

## **The Emergence of the Palestinian Web-Space: a Digital History of a Digital Landscape**

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Anat Ben-David

PhD Candidate, Science, Technology and Society, Bar-Ilan University.

### **Abstract**

*This study traces the emergence of national Web-spaces in unstable territories. In particular, it focuses on the history of the Palestinian Web, which gradually transformed from Websites hosted under generic domains (.org, .net, .edu), via symbolic hosting of official Websites under the .int domain, and finally to the official delegation of the national .ps domain. The creation of the Palestinian digital space, with its defined sovereign borders, stands in contrast to the current unsettled borders of the Palestinian Territory.*

*While prevalent accounts of the ‘nationalization’ of the Palestinian Web-space are ethnographic in nature, this paper traces the history of the Palestinian Web-space and the shaping of its digital borders by turning to the Web itself. It maps the emergence of a national digital space into already existing national and international Web-spaces by using digital methods that reconstruct and visualize archived Web data and their evolution over time. Such digital history-telling aims at revealing the unique characteristics of the Web in shaping digital borders, as well as the resonance of digital borders with physical territories, and their related political and diplomatic processes.*

## **Introduction**

Current approaches in the social and political studies of the Web focus on mapping networks of Websites as means for understanding the epistemology of Web-data (Rogers, 2004). Web content, as well as its technological attributes, such as “the hyperlink”, “the tag” or “the tweet” become objects that can be mapped, and the relationships between content, technology and social actors are analyzed through their spatial visualization (Rogers, 2009). The premise of this approach is that digital objects (whether content or other technological attributes of Web data) form digital landscapes, which are analyzed as epistemological landscapes of social and political processes (Rogers, 2008).

Within the realm of political studies of the Web, recent focus has been given to the emergence of national landscapes (Halavais, 2000; Weltevrede, 2009). While historically the utopian visions that accompanied the emergence of cyberspace in the early 1990s have viewed the Web as a space that transcended physical space and geographical borders, the ever-growing localization of search engines, Web-services and the accompanying tight regulation and control of nation-states on Internet traffic, has changed the organization of the Web from a globalized space into spaces that are structured around (and at times even confined to) nation-states’ borders (Rohosinki, 1999; Deibert et. al, 2008).

This paper presents the interwoven processes that shape both national and digital borders. It focuses on the Palestinian Web-space, whose emergence is relatively recent in Web-history, a digital space which maintains complex relationships with the unsettled geographical borders of the Palestinian Authority.

More specifically, it suggests a method for performing historical analysis of the Palestinian Web-space and its evolution over time. If the Web is mapped and studied for its spatial and relational characteristics, a historical mapping of a specific national Web-space can shed light upon the co-production of digital and geographical borders over time.

There are methodological challenges to performing historical analysis on the Web, however, as the mechanisms that organize Web-content, such as search engine algorithms, constantly overwrite old content with fresh data, and as it is difficult to systematically reconstruct the Web-presence of ‘dead-Websites’ which existed in the past but are no longer hosted online (Hellsten et. al, 2006; Chun, 2008). The precise timestamp of Web-content (or other digital objects) is also difficult to determine. To overcome this problem, Web-researchers often resort to prospective archiving of specific Web-spaces starting from a point of time in the present, and tracking its development into the future. For Web-researchers who still wish to engage with Web-history, the Internet Archive’s Wayback Machine<sup>1</sup> is one of the few places on the Web that documents snapshots of Websites and indexes them with timestamps. Yet the way with which the Wayback Machine is currently organized only allows for performing “single-site analysis”, that is, to examine the various snapshots of a single URL over time. It does not enable reconstructing the dynamics of a Web-space in a way that captures the relational and hyperlinked dynamics between different Websites. In addition, the Internet Archive’s crawler does not visit all Websites at fixed intervals, and cannot archive Websites which have embedded a robot exclusion protocol in their code<sup>2</sup> (Brügger, 2010; Digital Methos Initiative, 2009<sup>3</sup>, Stevenson, 2010).

Under these limitations, the reconstruction of a full, dynamic Web-space of the past is a challenging task for the Web-historian, yet a partial reconstruction of past Web-spaces is possible, using various digital methods and tools which I shall soon present. This paper presents a reconstruction of a historical Web-space, which, despite it being partial as it only portrays the evolution of outlink practices from a fixed number of Websites over nine years, demonstrates the politics of the development of Web-spaces over time<sup>4</sup>.

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<sup>1</sup> The Internet Archive Wayback Machine. URL <http://www.archive.org/web/web.php>, (accessed March 7, 2011).

<sup>2</sup> See the Internet Archive Wayback Machine Frequently Asked Questions page. URL <http://web.archive.org/collections/web/faqs.html>, (accessed March 7, 2011).

<sup>3</sup> Digital Methods Initiative Summer School 2009. Digital Methods for the Internet Archive. 17-21 August. Facilitated by Michael Stevenson. URL [https://wiki.digitalmethods.net/Dmi/DmiSummer09#Digital\\_Methods\\_for\\_the\\_Internet\\_Archive\\_44\\_17\\_21\\_August](https://wiki.digitalmethods.net/Dmi/DmiSummer09#Digital_Methods_for_the_Internet_Archive_44_17_21_August), (accessed March 7, 2011).

<sup>4</sup> This is not to say that a partial reconstruction is the only means for conducting historical Web-research; as shall be presented in this paper, the proposed methods is complementary to other research methods.

## **The emergence of the Palestinian Web-space**

The official Palestinian Web emerged in 2003, when the .ps Country Code Top Level Domain (CcTld) was delegated to the Palestinian National Authority by ICANN, after the two-letter suffix was officially included in the U.N. list for recognized countries and territories (ISO3166-1)<sup>5</sup>. Prior to the delegation of the national CcTld, Palestinian Websites were hosted under generic suffixes, such as .org, .net and .edu, but were not digitally marked as “Palestinian” by the national suffix and its accompanying allocated IP range for Palestinian Internet addresses.

Previous studies of the Palestinian Web, performed in 2007 by Govcom.org and the Advanced Network Research Group of the Cambridge Security Programme, have mapped the contours of the .ps CcTld as a national Web-space<sup>6</sup> (Govcom.org, 2008). To represent the emergence of the Palestinian Web geographically, the registration addresses of all .ps Websites (1233 as of 2007) were compared to their physical host addresses and the locations were put on a geographical map (see figure 1). It was found that nearly all .ps sites were registered with addresses within the Palestinian Territories, but the majority of the sites were physically hosted outside of the borders, mainly in the United States. The overlaying of the registration addresses and host addresses served as an example to the competing representations of Palestinian borders in digital landscapes. While officially, the .ps domain is an internationally acknowledged, sovereign and territorialized Web-space, its physical geography at that time was still hosted in other countries.

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<sup>5</sup> International Organization for Standardization (ISO). Maintenance for ISO 3166 Country Codes. English Country Codes and Code Elements. [http://www.iso.org/iso/english\\_country\\_names\\_and\\_code\\_elements](http://www.iso.org/iso/english_country_names_and_code_elements), (accessed March 7, 2011).

<sup>6</sup> Govcom.org, Amsterdam and the Advanced Networks Research Group, Cambridge Security Programme. 2007. Palestinian Information Society Project. URL [http://www.govcom.org/pisp\\_maps1.html](http://www.govcom.org/pisp_maps1.html).

