobs in the indigenous communities. Such noble objectives and expectations are often in contrast to people's everyday use of Internet technologies; when these technologies are actually used for personal entertainment, self-representation, and individual social networking. Some MyKnet.org users were well aware of the ICT projects' intentions and technical constraints and the sometimes conflicting actual usage practices.

So there will be people downloading movies or music. And that kind of slows down everything. ... there are a lot of people wanna use YouTube videos, a lot of people wanna do music over the Internet. I mean ... personally speaking, I would like to do that. I would like to put some songs, my music videos on the Internet somewhere (MyKnet.org User, personal communication, 2008).

Because of funding policies and sometimes also terms of use, indigenous people often find themselves in a difficult position: “to justify their expensive and heavily subsidized use of the Internet

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<sup>5</sup> For detailed discussions and analyses of MyKnet.org related practices see Bell *et al.*, 2012; Budka, 2015; Budka *et al.*, 2009.

they [the indigenous people] must perform difference – they must act like disadvantaged Indians who seek uplift and the preservation of their culture, despite the fact that, they may be more interested in MySpace or soccer games” (Sandvig, *op. cit.*: 185). But to deny indigenous people the mundane appropriation of Internet technologies and services only reinforces their attributed marginal status as dependent people outside of “modern” society.

I understand technology appropriation not as a technodeterministic one-way street, but as a reciprocal process of changing relationships between humans and technologies. In the centre of such an approach are thus relationships (Bateson, 2000) and processes (Miller, 2005), not “a thing” or “a people”. Claudio Aporta and Eric Higgs (2005) suggest (1) to conceptualize technology appropriation as a system of sociotechnical relationships people establish and maintain with technologies; and (2) to focus on the (changing) contexts of technology production, utilization, and exchange. This holds the potential to “free us from the assumption that technologies always unfold in the ways they are intended to” by considering the changing nature of technology (development) and its relation to (changing) society and culture (Sandvig, *op. cit.*: 191).

The online environment MyKnet.org was set up in 2000 to provide young First Nations people from the Keewaytinook Okimakanak Tribal Council communities with an open and commercial-free space on the web, where they can design and develop their own personal web presence. In the years to follow, different age groups across Northwestern Ontario – and in some of the neighbouring areas of Manitoba – have been starting to use MyKnet.org, which continues to be a free homepage service exclusively for First Nations (Bell *et al.*, 2012; Budka, 2009, 2015; Budka *et al.*, 2009). Many of those personal homepages refer to the daily life of people in a world at the margins, where roads come to an end at the settlement’s border, and where friends and families are split up to attend school or to find work in the urban south.

I was living in Thunder Bay and my sisters were living in Muskrat Dam [First Nation]. And a brother living in Saskatchewan. So we are visiting each other’s homepages. My older sister Pearl she lives here

[Sandy Lake] and she was telling me how it was part of her daily routine just to visit mine and my other sisters and brothers ... it is part of her lunch routine. And she laughs and says, “Yeah, it's weird I visit you at every lunch hour”. So it's like a connection with us, connecting with us. And that's how I feel too. Get connected because they write down, “Kids are doing this” or “We are doing this” and “We did this this weekend”. So we know what they are doing. We could call them. We still call each other quite a bit, but it's just a different point of view, I guess (MyKnet.org. User, personal communication, 2007).

In 2013, there were more than 38 000 MyKnet.org user accounts registered of which about 25.000 could be traced to a (single) owner who maintained more or less regularly her homepage. Considering that the overall population of Northwestern Ontario is about 45 000 this is an impressive number of user accounts. According to two online surveys, which were conducted in 2007 (N=1.246) and 2011 (N=117), and ethnographic fieldwork on- and offline, the majority of MyKnet.org users were female, between 15-35 years old, and resided mainly in Northwestern Ontario's larger First Nation communities such as Sandy Lake, Deer Lake, or Fort Severn. Because of administrative and financial reasons the MyKnet.org homepages were transferred to the Wordpress platform in May 2014, forcing users to create new websites. This move resulted in an enormous loss of user accounts; only about 2 500 sites were registered in July 2015. While the websites' content generally seems to remain similar to the old system of homepages, the pages' structure and design now follow the Wordpress blog logic.

