

Basler Africa Portal

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Abstract

The article aims to present the project "Africa Portal" in which five institutions located in Basel create an integrated search interface in order to make their data accessible. Following a description of the process concerning normalizing different data structures and formats, the article also focuses on the outcomes and the possible developments of the "Africa Portal" in the future.

1 Introduction

The aim of the project "Basler Africa Portal" is to make visible research about Africa and specifically the research about Africa which has been carried out in Basel. It is important to include works by researchers based in Africa because in most cases its visibility is scarce both in printed and in online publications.

For centuries, Africa has been a focus of researchers in Basel. Economic, missionary, and medical research, as well as interests in healthcare and science, have brought Baslers to Africa; for either short or longer visits. Their research data and publications are brought together in the Africa-portal and as a result have become accessible.

2 Background

Several institutes with a strong interest in Africa are located in Basel:

- Mission 21
- Swiss Tropical and Public Health Institute
- Museum der Kulturen
- Basler Afrika Bibliographien
- Universität Basel: Centre for African Studies Basel, University Library

An Africa Portal already exists on the homepage of the Centre for African Studies Basel. It contains links to the catalogues, databases and archives of the above mentioned institutes. However, up until now, this data has not been brought together.

The idea to make this possible stems from a workshop about Linked Open Data, held in Basel 2016. During the workshop, the project ZHART (Zurich Art) was presented to participants. ZHART contains diverse information sources which have been brought together and made

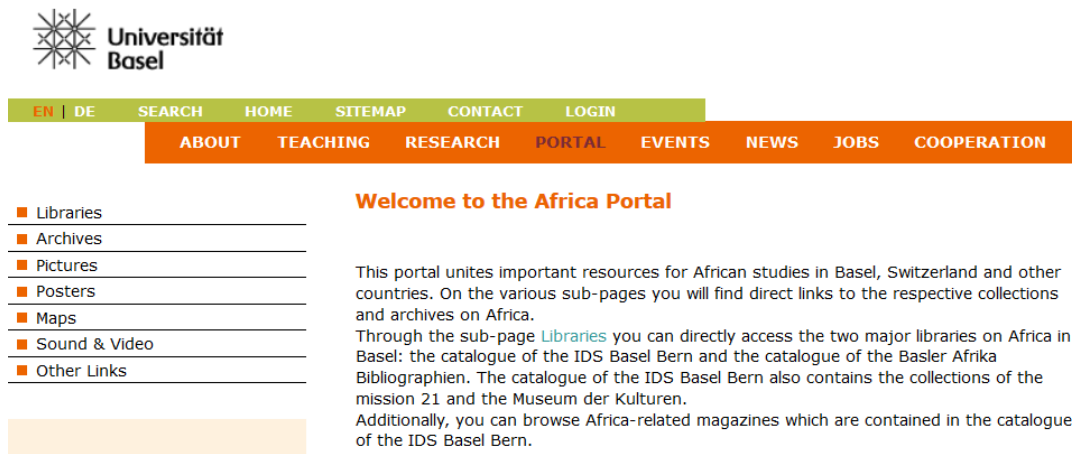


Figure 1: Africa Portal ZASB

accessible through one search engine. This was the starting point for the integrated search engine which is expected to replace the already-existing Africa Portal.

Representatives of five Basel Africa-related institutes met for the first time on 8 December, 2016 and agreed to tackle the problem by developing a new Africa Portal. The concept phase began in March 2017. Now, one year and eight project meetings later, the project has ripened. Soon there will be a beta-version of the "Research Data Viewer".

3 The Project Africa Portal

As mentioned above, the aim of the project was to bring together data and publication collections from all participating institutes, which are:

- [Basler Afrika-Bibliographien \(BAB\)](#): Library and Archive
- [Mission 21 \(M21\)](#): Library
- [Museum der Kulturen \(MDK\)](#): Library, ethnographic and photo collection
- [Swiss Tropical and Public Health Institute \(TPH\)](#): Library
- [Universitätsbibliothek \(UB\)](#): Library and EDOC

The different scopes of the institutions are accompanied by a wide variety of collected material:

- Books, journals, articles
- Films, videos, DVDs
- Photographies
- Audio sources
- Posters
- Manuscripts
- Maps
- Ethnographic objects

- Research data

Archives and ethnological collections each have their own indexing systems. The Basler Afrika-Bibliographien even has its own library system and also developed a singular subject indexing system to include hierarchies. The Museum der Kulturen uses free keywords. All other partners' library connection are brought together in the catalogue of IDS Basel Bern – [Swissbib Basel Bern](#). Ever since 2011, indexing has followed the so-called "rules for the catalogue of subject headings" (RSWK) and the Integrated Authority File GND, which is collectively operated by the German National Library and a network of libraries in German-speaking countries. In 2014, non indexed title records were enriched by GND-data, wherever possible. Subject headings stemming from earlier periods aren't adopted to GND-standards yet, but will be if feasible.