A second analysis examined the extent to which Palestinian Websites that were previously registered under generic domain names changed their URL to the national .ps domain<sup>7</sup>. For that purpose, we used the Internet Archive to fetch records of the historical index of Palestinian Websites maintained by Bir-Zeit University since the establishment of the Palestinian Web in 1993 and until 2002. This list was compared to all .ps and second-level .ps sites .com.ps, and connection statistics were fetched. As shown in figure 2, the level of migration to the .ps CcTld was rather low.

Both examples show the spatial characteristics of the emergence of the Palestinian Web as a relatively recent Web-space, either through its technological attributes such as IP ranges and registration addresses, or through the shift from generic to national hosting addresses. In the following, I present a historical analysis of a portion of the Palestinian Web that existed between 1999 and 2007, that is, four years before and four years after the introduction of the .ps domain as an official national Web-space. The analysis shows the changing outlink behavior of select Palestinian Websites both prior and after the ‘nationalization’ of the Webspace, and their close ties with political and social processes which took place on the ground during those years.

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<sup>7</sup> We used the term ‘migration’ to refer to Websites that have changed their domain name from the generic to the national CcTld.

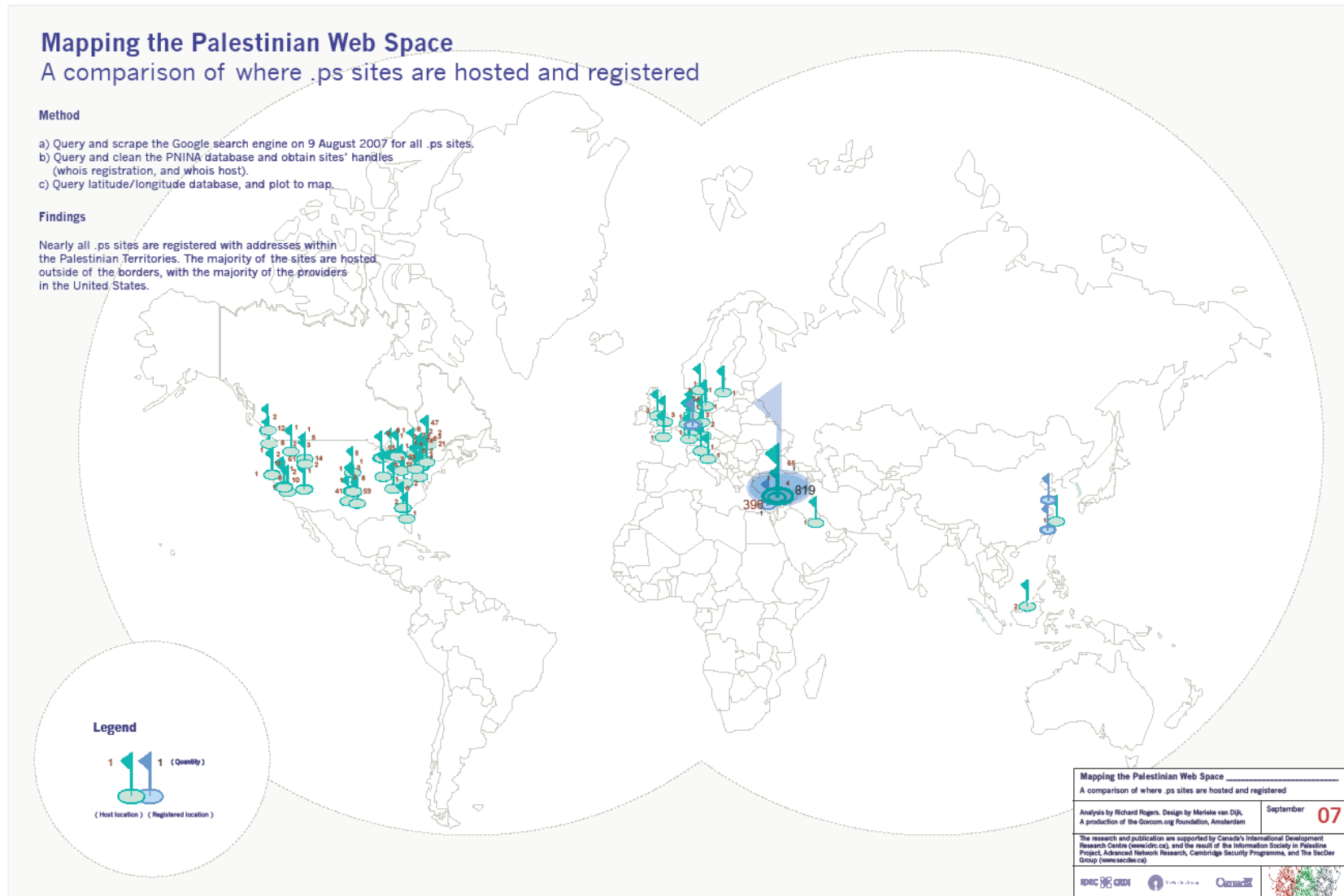


Figure 1. A comparison of where .ps Websites are hosted and registered<sup>8</sup>.

<sup>8</sup> Govcom.org, 2008.

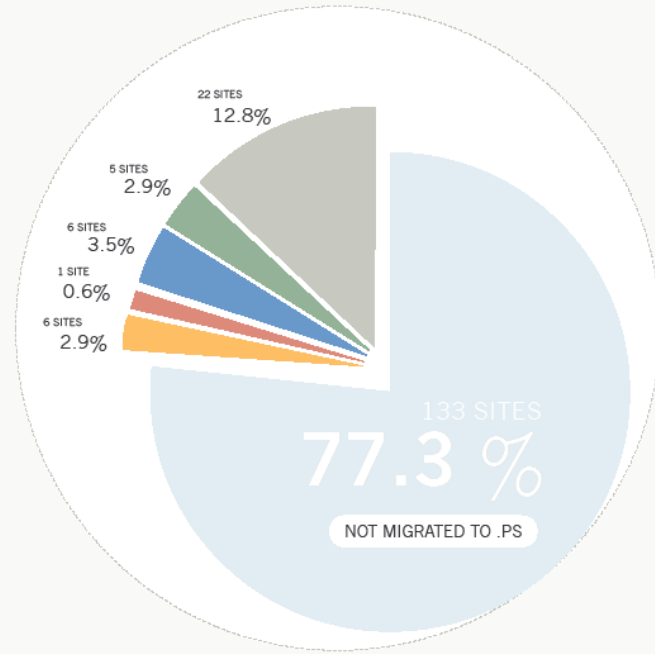
## Migration to .ps?

The degree of migration from Palestinian websites to the .ps domain

Method: To determine degree of migration, append .ps and all .ps second-level domains (e.g., .com.ps, .edu.ps) to the Palestinian domain names in the historical Birzeit University Complete Guide to Palestine's Websites, and fetch connection stats.