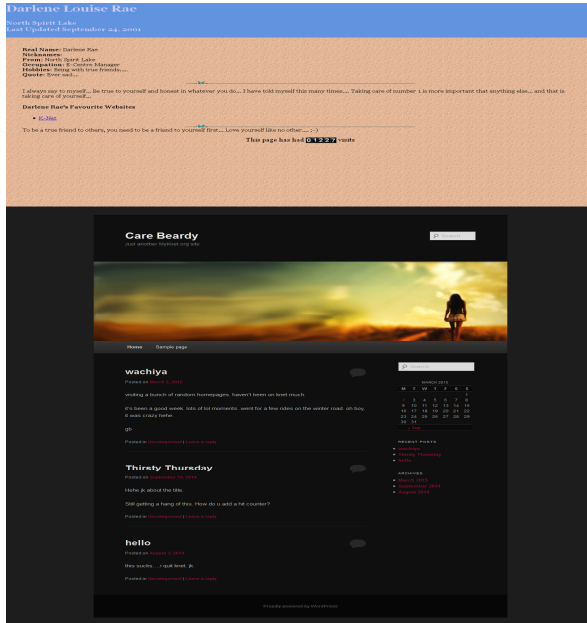
When applying for a MyKnet.org user account, people have to sign up with their real name. Their name then becomes part of their homepage's URL (= name.myknet.org). This allows for an easy search for people and the content they are producing:

MyKnet it is like a central directory of everybody in the north. I think the potential aspect about of MyKnet.org is that it is a directory of the community... (MyKnet.org Developer, personal communication, 2007).

Because of this “real name” policy and its impressive user numbers, MyKnet.org has actually become such a directory of



Northern Ontario's First Nations people<sup>6</sup>. Thus, MyKnet.org not only provides users with the possibility to become producers by creating their own homepages, it also allows for following homepage producers, their online activities, and the information that is put online.



Screenshots of Muknet.org homepages (above: homepage, 2001; below: Wordpress page, 2015)

To build a MyKnet.org homepage, people have to acquire a basic understanding of design, layout, templates, and even HTML. MyKnet.org users support each other in creating homepages. They learn from each other to edit and upload pictures or to change their homepage's background. The sharing of pictures, music, texts, and artwork on homepages is thus also a digital learning process,

<sup>6</sup> The MyKnet.org relevant data discussed in this article refer to the period between 2000 and early 2014, before the MyKnet.org homepages were moved to the Wordpress platform.

demanding specific knowledge and skills. Listening to music, for instance, is mainly accomplished by providing and sharing “music codes”. These HTML codes are usually copied and pasted from the source code of one page to another. Users communicate by leaving messages in people's c-boxes (guest-book-like, asynchronous communication boxes) for everyone to see. They also connect their homepages to other websites by adding hyperlinks to MyKnet.org pages of family members and friends. But homepage producers not only learn to create homepages and to communicate online. They also learn to express and represent themselves, document their social development, give feedback and comments, and reflect on their changing personal situation. MyKnet.org is thus also a learning environment which allows users to become digitally literate.

From what I have seen from the kids and the youth, even the adults too. They embrace that homepage service as a tool to communicate to the outside world. Communicate with the other communities and the families. Even start off with the basic knowledge of webpage development ... and I think that the homepages started all the webpage development in the youth. Because they are crazy about getting their c-box up and their music codes. And they know a lot more about that than I do or others do. And I am computer technician (laughs). They are much more faster than I am (Technician, personal communication, 2008).

However, MyKnet.org has also been used to illegally download and stream music and videos, to copy lay-outs without consent, to compete for homepage hits and website traffic and to bully each other by posting offensive messages on each other's homepages. Such digital practices have been leading to conflicts both in and outside the communities. These practices led further to the reduction of Internet bandwidth and the suspension of users by the service provider KO-KNET, and even to heated debates on the highest political levels about freedom of speech, control, power, education, and language use on the Internet. This indicates, on the one hand, MyKnet.org's relevance for the First Nation communities and, on the other hand, that this technology developed into a complex sociocultural environment with the ambivalent characteristics of (digital) everyday life; from the creative and

innovative production of digital artifacts, the connecting and networking between friends and families, and the sharing of knowledge and skills to the bullying of people and the policing and monitoring of usage practices.