4 Different data, different formats

Cataloguing data provided by Swissbib Basel Bern is based on international standards such as RDA and MARC 21. Library catalogues operated by BAB, archives, and the ethnographical collection follow other standards.

Due to the different indexing traditions in libraries, museums, and archives, as well as different software solutions, it would require a great effort to deliver all data in a uniform exchange format. Therefore, the Africa portal will use raw data the way it has been entered onto the various databases. The minimal requirement is to define core elements which are common for all participants which are automatically recognisable and can be assigned to a certain institution.

There is a plan to enable mapping by using Google spreadsheets and to adjust the data in a decentralised way, using OpenRefine. This could mean that more institutes could participate in the future without the use of IT resources, so long as they did not use data models which were too complex.

Due to the different indexing traditions, a quite simple core element set has been defined:

- Person (author, editor, photographer, producer, director, collector, vendor...)
- Description (title, name of the object...)
- Content (person, institution, event, topic, culture, time, location)
- Type (text, film (also TV), photography, audio (also radio), graphics, project, map...)
- (ethnographical) object, calendar, computer media...

A further challenge has been to ensure that each data set was earmarked by a common identifier which has to be migrated in the case of a change in the software system, for example, to ensure that data sets could also be clearly identified in the future and are citeable by future researchers.

This sounds easy. However, as shown in table 1 and followed by examples of title records by IDS Basel and BAB, it is far from trivial.

Core Elements	UB / IDS Basel (Aleph, RDA/Marc)	BAB Library (Faust)	BAB Archive	MdK ethnographic and Photo Collection
Person, Institution	Author Editor	Author Editor	Author Editor Photographer Photo-Studio Director, Producer Composer Performer Musician Actor Recorder Interlocutor Collector	Photographer Collector Vendor Manufacturer
Title, Description	Title	Title	Title / Description Collection	Object (3D) Description
Geographic Term	Place of Publication	Place of Publication	Place of Publication Recording Location	Recording Location Place of Manufacture
Chronological Term	Publishing Year	Publishing Year	Publishing Year Recording Year	Recording Year Collection Year Year of Manufacture
Content	Person Corporate Body Event Uniform Title Topic Geographic Terms Chronologic Terms Genre			
Type	Carrier Type			

Table 1: Core elements

As indicated in the table, the core elements common in all catalogues are not precisely circumscribed and thus heterogeneous. On one hand, this is due to the variety of materials used (text, photos, ethnographical objects, maps etc.) and the different requirements for a title record. However, on the other hand it is also due to the requirements of the various indexing systems which – with the exception of the catalogue IDS Basel – do not follow international standards and binding rulebooks. All core elements can have functions in terms of formality and content: A person can be an author, photograph, collector, or composer, but can also be the subject of a book, article, picture or photograph.

	FMT BK						
Leader	LDR	-----nam--22004334c-4500					
Sys.Nr.	001	006619480					
Fixed-length Data	008	160812s2017----xxu-----b -001-0-eng c					
LC-Control-Number	010	a 2016036910					
ISBN	020	a 978-0-520-29198-0 q cloth					
ISBN	020	a 978-0-520-29199-7 q paperback					
System-Control-Number	035	a (OCoLC)957077514					
Cataloguing Source	040	a CU-S/DLC b ger e rda c CUS d DLC d OCLCO d SzZuIDS BS/BE A100					
Authentication Code	042	a pcc					
Geographic Area Code	043	a f-gh---					
LC Call Number	05000	a GN484 b .H64 2017					
Subject Category Code	072 7	a af 2 SzZuIDS BS/BE				af=Africa*	
DDC	08200	a 392/.109667 2 23					
DDC	0821	a 300 2 15					
DDC	0821	a 320 2 15					
Main Entry Personal Name	1001	a Hodžić, Saida d 1977- 1 (DE-588)1124183256 e Verfasser 4 aut					
Title	24510	a <<The>> twilight of cutting b African activism and life after NGOs c Saida Hodžić					
Imprint	264 1	a Oakland, California b University of California Press c [2017]					
Physical Description	300	a XII, 400 Seiten b Illustrationen					
Content Type	336	a Text b txt 2 rdacontent					
Media Type	337	a ohne Hilfsmittel zu benutzen b n 2 rdamedia					
Carrier Type	338	a Band b nc 2 rdacarrier					
Bibliography	504	a Includes bibliographical references and index					
Subject: topical term	650 7	a Beschneidung g Frau 1 (DE-588)7648122-0 2 gnd					
Subject: topical term	650 7	a Nichtstaatliche Organisation 1 (DE-588)4131014-7 2 gnd					
Subject: topical term	650 7	a Politische Kampagne 1 (DE-588)4998160-2 2 gnd					
Subject: geographic Name	651 7	a Ghana 1 (DE-588)4020949-0 2 gnd					
Subject: chronological term	648 7	a Geschichte 1980-2016 2 gnd					
LC Subject	650 0	a Female circumcision z Ghana x Prevention					
LC Subject	650 0	a Non-governmental organizations x Social aspects z Ghana					
Codes (local)	909A	f afbs-mono				Holdings Base Africa Monographs*	
Cataloguer	CAT	a B-KAG b 40 c 20160907 I DSV01 h 1609 CAT a B-AS b 40 c 20170407 I DSV01					
Location	852	b A100 c 100FM h UBH HU 10909 4 Basel UB Hauptbibliothek 5 Freihandmagazin S'					
System Number		6619480					