Migrated	Not migrated	
<a href="http://www.acrossborders.ps">http://www.acrossborders.ps</a> <a href="http://www.al-ayyem.ps">http://www.al-ayyem.ps</a> <a href="http://www.pai-chambers.ps">http://www.pai-chambers.ps</a> <a href="http://www.palgale.ps">http://www.palgale.ps</a> <a href="http://www.pna.gov.ps">http://www.pna.gov.ps</a>	<a href="http://www.abunimah.org">http://www.abunimah.org</a> <a href="http://www.asidmeest.org">http://www.asidmeest.org</a> <a href="http://www.afrp.org">http://www.afrp.org</a> <a href="http://www.airm-palestine.com">http://www.airm-palestine.com</a> <a href="http://www.al-birsh.org">http://www.al-birsh.org</a> <a href="http://www.al-carma.com">http://www.al-carma.com</a> <a href="http://www.alami.net">http://www.alami.net</a> <a href="http://www.albardeani.com">http://www.albardeani.com</a> <a href="http://www.alesteqal.com">http://www.alesteqal.com</a> <a href="http://www.alhayel.com">http://www.alhayel.com</a> <a href="http://www.alharnek.org">http://www.alharnek.org</a> <a href="http://www.alquds.com">http://www.alquds.com</a> <a href="http://www.alquds.net">http://www.alquds.net</a> <a href="http://www.alqazy.net">http://www.alqazy.net</a> <a href="http://www.alroaib.com">http://www.alroaib.com</a> <a href="http://www.americancolony.com">http://www.americancolony.com</a> <a href="http://www.angellire.com">http://www.angellire.com</a> <a href="http://www.amadwa.org">http://www.amadwa.org</a> <a href="http://www.apic-pal.com">http://www.apic-pal.com</a> <a href="http://www.aqaria.com">http://www.aqaria.com</a> <a href="http://www.art.smgill.ca">http://www.art.smgill.ca</a> <a href="http://www.arly-media.com">http://www.arly-media.com</a> <a href="http://www.ashtar-theatre.org">http://www.ashtar-theatre.org</a> <a href="http://www.asatil.com">http://www.asatil.com</a> <a href="http://www.baboun.com">http://www.baboun.com</a> <a href="http://www.baha-cartoon.net">http://www.baha-cartoon.net</a> <a href="http://www.baibasan.com">http://www.baibasan.com</a> <a href="http://www.baraka.org">http://www.baraka.org</a> <a href="http://www.bethlehem2000.org">http://www.bethlehem2000.org</a> <a href="http://www.birzeit.society.org">http://www.birzeit.society.org</a> <a href="http://www.bitterlemons.org">http://www.bitterlemons.org</a> <a href="http://www.brooknorth.com">http://www.brooknorth.com</a> <a href="http://www.clym-hotel.com">http://www.clym-hotel.com</a> <a href="http://www.commodore-jer.com">http://www.commodore-jer.com</a> <a href="http://www.cprn-palestine.org">http://www.cprn-palestine.org</a> <a href="http://www.easj-jerusalem-yemca.org">http://www.easj-jerusalem-yemca.org</a> <a href="http://www.engdesign.co.uk">http://www.engdesign.co.uk</a> <a href="http://www.eyad.com">http://www.eyad.com</a> <a href="http://www.fortulecty.com">http://www.fortulecty.com</a> <a href="http://www.gamasoft.com">http://www.gamasoft.com</a> <a 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href="http://www.jericho-resort.com">http://www.jericho-resort.com</a> <a href="http://www.jerusalem-meridian.com">http://www.jerusalem-meridian.com</a> <a href="http://www.jerusalem-times.com">http://www.jerusalem-times.com</a> <a href="http://www.jmcc.org">http://www.jmcc.org</a> <a href="http://www.jqf-jerusalem.org">http://www.jqf-jerusalem.org</a> <a href="http://www.jrol.com">http://www.jrol.com</a>	<a href="http://www.jrcazar.com">http://www.jrcazar.com</a> <a href="http://www.jrhotel.com">http://www.jrhotel.com</a> <a href="http://www.jwu.org">http://www.jwu.org</a> <a href="http://www.law-amro.com">http://www.law-amro.com</a> <a href="http://www.man-ctr.org">http://www.man-ctr.org</a> <a href="http://www.mcs-palestine.com">http://www.mcs-palestine.com</a> <a href="http://www.members.tripod.com">http://www.members.tripod.com</a> <a href="http://www.milfat.org">http://www.milfat.org</a> <a href="http://www.mirc.co.uk">http://www.mirc.co.uk</a> <a href="http://www.moha.gov.ps">http://www.moha.gov.ps</a> <a href="http://www.mol.gov.ps">http://www.mol.gov.ps</a> <a href="http://www.molives.com">http://www.molives.com</a> <a href="http://www.mullata.org">http://www.mullata.org</a> <a href="http://www.muwatin.org">http://www.muwatin.org</a> <a href="http://www.nablus.org">http://www.nablus.org</a> <a href="http://www.nad-plo.org">http://www.nad-plo.org</a> <a href="http://www.nativity-hotel.com">http://www.nativity-hotel.com</a> <a href="http://www.nigelparry.com">http://www.nigelparry.com</a> <a href="http://www.noon-oqs.org">http://www.noon-oqs.org</a> <a href="http://www.odaction.org">http://www.odaction.org</a> <a href="http://www.opcc-pna.net">http://www.opcc-pna.net</a> <a href="http://www.p-i-s.com">http://www.p-i-s.com</a> <a href="http://www.p-s-e.com">http://www.p-s-e.com</a> <a href="http://www.pai-arc.org">http://www.pai-arc.org</a> <a href="http://www.pai-soft.com">http://www.pai-soft.com</a> <a 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Offline		
<a href="http://www.ahil.org">http://www.ahil.org</a> <a href="http://www.palestine4ever.homestead.com">http://www.palestine4ever.homestead.com</a> <a href="http://www.humanityonhold.com">http://www.humanityonhold.com</a> <a href="http://www.padico.com">http://www.padico.com</a> <a href="http://www.a-ssa.org">http://www.a-ssa.org</a> <a href="http://www.bethlehemhotels.org">http://www.bethlehemhotels.org</a> <a href="http://www.bzu-mirc.org">http://www.bzu-mirc.org</a> <a href="http://www.doctor-medscape.com">http://www.doctor-medscape.com</a> <a href="http://www.gov-palestine.int">http://www.gov-palestine.int</a> <a href="http://www.healthworkcommittees.org">http://www.healthworkcommittees.org</a> <a href="http://www.home.birzeit.edu">http://www.home.birzeit.edu</a> <a href="http://www.laocentes.birzeit.edu">http://www.laocentes.birzeit.edu</a> <a href="http://www.musabudairi.freemove.co.uk">http://www.musabudairi.freemove.co.uk</a> <a href="http://www.pna.net">http://www.pna.net</a> <a href="http://www.tor-pal.net.com.ca">http://www.tor-pal.net.com.ca</a> <a href="http://www.arabcara.com">http://www.arabcara.com</a> <a href="http://www.emad.net">http://www.emad.net</a> <a href="http://www.accesszone.com">http://www.accesszone.com</a> <a href="http://www.hally.net">http://www.hally.net</a> <a href="http://www.shami.org">http://www.shami.org</a> <a href="http://www.adnet.co.il">http://www.adnet.co.il</a> <a href="http://www.pal-ednet.org">http://www.pal-ednet.org</a>		

Findings: In December 2002 there were 172 unique hosts on the Palestinian Web, according to Birzeit University (source: archive.org for birzeit.edu/link). Only 2.9% (5 Websites) of all 2002 Palestinian Websites has migrated to .ps and left the original domain. 0.6% (1 Website) has migrated, but sustained the original domain with different content. 3.5% (6 Websites) duplicated the Website in .ps and sustained the original domain. 2.9% (5 Websites) reserved the .ps domain, but have not activated it. 12.8% (22 Websites) from the pre-.ps Web have ceased to exist and are no longer online. 77.3% (133 Websites) did not migrate.