It's greatest strength is as tool for communication. And a lot of families when they send kids down south, that's how they keep track of their kids. That's how they keep track of relatives in other communities and stuff like that. And I think it's potential is to just keep growing in that way. And it allows for all kinds of expression, political expression, artistic expression, cultural expression. And that's what I hope for. It will keep growing. You probably know yourself after the last couple of years that KO, K-Net is kind of schizophrenic when it comes to MyKnet.org. There is times when ... if the computer server accidentally fell in the lake on the way to get repaired, it would be such a terrible tragedy, uh, uh. On the other hand the very same people who probably have used more aspirin for headaches caused by MyKnet.org are also its greatest champions, you know, look at the potential for this thing (Keewaytinook Okimakanak Research Institute [KORI] Coordinator, personal communication, 2007).

MyKnet.org has become widely popular because it allows for (1) establishing and maintaining social ties and connections over spatial distance and (2) different forms of cultural self-representation and individual expression. And since MyKnet.org is a locally developed and controlled First Nation service, which was enabled by KO-KNET, the organization that connected Northwestern Ontario's remote communities to the Internet, people experience a strong sense of loyalty and belonging. This is why people keep using MyKnet.org even though the service was moved to Wordpress and despite the global dominance of commercial social networking services such as Facebook. To put it another way, users consider MyKnet.org as a kind of “native Facebook” that has been established by an indigenous organization only for indigenous people (Budka, 2012). But like in many parts of the world, Facebook has also become very popular among First Nation communities in Northwestern Ontario and has replaced MyKnet.org particularly as tool for online communication and for keeping in touch with family and friends (Budka, 2012, 2015; Molyneaux *et al.*,

2014). According to the online survey from 2011 (N=117), 56% of survey participants knew more than 100 MyKnet.org homepage owners and 86% said that they know more than 100 persons with Facebook profiles (Budka, 2012).

## Conclusion

For most of the world's indigenous peoples and communities digital infrastructures and technologies are means to contribute to local problem-solving such as substituting for the lack of health care, education, communication infrastructure, or forums for self-representation. While the historically-rooted sociocultural and political discrimination of indigenous people also resulted in infrastructural disadvantage, it should be clear, however, that new digital infrastructures and technologies are not the magic bullet which is going to solve all of indigenous peoples' problems. Nevertheless, as the case of KO-KNET and its services for Northwestern Ontario's remote First Nation communities indicate, indigenous controlled and sustained ICT projects can actually help to improve certain living conditions (e.g., Bell *et al.*, 2012; Fiser & Clement, *op. cit.*; Landzelius, 2006a; McMahan, *op. cit.*; Sandvig, *op. cit.*).

“Self-authored engagements” for local ICT connectivity and utilization imply a strong commitment to sociocultural intervention and political agency, that is (digital) activism (Ginsburg, 2002a; Landzelius, 2006b). KO-KNET's 20-year-long, strategic work with local communities and non-indigenous partners in the public and private sectors has contributed to the digital “de-marginalization” of Northwestern Ontario's remote First Nation communities. Through a democratic and inclusive approach (Hafsteinsson, *op. cit.*) – or governance model (Fiser, *op. cit.*) – the communities have been participating to regional, national, and also global digital connectivity initiatives and related processes. By considering the sociocultural and political contexts, such as local community organization and national ICT policies, and through the involvement of non-indigenous institutions as partners, KO-KNET has been able

to develop into one of the world's leading indigenous ICT providers.

Digital infrastructures are not only the foundation for officially labelled “important services”, such as telemedicine, videoconferencing, or online learning, but also for services like MyKnet.org which allow mainly for mundane activities such as posting texts and pictures, social networking, or chatting. A closer look at these digital practices reveals that they require skills and knowledges which are fundamentally important in a digital world. Even though mundane services like MyKnet.org might not have a priority status for funding agencies, particularly in the indigenous context (e.g., Sandvig, *op. cit.*), they are certainly important for people who are deciding on a daily basis how to make use of digital technologies and infrastructures; how to appropriate these things in everyday life. As an online service only for First Nations people, MyKnet.org was, particularly during its high time between 2003 and 2007, widely popular among all age groups and beyond Northwestern Ontario. It allowed users to establish and maintain social ties and connections over spatial distance; to represent individuals, families, and communities; to express oneself individually; to learn to code and design homepages; and to have a kind of digital directory of Northwestern Ontario's population. Some of these activities have recently been transferred to other online services, such as Facebook, which have become widely popular in Northwestern Ontario without completely replacing MyKnet.org.