Figure 2: Catalogue record UB Basel (Aleph, RDA, Marc 21): With the help of Subject Category Code (072 7 \$a af \$2 SzZUIDS BS/BE) and local Codes (909A \$f afbs-mono) the Africa collection in IDS Basel can be selected.















1. Periodical articles   
- Author:** Botha, Jenny
Title: Developing an Understanding of Problems Being Experienced by Traditional Healers Living on the Western Border of the Kruger National Park: Foundations for an Integrated Conservation and Development Programme
Periodical or miscell: Development Southern Africa
Vol.: 15
No.: 4
Place of publication: Halfway House
Publisher: Development Bank of Southern Africa (DBSA)
Date: 1998
Physical description: pp. 621 - 634, map, tables
Shelfmark: P 644
Genre: Journals (Form)
Subjects: Gathering; Hunt; Nature conservation; Traditional medicine
Geographical area: Kruger National Park; South Africa
2. Essays/books   
- Author:** Labuschagne, R.J.
Title: The Kruger Park and other National Parks
Place of publication: Johannesburg
Publisher: Da Gama
Date: 0000
Physical description: 168p., ill., map
Language: English
Shelfmark: 15921
Genre: Books of plates
Subjects: National parks
Geographical area: Botswana; South Africa
3. Map collection   
- Title:** Durban, Lourenço Marques, Kruger National Park (Numbi)
Size (h x w) in mm: 405 x 235
Place of publication: Johannesburg
Publisher: Automobile Association of South Africa
Date: 0000
Series: RR-11
Language: Afrikaans; English
Shelfmark: L.A. 684
Genre: (Roadmaps; City Maps)
Geographical area: Durban; Kruger National Park; Maputo City; Mozambique; Natal (historic Name)
4. Map collection   
- Title:** Kruger National Park and Lowveld
Size (h x w) in mm: 800 x 625
Coordinates: E 30°00'–E 32°10'/S 22°00'–S 25°80'
Scale: 1 : 460 000
Place of publication: Rivonia [etc.]
Publisher: Map Studio
Date: 0000
Edition: 3. Auflage
Language: English
Shelfmark: L.B. 25

Figure 3: Catalogue record BAB library (Faust)



10. Alben  

Bestand: Anneliese und Ernst Rudolf_Scherz (Zusatz Expedition Marshall)
Signatur: S117
Objektbezeichnung: Schachtel (Positive)
Formale Beschreibung: 78 Positive s/ w
Fotografen: Scherz, Anneliese
Laufzeit/Datierung/Jahr: 1953
Genres: Landschaftsaufnahmen (Archiv); Personenaufnahmen (Archiv); Porträtaufnahmen; Tieraufnahmen (Archiv)
Personen: Marshall (Familie), Marshall Laurence
Orte: Gautscha
Stichwort: Spielzeug
Deskriptoren: Ethnographie; Familie; Forschung; Kinder; Reise; Tanz
Regionen / Länder: Kalahari; Namibia
Klassifikation: Schachteln (Kontaktabzüge) « Teilbestand Marshall Expedition « Bilddokumente « PA.4 Anneliese und Ernst Rudolf Scherz « Personenarchive (PA) « <bab>
Bemerkungen: Anneliese Scherz hat auf der Rückseite der Fotos Serien und Nummern notiert. Anhand dieser Notizen lassen sich 10 Serien mit jeweils 12 Bildern rekonstruieren. z. T. fehlen Einzelbilder in den Serien einige davon finden sich in anderen Schachteln. (siehe z. B. S122 - S127)