**Mapping the Palestinian Web Space**  
 Analysis of the migration of Palestinian Websites to the .ps domain.  
 Analysis by Anat Ben-David and Esther Willemsde. Design by Mariska van Dijk. A production of the Govcom.org Foundation, Amsterdam  
 September 07  
 The research and publication was supported by Canada's International Development Research Centre (www.idrc.ca), and the result of the Information Society in Palestine Project, Advanced Network Research, Cambridge Security Programme, and The SecDev Group (www.secdev.ca)  
 IDRC CIDI The IDRC Group CANADIAN

Figure 2. Migration to .ps?<sup>9</sup>

<sup>9</sup> Govcom.org, 2008.

## **Crossing borders with the Web**

To carry out a historical analysis of the Palestinian Web-space, one must contextualize the ways in which the medium was perceived by various Palestinian actors at that time. The delegation of the .ps CcTld to the Palestinian National Authority is a precedent in terms of international regulation of the Internet, since it allocated an official and sovereign Web-space to a non-sovereign territory and a national entity under limited conditions of self-rule (Ben-David, 2010). Therefore the representation of Palestine as an official, internationally acknowledged space on the Web was seen by many as entailing great and unprecedented potential for creating an idealized digital space. In a complex geographic reality of unconnected Palestinian territories and travel restrictions imposed on Palestinians, the Palestinian Web has been primarily perceived as means for bypassing the geographic reality on the ground (Hanafi, 2005).

The following traces the history of the Across Borders Project (ABP), one of the first Palestinian grassroots attempts to transcend geopolitical borders by creating alternative Web-spaces. Initiated in 1999, the project aimed at connecting Palestinian refugees to their homeland by establishing Internet centers in the 58 refugee camps located in the Palestinian Territories, Jordan, Lebanon and Syria. ICT training courses were designed to help camp residents to let their voice be heard, to establish social and family contacts with their relatives and friends in the Palestinian Territories and elsewhere in the world, and, most importantly perhaps, to reconnect to their place of origin from which they have been dispersed (Hanieh, 1999; Said, 1999; Hijab, 2001; Schulz, 2003; Aouragh, 2010).

Between 1999 and 2005 the ABP opened Internet centers in eight refugee camps: three in the West Bank, two in the Gaza Strip, and three others in Lebanon. Websites have been set up for each camp, and they were interlinked through the ABP's main Website, [www.acrossbroders.org](http://www.acrossbroders.org). After four years, difficulties related to the outbreak of the Second Intifada and financial difficulties have led to the project's consequent halt. Since 2008, the project's Websites are no longer online, but the traces of the project's history are available through each sites' record in the Internet Archive's Wayback Machine.

The project has been extensively studied from an ethnographic point of view, which focused on the effects ICTs had in changing Palestinian Refugees' lives, giving them a voice on the Web, and offering an alternative geography to the current one (Hanieh, 1999; Said, 1999; Hijab, 2001; Schulz, 2003; Aouragh, 2010). To these accounts I wish to add a historical analysis from a Web-space point of



view, which analytically examines the Web presence of ABP camps over time and shows the extent to which the project shaped alternative digital geography and competing borders at different points in time. The historical Web-mapping of the project also provides insights into the dynamics of the ‘historical’ Palestinian Web prior to the introduction of the .ps domain.

### *Method*

The process of data collection<sup>10</sup> started with the Internet Archive Wayback machine’s records for the main platform of ABP – [www.acrossborders.org](http://www.acrossborders.org)<sup>11</sup>. Using the Digital Methods Initiatives’ “Internet Archive Wayback Machine Link Ripper” tool<sup>12</sup>, the archived entries for the Websites throughout the years were captured. Then, using various hyperlink-harvesting scripts<sup>13</sup>, the pages of the archived Website were systematically searched for outlinks per each record from the Internet Archive. URLs of ABP camps that were established as the project evolved were documented, and the procedure was repeated for each ABP Website, as well as for ABP’s main platform, which changed its URL twice (to [www.acrossborder.org](http://www.acrossborder.org) in 2003, and to [www.acrossborders.ps](http://www.acrossborders.ps) in 2005<sup>14</sup>). The collected outlinks were aggregated into a database that included outlink lists from each ABP Website, per year. The data was visualized using Gephi.org<sup>15</sup>, where ‘year’ served as an attribute for the dynamic spatialization of the graph that shows the Websites’ outlink behavior over time<sup>16</sup>.

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<sup>10</sup> Data collection by Anat Ben-David and Adi Zamir-Nitzan.

<sup>11</sup> Across Borders Project. URL [http://web.archive.org/web/\\*/www.acrossborders.org/](http://web.archive.org/web/*/www.acrossborders.org/), (accessed March 7, 2011).

<sup>12</sup> Digital Methods Initiative. Internet Archive Wayback Machine’s Link Ripper. URL <http://tools.issuecrawler.net/beta/internetArchiveWaybackMachineLinkRipper/> (accessed March 7, 2011).

<sup>13</sup> Digital Methods Initiative. Link Ripper. <https://tools.issuecrawler.net/beta/linkRipper/>, (accessed March 7, 2011).

<sup>14</sup> Acrossborder.org. URL [http://web.archive.org/web/\\*/www.acrossborder.org/](http://web.archive.org/web/*/www.acrossborder.org/). Acrossborders.ps. URL [http://web.archive.org/web/\\*/www.acrossborders.ps/](http://web.archive.org/web/*/www.acrossborders.ps/) (accessed March 7, 2011).

<sup>15</sup> Data visualization by Anat Ben-David, Mehdi Bourgeois and Matthieu Renault.

<sup>16</sup> The landscape depicted over time does not show the full network as it was during the specified time range; It only shows the initial space created by outlinks from ABP Websites. It also does not track the second tier of outlinks from the links provided by ABP Websites. When nodes are interconnected, it is because they are sharing outlinks at a specific point in time.

## *Findings*

Upon its initiation in 1999, the ABP's mission statement announced:

*The virtual travel over borders which the Across Borders Project will create, promises to have a tremendous impact on the visibility and confidence of the refugee community as a whole. Many analysts of Palestinian society have identified the increasing division of the community along regional lines and the consequent narrowing of political vision. The Across Borders Project aims to re-assert the refugee community as a central axis of Palestinian society. (Acrossborders.org, December 1999)<sup>17</sup>.*

The project's initiators realized that the creation of a virtual space necessitated deep infrastructural and educational action on the ground (Hijab, 2001:21). The purpose was to open Internet and computer centers in all 58 Palestinian refugee camps in the Middle-East, in which not only access to the Internet will be provided, but also training in computer and Web literacy. A camp Website was set up for each new camp that joined the project, which was initially ran by international volunteers, with the hope that the local camp residents would take over its administration at a later stage design (Hijab, 2001:23; Aouragh 2010:108). The ABP main Website, [www.acrossborders.org](http://www.acrossborders.org), served as a platform to link all camp Websites.