The appropriation of digital technologies, as a system of sociotechnical relationships between people and technologies, is not an isolated process. It is rather embedded in sociocultural, political, and economic realities that are constantly challenged and changed. The dynamically shifting contexts of technology production and appropriation are therefore particularly important. KO-KNET has been adopting a self-controlled and self-owned community model for digital infrastructures and services. This means that First Nation communities have taken over the local Internet infrastructure. They control and maintain it according to their own politics and policies, but in dependency of non-indigenous funding bodies and partners

and in the wider context of governmental policies. KO-KNET, as leading indigenous ICT provider, and Northwestern Ontario's First Nation people, as enthusiastic indigenous ICT users, challenge the conceptualization of “the traditional” and “the modern” as opposing categories.

### BIBLIOGRAPHIC REFERENCES

ALIA V., 2010. *The New Media Nation: Indigenous Peoples and Global Communication*. New York/Oxford, Berghahn Books.

APORTA C., HIGGS E., 2005. “Satellite Culture: Global Positioning Systems, Inuit Wayfinding, and the Need for a New Account of technology”, *Current Anthropology*, 46(5): 729-753.

BATESON G., 2000 [1972]. *Steps to an Ecology of Mind*. Chicago/London, University of Chicago Press.

BEATON B., 2004. “The K-Net Story: Community ICT Development Work”, *The Journal of Community Informatics*, 1(1): <http://ci-journal.net/index.php/ciej/article/view/185> (accessed 20 July 2015).

BEATON B., O'DONNELL S., FISER A. & WALMARK B., 2009. “The K-Net Experience: Thematic Introduction to the Special Issue”, *The Journal of Community Informatics*, 5(2): <http://ci-journal.net/index.php/ciej/article/view/583/452> (accessed 20 July 2015).

BELL B., BUDKA P. & FISER A., 2012. “‘We Were on the Outside Looking in’ – MyKnet.org: a First Nations Online Social Environment in Northern Ontario”, in CLEMENT A. *et al.* (eds), *Connecting Canadians: Investigations in Community Informatics*. Edmonton, Athabasca University Press: 237-254.

BUDKA P., 2009. “Indigenous Media Technology Production in Northern Ontario, Canada”, in ERTLER K.-D. & LUTZ H. (eds), *Canada in Grainau / Le Canada à Grainau: a multidisciplinary survey of Canadian Studies after 30 years*. Frankfurt am Main, Peter Lang: 63-74.

**BUDKA P.**, 2012. *Report on the MyKnet.org and Facebook Online Survey*, April-December 2011: <http://meeting.knet.ca/mp19/course/view.php?id=7> (accessed 20 July 2015).

**BUDKA P.**, 2015. "Creating 'Indigenous Modernity' Through Information and Communication Technologies: the Case of the Keewaytinook Okimakanak Kuhkenah Network (KO-KNET) in Northwestern Ontario, Canada", in HALBMAYER E. (ed), *Indigenous Modernities in the Americas*. Canon Pyon, Sean Kingston Forthcoming.

**BUDKA P.**, BELL B. & FISER A., 2009. "MyKnet.org: How Northern Ontario's First Nation Communities Made Themselves at Home on the World Wide Web", *The Journal of Community Informatics*, 5(2): <http://ci-journal.net/index.php/ciej/article/view/568/450> (accessed 20 July 2015).

**CARDÚS I.**, FONT L., 2014. "Indigenous Media: from Transference to Appropriation. Indigenous Video in Latin America and Processes of Visual Representation of Self and Ethnicity", *Anthrovision*, 2(1): <http://anthrovision.revues.org/668> (accessed 20 July 2015).

**CISLER S.**, 1997. "The Internet and Indigenous groups: an Introduction", *Cultural Survival Quarterly*, 24(1): 20-22: <http://www.culturalsurvival.org/publications/cultural-survival-quarterly/none/introduction-Internet-and-indigenous-groups> (accessed 20 July 2015).

**CLEAVER H.**, 1998. "The Zapatista Effect: the Internet and the Rise of an Alternative Political Fabric", *Journal of International Affairs*, 51(2): 621-640.