Dheishe refugee camp in the West bank was the first to join the project in July 1999, with the opening of the Internet Center at Ibdaa Cultural Center (Hanieh, 1999:42; Schulz, 2003:182; Aouragh, 2010:108). In March 2000 a second center was opened in Khan Younis camp in the Gaza Strip. By the end of that year, the project expanded beyond the borders of the Palestinian Territories, with the opening of an Internet center at the 'House of Children Stand' in Bourj A Shamali camp in Lebanon<sup>18</sup>. In January 2001, Jalazon and Am'ari camps, located in the West bank, joined the project<sup>19</sup> and in November 2001 the sixth ABP center opened its doors at Association

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<sup>17</sup> Acrossborders.org, December 1999. Record retrieved from the Internet Archive. URL <http://web.archive.org/web/19991218040153>, (accessed March 7, 2011).

<sup>18</sup> Acrossborders.org, November 2000. Record retrieved from the Internet Archive. URL [http://web.archive.org/web/20020214110532/http://www.acrossborders.org/ENG\\_ABP/HTML/lebanon.htm](http://web.archive.org/web/20020214110532/http://www.acrossborders.org/ENG_ABP/HTML/lebanon.htm), (accessed March 7, 2011).

<sup>19</sup> Acrossborders.org, July 2001. Record retrieved from the Internet Archive. URL [http://web.archive.org/web/20020214110532/http://www.acrossborders.org/ENG\\_ABP/HTML/jalazon\\_launching.htm](http://web.archive.org/web/20020214110532/http://www.acrossborders.org/ENG_ABP/HTML/jalazon_launching.htm), (accessed March 7, 2011).

Najdeh in Nahr-El-Bared refugee camp near Tripoli, Lebanon<sup>20</sup>. In 2002, the two last camps that joined the project were Nur Shams and Nusseirat, both located in the Palestinian Territories (Aouragh, 2010:108-118).

Not all eight refugee camp Internet centers and Websites operated at the same time. In its four years of existence, the project had witnessed moments of success, and at the same time suffered from significant set-backs that eventually led to its end.

ABP's potential in bridging geographical gaps between dispersed Palestinian communities in the Middle East was realized at several levels, as evident in Miriyam Aouragh's ethnographic account of the project. Through the project's Websites, as well as other Internet-based technologies such as email, chat, video chats and voice-over-IP calls, refugees in the Palestinian Territories and Lebanon were able, in many cases for the first time, to re-establish contact with family and relatives located on the other side of the border as well as overseas (Aouragh, 2010: 108).

The attempt to connect Palestinian refugees with Palestine is also evident in terms of 'hyperlink economy'<sup>21</sup>, as ABP's main Website attempted to create a Web-space that linked camp Websites to other Palestinian Websites. At its very beginning, the ABP's hyperlinked space was comprised of the project's main platform, [www.acrossborders.org](http://www.acrossborders.org), that was linked to Dheishe's camp Website. A reconstruction of the outlinks of these Webpages from the Internet Archive in 1999 shows that in its initiation phase, the ABP's Webspace was a toponymic space, as all outlinks from the Dheishe camp were directed to Geocities Websites of Palestinian cities and places (See figure 3)<sup>22</sup>.

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<sup>20</sup> [Acrossborders.org](http://www.acrossborders.org), December 1999. Record retrieved from the Internet Archive. URL

[http://web.archive.org/web/20020214110532/http://www.acrossborders.org/ENG\\_ABP/HTML/Nahr-El-Bared-center.htm](http://web.archive.org/web/20020214110532/http://www.acrossborders.org/ENG_ABP/HTML/Nahr-El-Bared-center.htm), (accessed March 7, 2011).

<sup>21</sup> See Park & Thelwall, 2005 and Rogers, 2010.

<sup>22</sup> The figures presented in this paper are snapshots of the dynamic visualization of the ABP Web-space over time. For a dynamic and interactive visualization of the data, also proposed as a data-exploration tool, please refer to the following URL <http://ks20876.kimsufi.com/palestian/BdsDynamics/> (accessed March 7, 2011).

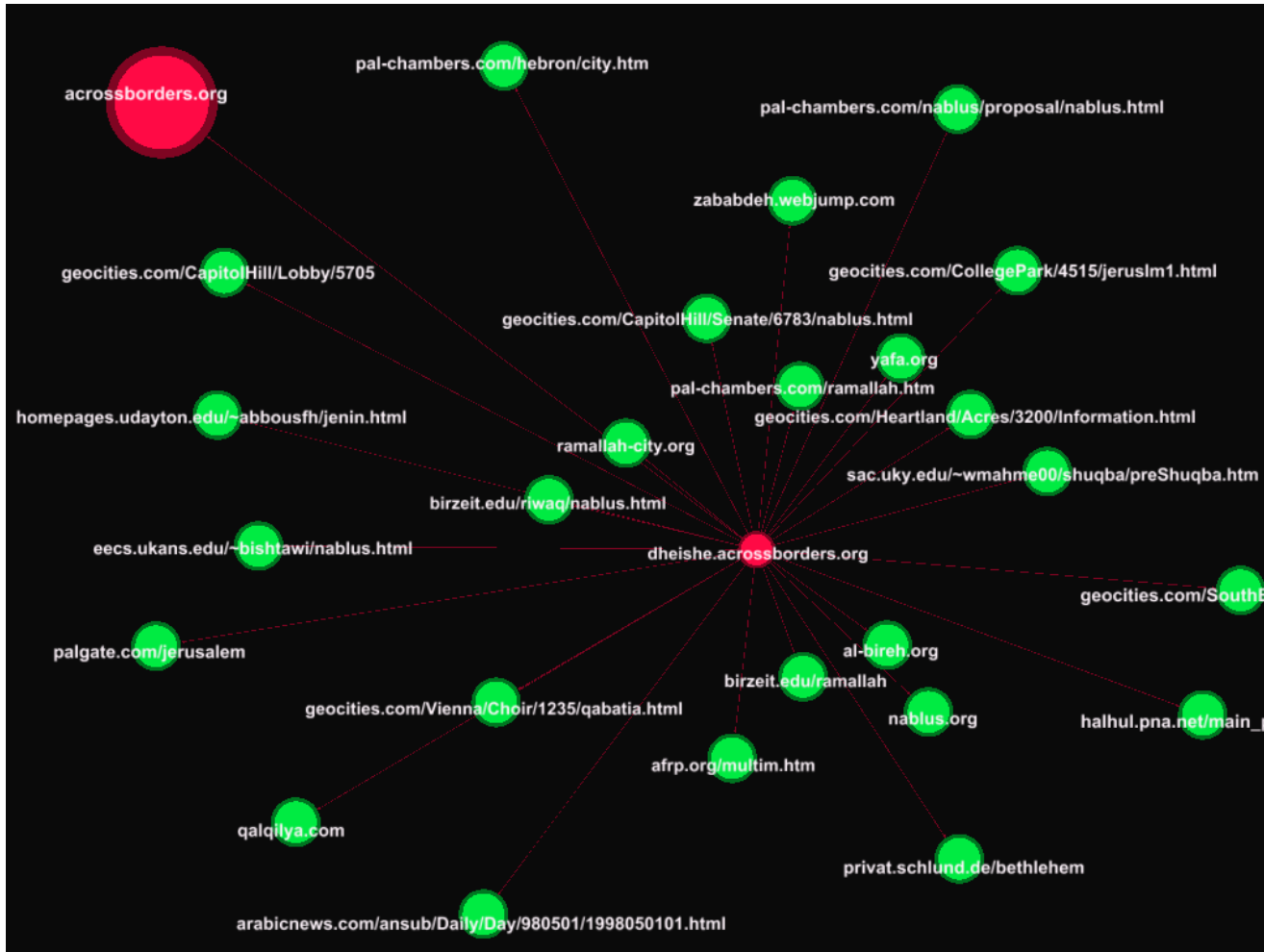


Figure 3 – visualization of outgoing links from the ABP’s project Websites at its initial phase in 1999. Red Nodes are ABP Websites. Green nodes are outlinks from ABP Websites. Data retrieved from the Internet Archive, visualization by Gephi.org.

At its peak in 2002, ABP's Website was linked to the project's six refugee camp Websites that operated at that time (Dheishe, Khan Younis, Jalazon, Am'ari, Nahr El-Bared and Bourj A-Shamali). The camps were not only interconnected to one another, but also provided outlinks to Websites dedicated to (Palestinian) refugee rights, the commemoration of historic Palestine, Palestinian advocacy groups in Canada and the UK, as well as to the UN and the Palestinian National Authority's Website (see figure 4).

One of the reasons accounting for ABP's success in its initial phase was the project's realization that ICTs can facilitate social and political change, only if the virtual realm is tied to the physical reality. The setting up of a Web platform was not enough to make significant changes in the lives of Palestinian refugees, and so the project's infrastructural investment in setting up the computer centers in each camp and its IT and English training were a crucial step in the attempt to reconnect Palestinian refugees to the homeland through ICTs. The same can be said about the reasons that eventually led to the project's end, especially when taking into account that just a few months after the project's promising initiation, the outbreak of the Second Intifada has significantly changed the physical reality on the ground and had immense impact on the project in terms of funding, infrastructure, and the way in which ABPs Websites have turned from a platform for connecting refugees with the homeland, to a powerful tool for struggle for and presenting the Palestinian case to the world.

On September 26 2000, just three days before the opening of the first ABP center in Bourj A Shamali camp across the border with Lebanon, the outbreak of the second popular Palestinian uprising, also known as the Second Intifada, or Al Aqsa Intifada, had marked the beginning of three years of violence between Israel and Palestinians and led to Israel's re-occupation of the West Bank. The political and military events that followed have had immense effects on ABP's ability to cross borders with ICTs, and also marked a shift from the project as serving a platform for (re)connecting refugees living 'outside' with Palestinians living 'inside' the Palestinian Territories, to a tool of struggle.



Figure 4 – A snapshot of the hyperlinked space created by outlinks from the ABP Websites, between 2001 and 2003. Red Nodes are ABP Websites. Green nodes are outlinks from ABP Websites. Outlinks retrieved from the Internet Archive, Visualization by Gephi.org.

The daily violence and Israel's re-occupation of the West Bank had immediate implications on the lives of Palestinians in the West Bank, as incursions, checkpoints and roadblocks, have severely limited their ability to travel within the West Bank, and from the West Bank to Gaza, or to the rest of the world. While ICTs could have been the answer to problem of vastly diminished mobility, the ABP project has immediately suffered its consequences, as its field coordinators were unable to visit the various camp centers in the Palestinian Territories. The inability to travel within the West Bank and to cross borders also made it impossible for ABP coordinators in Lebanon and the Palestinian Territories to hold joint meetings planned to take place in Jordan, which eventually resulted in a split between ABP's coordination in the Palestinian Territories and Lebanon (Aouragh, 2010: 109-116). A financial crisis soon followed.

As the violent conflict continued, the main purpose of ABP's Websites transformed from a cross-border network of Palestinian refugee camps, to a network of Websites participating in the Palestinian struggle. The shift in ABP's focus from Palestinian refugees and their rights to the camps' identification with the Palestinian struggle is also evident in terms of the project's overall linking practices. If until the outbreak of the Intifada, the majority of outlinks from camp Websites was to Palestinian cities and places, between 2000 and 2002, the link lists were mostly dedicated to the intifada. Thus while ABP Website's content was grounded to the physical geography of the camps, their hyperlinked space has transformed from a toponymic refugee network (that is, a network that is dedicated to specific places), to a more generic issue network (see figure 4).

After two years of attempts to save the project from the severe consequences of the Second Intifada, and despite its ability to open new centers in the Palestinian Territories during the violent conflict, the financial crisis eventually led to the project's end. In 2002, the registration of all ABP.org Websites (the project's main Website as well as all camp Websites registered under the ABP.org domain) expired. For a short while, the project migrated to a new domain – [www.acrossborder.org](http://www.acrossborder.org) (this time without the plural 's'), perhaps metaphorically symbolizing the one border (with Lebanon) that the project has succeeded to cross (see figure 5).

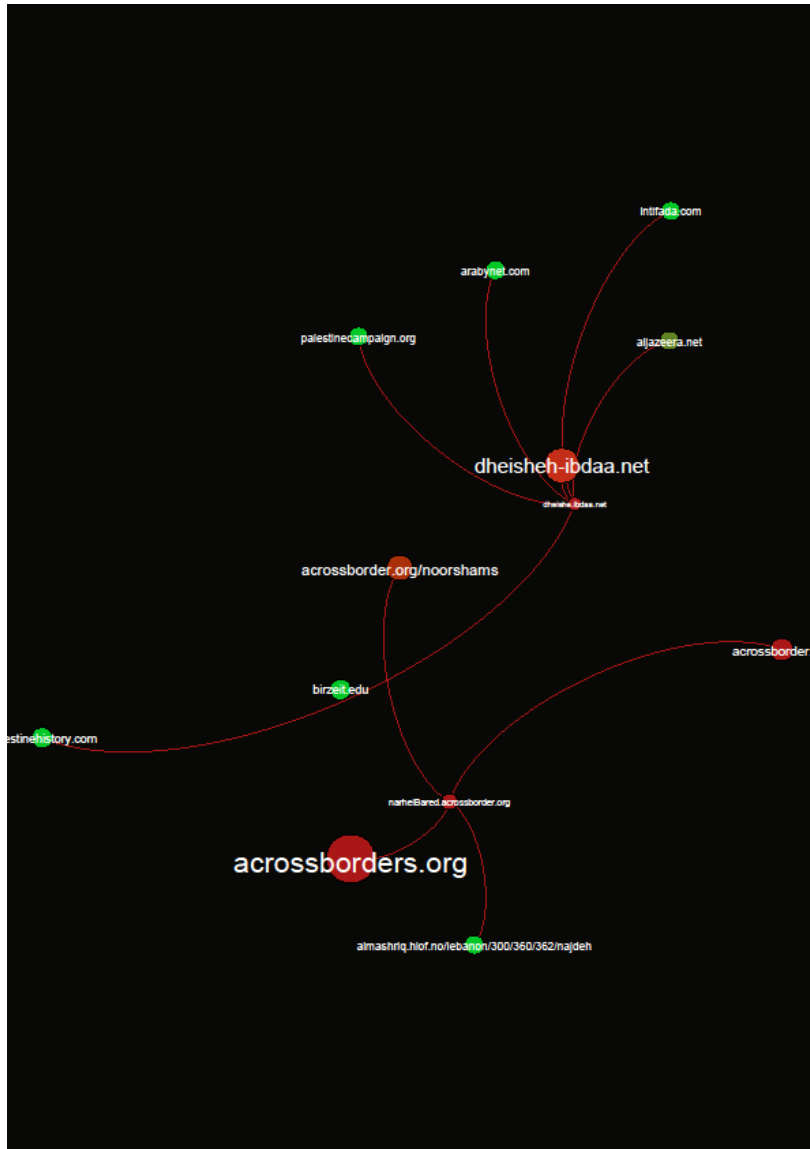


Figure 5 – The Across Borders Project domain space towards the end of the Second Intifada, after the registration of the acrossborder.org domain. Red Nodes are ABP Websites. Green nodes are outlinks from ABP Websites. Outlinks retrieved from the Internet Archive, visualization by Gephi.org.