**DE LA CADENA M.**, STARN O. (eds), 2007. *Indigenous Experience Today*. Oxford, Berg.

**FISER A.**, 2009. *The K-Net Broadband Governance Model: How Social Enterprise Integrated Public, For-profit, and Not-for-profit Institutions to Enable Broadband Community Networking in Canadian Aboriginal High Cost Serving Areas (Circa 1997 to 2007)*. University of Toronto, Unpublished PhD Dissertation.

- FISER A., CLEMENT A., 2012. "A historical Account of the Kuhke-nah Network", in CLEMENT A. *et al.* (eds), *Connecting Canadians: investigations in community informatics*. Edmonton, Athabasca University Press: 255-282.
- FORTE M. C., 2006. "Amerindian@Caribbean: Internet Indigeneity in the Electronic Generation of Carib and Taino Identities", in LANDZELIUS K. (ed), *Native on the Net: Indigenous and Diasporic Peoples in the Virtual Age*. London, Routledge: 132-151.
- GINSBURG F., 1991. "Indigenous Media: Faustian Contract or Global village?", *Cultural Anthropology*, 6(1): 92-112.
- GINSBURG F., 1997. "'From Little Things, Big Things Grow': Indigenous Media and Cultural Activism", in FOX R. G. & STARN O. (eds), *Between Resistance and Revolution: Cultural Politics and Social Protest*. London, Routledge: 118-144.
- GINSBURG F., 2002a. "Screen Memories: Resignifying the Traditional in Indigenous Media", in GINSBURG F. *et al.* (eds), *Media Worlds: Anthropology on New Terrain*. Berkeley, University of California Press: 39-57.
- GINSBURG F., 2002b. "Mediating Cultures: Indigenous Media, Ethnographic Film, and the Production of Identity", in ASKEW K. & WILK R. (eds), *The Anthropology of Media: a Reader*. Malden, Blackwell: 210-235.
- GINSBURG F., ABU-LUGHOD L. & LARKIN B., 2002. "Introduction", in GINSBURG F. *et al.* (eds), *Media Worlds: Anthropology on New Terrain*. Berkeley, University of California Press: 1-36.
- HAFSTEINSSON S. B., 2013. *Unmasking Deep Democracy: an Anthropology of Indigenous Media in Canada*. Aarhus, Intervention Press.
- LANDZELIUS K., 2003. "Paths of Indigenous Cyber-activism", *Indigenous Affairs*, 2: 6-13.
- LANDZELIUS K. (ed.), 2006a. *Native on the Net: Indigenous and Diasporic Peoples in the Virtual Age*. London, Routledge.



- LANDZELIUS K., 2006b. "Introduction: Native on the Net", in *Native on the Net: Indigenous and Diasporic Peoples in the Virtual Age*. London, Routledge: 1-42.
- LARKIN B., 2013. "The Politics and Poetics of Infrastructure", *Annual Review of Anthropology*, 42: 327-343.
- McMAHON R., 2011. "The Institutional Development of Indigenous Broadband Infrastructure in Canada and the United States: two Paths to 'Digital Self-determination' ", *Canadian Journal of Communication*, 36(1): 115-140.
- MICHAEL S E., 1985. "Constraints on Knowledge in an Economy of Oral Information", *Current Anthropology*, 26(4): 505-510.
- MICHAEL S E., 1994. *Bad Aboriginal Art: Tradition, Media, and Technological Horizons*. Minneapolis, University of Minnesota Press.
- MILLER D., 2005. "Materiality: an Introduction", *Materiality*. Durham/London, Duke University Press: 1-50.
- MILLER D., HORST H., 2012. "The Digital and the Human: a Prospectus for Digital Anthropology", in HORST H. & MILLER D. (eds), *Digital Anthropology*. London/New York, Berg: 3-35.
- MOLYNEAUX H., O'DONNELL S., KAKEKASPAN C., WALMARK B., BUDKA P. & GIBSON K., 2014. "Social Media in Remote First Nation Communities", *Canadian Journal of Communication*, 39(2): 275-288.
- PINCH T., 2009. "The Social Construction of Technology (SCOT): the Old, the New, and the Nonhuman", in VANNINI P. (ed), *Material Culture and Technology in Everyday Life*. New York, Peter Lang: 45-58.
- POLLY J. A., 1997. "Standing Stones in Cyberspace: the Oneida Indian Nation's Territory on the Web", *Cultural Survival Quarterly*, 24(1): 37-41: <http://www.culturalsurvival.org/ourpublications/csq/article/standing-stones-cyberspace-the-oneida-indian-nations-territory-web> (accessed 20 July 2015).
- PRINS H. E. L., 2001. "Digital Revolution: Indigenous Peoples in Cyberia", in HAVILAND W. H. (ed), *Cultural Anthropology*. Belmont (CA), Wadsworth: 306-308.