In 2005, after the Intifada and the introduction of the Palestinian .ps CcTld, an attempt was made to revive the project on the Web, this time hosted under a national CcTld, [www.acrossborders.ps](http://www.acrossborders.ps)<sup>23</sup>. All camp URLs received new, “Palestinian” domains, but were not frequently updated and had no outlinks but to the project’s websites (see figure 6).

These findings are in line with the study that mapped the .ps domain in 2007, where the refugee camps .ps Websites were used as starting points for a hyperlink network. In fact, the hyperlinked map shown in figure 7 is complementary to the partial Web-space portrayed by the outlink visualization of the ABP Websites over time. Although it shows that indeed, ABP camps link only internally to one another, it also shows the larger Web-space in which they operated, and that the project received links from other actors on the Web, especially UNRWA, the UN, and other Palestinian and International human rights organizations.

The project’s spatial trajectory on the Web reveals the irony in the politics of Web-spaces. Metaphorically, again, the migration of the project’s domain from the generic .org to the hosting of Palestinian refugee camp Websites under a national .ps domain finally succeeded in creating a Web-space that brings the ‘outside’ back into the ‘inside’. On the other hand, the overall project’s Web-space, which started with an attempt to reshape, offer an alternative to, and to some extent compete with national borders and physical locations, ended with a grounded convergence with existing borders and locations. In other words, if the project’s aim was to re-introduce Palestine’s 1948 borders by linking the refugee camps in the Middle-East to the homeland, its eventual (temporary) hosting under the national .ps domain, as well as its (undesirable, and due to the abovementioned circumstances) focus on camps located in the Palestinian Territories, converges with the 1967 borders that are currently negotiated for a future Palestinian state.

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<sup>23</sup> The [acrossborder.ps](http://www.acrossborder.ps) domain was active between 2005 and 2008. URL <http://web.archive.org/web/20051219052742/www.acrossborders.ps/portal/ar/About.cfm>, (accessed March 7, 2011). Between 2007 and 2010 all ABP domains were offline. In August 2010, the [acrossborders.org](http://www.acrossborders.org) has been re-registered, showing its original homepage from 1999. Domain statistics retrieved from Stats from: <http://whois.domaintools.com/acrossborders.org> (accessed March 7, 2011).

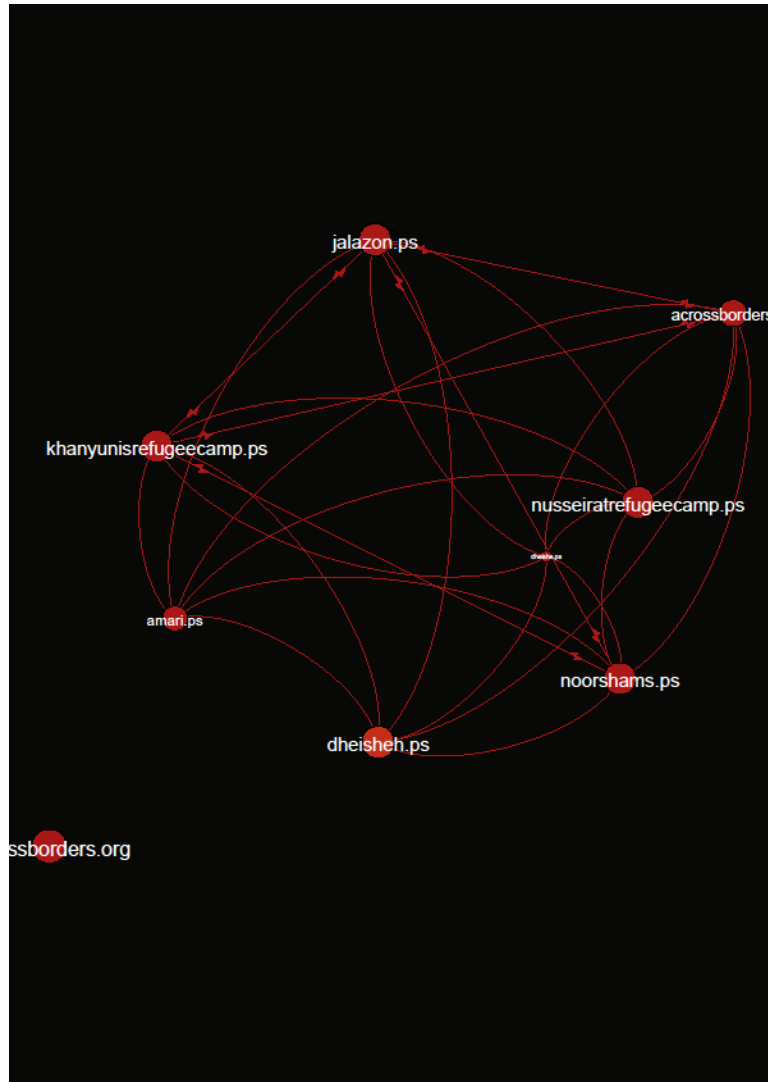


Figure 6 – The ABP hyperlinked space between 2005 and 2008, after the registration of the project’s domains under the national .ps CcTld. Red Nodes are ABP Websites. Note that all camps are based in the Palestinian Territories. Data retrieved from the Internet Archive. Visualization by Gephi.org

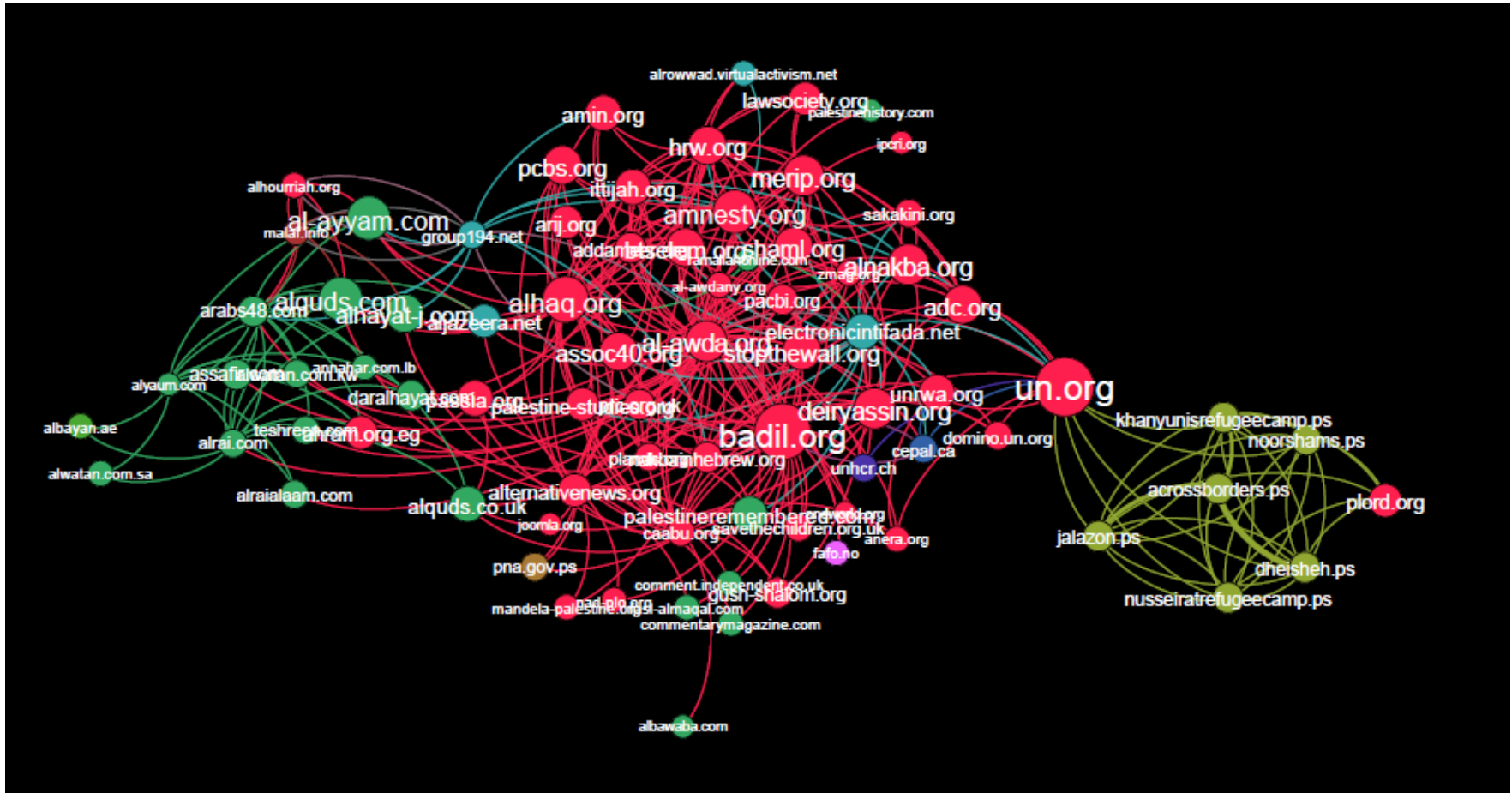


Figure 7 – A hyperlink network of ABP camps hosted under the .ps CcTld in 2007. Hyperlink analysis by IssueCrawler.net. Visualization by Gephi.org.

## Conclusions

The Palestinian Internet was introduced at Birzeit University as a conscious contribution to Palestinian state-building and development. Birzeit's Information Technology unit was the force behind most Palestinian ICT initiatives and pioneering Websites and it was also the co-establisher of the Across Borders Project (Hanieh, 1999). Conscious of its role in history-making, the IT unit had also carefully maintained the "complete guide to Palestine's Websites" that was mentioned at the outset of this paper. As early as in 1999, Birzeit's indexed list was aware of the ephemerality of Web-content and of the necessity in documenting the history of the birth of the Palestinian Web. It indexed all Palestinian Websites (272 at its peak in 2002, the ABP Website was one of them) and also listed "Websites that once were but are no longer"<sup>24</sup>. Ten years after their initiation, both Birzeit's historical guide and the Across Borders Project's Websites are also no longer. Yet their digital traces can be found on the Internet Archive. The analysis presented in this paper attempted to reach beyond the traces of a single Website that is no longer, to reconstruct Web-spaces that are no longer.

The mapping of the Web-history of the Across Borders Project over time is a delimited and partial visualization of a history of a larger Web-space. The analysis showed the development in the outlinking practices of a fixed number of Websites over time. The visualization of the outlinks placed the project's presence in larger Web-spaces over time, but it did not show their dynamic placement within larger networks and the actors that link to ABP camps, as was the case with snapshot taken in 2007, shown on figure 7. The limited scope of analysis has to do with current constraints in performing large-scale Web-history research with the Internet Archive. As previously mentioned, the Internet Archive's current indexing and search possibilities allow for single-site analysis, rather than for the reconstruction of historical networks. The method proposed in this article allows for increasing the scope of analysis from a history of a single-site, into an examination of a larger, yet limited set of Websites, where the delineation of the mapping exercise was determined by ABP's structure of a main platform and related camp-Websites. Nevertheless there are limits to the method proposed in this paper, as the data extraction procedure was not fully automated. Ideally, the analysis should have been automatically repeated for each discovered outlink, not only to ABP camp Websites, and the Internet Archive's search algorithm would have also enabled exploring which

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<sup>24</sup>Birzeit University IT Unit. February 2000. The Complete Guide to Palestine's Websites. Retrieved from the Internet Archive. URL <http://web.archive.org/web/20001120041200/www.birzeit.edu/links/inc.html>, (accessed March 7, 2011).

Websites linked to a specific Website at any point in time. While future research may enable a more comprehensive and automated reconstruction of past Web-spaces, the analysis presented in this paper is valuable for understanding the development of the Palestinian Web, and of the development of hyperlinked Web-spaces more generally. The introduction of a timeline to the spatialization of a hyperlink network, especially, enables a meta-view of the development of networked Web-spaces over time. In the visualization presented in this paper, the hyperlink is no longer the only unit of analysis; camp nodes appeared on the map and disappeared from it depending on their time of entry to the ABP project; and a link may be shared by different actors at different points in time, but it would only connect the actors if it was shared by them in the same year.

It might be incautious to generalize the Web-history of outlinks from a set of 17 URLs on the development of the entire Palestinian Web and its politics of shaping geographical and physical borders. But since the project's goal was to reshape current borders with ICTs – to both physically and virtually cross borders between the homeland that is 'inside' a territory, and refugees that are 'outside' of that territory – the examination of ABP's outlinking practices materializes and spatializes both the project's intentions and their realization over time. In addition, despite its partiality, the analysis does capture a considerable proportion of the historical Palestinian Web, especially when the number of discovered outlinks is compared to the 272 Palestinian Websites indexed at Birzeit's guide in 2002<sup>25</sup>.

The project's crossing of national borders was evident both in the establishment of physical Internet centers in refugee camps in Lebanon, as well as through its increasing Web-presence, which started as a modest reference to place names in historic Palestine, and eventually joined into a large international advocacy network for the Palestinian cause. Yet its latest phase on the Web, hosted in a national domain, linking only internally to the project's camps, all located within the Palestinian Territories, raises the question whether the crossing of physical borders with digital technologies is at all possible. The project's final 'confinement' into the national domain is in tandem with the previous mapping of the .ps CcTld, which was found in 2007 weakly interlinked and loosely networked. Padoxically, perhaps, the emergence of the Palestinian national Web-space did not stabilize, change or cross its unsettled geographical borders. Rather, it served as a reminder to their confinements.

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<sup>25</sup> Birzeit University IT Unit. October 2002. The Complete Guide to Palestine's Websites. Including Gaza, the West Bank and East Jerusalem. Retrieved from the Internet Archive. URL <http://web.archive.org/web/20001120041200/www.birzeit.edu/links/inc.html>, (accessed March 7, 2011).

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