- PRINS H. E. L., 2002. "Visual Media and Primitivist Perplex: Colonial Fantasies, Indigenous Imagination, and Advocacy in North America", in GINSBURG F. *et al.* (eds), *Media Worlds: Anthropology on New Terrain*. Berkeley, University of California Press: 58-74.
- RAMIREZ R., AITKIN H., JAMIESON R. & RICHARDSON D., 2003. *Harnessing ICTs: a Canadian First Nations Experience – Introduction to K-Net, Institute for Connectivity in the Americas*. Ottawa, IDRC.
- SANDVIG C., 2012. "Connection at Ewiiapaayp Mountain: Indigenous Internet Infrastructure", in NAKAMURA L. & CHOW-WHITE P. A. (eds), *Race After the Internet*. New York/London, Routledge: 168-200.
- STAR S. L., 1999. "The Ethnography of Infrastructure", *American Behavioral Scientist*, 443: 377-391.
- TURNER T., 1992. "Defiant Images: the Kayapo Appropriation of Video", *Anthropology Today*, 8(6): 5-16.
- TURNER T., 2002. "Representation, Politics, and Cultural Imagination in Indigenous Video: General Points and Kayapo Examples", in GINSBURG F. *et al.* (eds), *Media worlds: anthropology on new terrain*. Berkeley, University of California Press: 75-89.
- WEINER J., 1997. "Televisualist Anthropology: Representation, Aesthetics, Politics", *Current Anthropology*, 38(2): 197-235.
- WILSON P., STEWART M. (eds), 2008. *Global Indigenous Media: Cultures, Poetics, and Politics*. Durham, Duke University Press.

### Summary

This article discusses, from an anthropological perspective, the utilization of digital infrastructures and technologies in the geographical and sociocultural contexts of indigenous Northwestern Ontario, Canada. By introducing the case of the Keewaytinook Okimakanak Kuh-ke-nah Network (KO-KNET) it analyses first how digital infrastructures not only connect First Nations people and communities but also enable relationships

between local communities and non-indigenous institutions. Second, and by drawing on KO-KNET's homepage service MyKnet.org, it exemplifies how people appropriate digital technologies for their specific needs in a remote and isolated area. KO-KNET and its services facilitate First Nations' self-determined participation to regional, national, and even global ICT connectivity processes, contributing thus to the "digital de-marginalization" of Northwestern Ontario's remote communities.

**Key-words: Indigenous peoples, digital infrastructure, technology appropriation, self-determination, remoteness, Canada.**

### **Résumé**

De la marginalisation à la participation de l'auto-déterminée : les infrastructures numériques et l'appropriation de la technologie dans les communautés autochtones isolées du Nord-Ouest de l'Ontario

Cet article traite, dans une perspective anthropologique de l'utilisation des infrastructures numériques et des technologies dans les contextes géographiques et socioculturelles des communautés autochtones du Nord-Ouest de l'Ontario, Canada. En introduisant le cas de la Keewaytinook Okimakanak Kuh-ke-nah Network (KO-KNET) il analyse d'abord comment les infrastructures numériques non seulement connectent les gens et les communautés des Premières Nations, mais permettent également des relations entre les communautés locales et les institutions non-autochtones. Deuxièmement, et en utilisant MyKnet.org, le service page d'accueil de KO-KNET, il illustre comment les gens adaptent les technologies numériques à leurs besoins spécifiques dans une région isolée. KO-KNET et ses services facilitent la participation des Premières Nations aux processus régionaux, nationaux et même mondiaux sur une base d'auto-détermination et ils permettent aussi des processus de connectivité des TIC au niveau global, contribuant ainsi à la « dé-marginalisation numérique » des communautés isolées du Nord-Ouest de l'Ontario.

**Mots-clés : peuples autochtones, infrastructure numérique, appropriation de la technologie, autodétermination, isolement, Canada.**

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