S117_001 - S117_008 (ursprüngliche Serien: 63)
S117_009 S117_010 S117_011 (ursprüngliche Serien: 69)
Signaturen Einzelbilder: S117_001 - S117_078
Format/Größe: 6 1/2 X 6 1/2 cm
Technik: s/ w

s. auch Signatur (Archiv): S122;
S123;
S124;
S125

UUID: sc67119c-6f44-57fe-9e37-5257d3d848d0

11. Alben  

Bestand: Anneliese und Ernst Rudolf_Scherz (Zusatz Expedition Marshall)
Objektbezeichnung: Schachtel (Positive)
Formale Beschreibung: 69 Positive s/w
Laufzeit/Datierung/Jahr: 1953
Deskriptoren: Ethnographie; Familie; Forschung; Reise
Regionen / Länder: Kalahari; Namibia
Signatur: S119

12. Alben  

Bestand: Anneliese und Ernst Rudolf_Scherz (Zusatz Expedition Marshall)
Objektbezeichnung: Schachtel (Positive)
Formale Beschreibung: 85 Positive s/w

Figure 4: Catalogue record BAB archive (Faust)

Asset No	10096
Inventory number	Va 1279
Object	Figur
Title	Tauchervogel
Attribution	Bininyiwui (Djambarbuingu) zugeordnet
Description	Wasservogel (Wildgans?)
Materials & technique	Holz, geschnitzt / bemalt
Dimensions	58cm (1 Gesamt)
Dating	1960
Culture	Yolngu (e)
Entry number	V_0312
Nameplate	Sammler, zugl. Eintlieferer

Figure 5: Catalogue record Museum der Kulturen (here an example for an object from Australia)

The examples show that, despite a definition of core elements, their allocation is anything but trivial. It must also be assumed that, especially where there are no binding standards or authority files, the cataloguing staff have handled it differently over the years. The visualisation tool, Kibana, helps when it comes to revealing such inaccuracies.

Therefore, a person's name can not only have various spellings and represent someone different depending on the catalogue, but even within the same catalogue. As an example, below is a list of the different forms in which the name of missionary Fritz Ramseyer appears:

- Ramseyer Fritz
- Ramseyer Friedrich August
- Ramseyer Friedrich August Louis

[Person, individualisiert (GND)]
Verwendung: | [s](#) | [f](#) |

Person: **Ramseyer, Friedrich August**

Ansetzung Landesarchiv BW: **Ramseyer, Friedrich August; Missionar, 1840 - 1914 | 1013878221**

PPN:	34789948X
GND-Nummer:	1013878221 Link zu diesem Datensatz in der GND
Katalogisierungsquelle:	rda
Frühere Ansetzung:	<i>in pnd: a Ramseyer, Friedrich August</i>
Typ:	Person (piz)
Quelle:	LCAuth; Vorlage
Geschlecht:	männlich
Beruf(e):	Missionar [Beruf, charakteristisch]
Weitere Angaben:	Basler Missionar in Ghana (19. Jh.)
Geografischer Bezug:	Neuenburg (Schweiz) [Ort, Geburtsort] Neuenburg (Schweiz) [Ort, Sterbeort] Goldküste [Ort, Wirkungsort]
Ländercode:	XA-CH [Schweiz]
Zeitangaben:	07.10.1840 - 06.08.1914 [Zeit, Lebensdaten exakt] 1840 - 1914 [Zeit, Lebensdaten]
GND-Systematik:	3.6p [Personen zu Kirchengeschichte, Systematischer und Praktischer Theologie, Kirche und]

Weitere Namen: **Ramseyer, Friedrich August** Louis
Ramseyer, Fritz

Figure 6: GND-record Ramseyer, Friedrich August

Authority files with persistent identifiers (here: GND-numbers) are the precondition even more if enrichments should come from the Semantic Web.

The same is true in geographical terms because the same names for locations can appear in different regions and countries around the world. In order to provide a unique identification, they must contain geocodes. It is not possible due to lacking capacities and resources to attach (where necessary) authority files to the names of people and geographical locations by hand, especially because African names often lack authority files. Automatic mapping is a possible option when it can be verified whether the number of errors is still within the tolerated limit.

5 BARTOC and the visualisation of BAB subject headings

The Basel Register of Thesauri, Ontologies & Classifications (BARTOC¹) is the most comprehensive terminology registry for Knowledge Organization Systems such as thesauri, classification schemes, subject heading schemes etc. It contains the option to assign URIs for lists of subject headings so these can be clearly identified. Therefore, even subject indexing systems which have no authority file attached can be provided for the Semantic Web.

After modelling the BAB thesaurus in SKOS², it was uploaded to BARTOC's RDF triple store, which returns a browsable visualisation.

Thesaurus der Basler Afrika Bibliographien

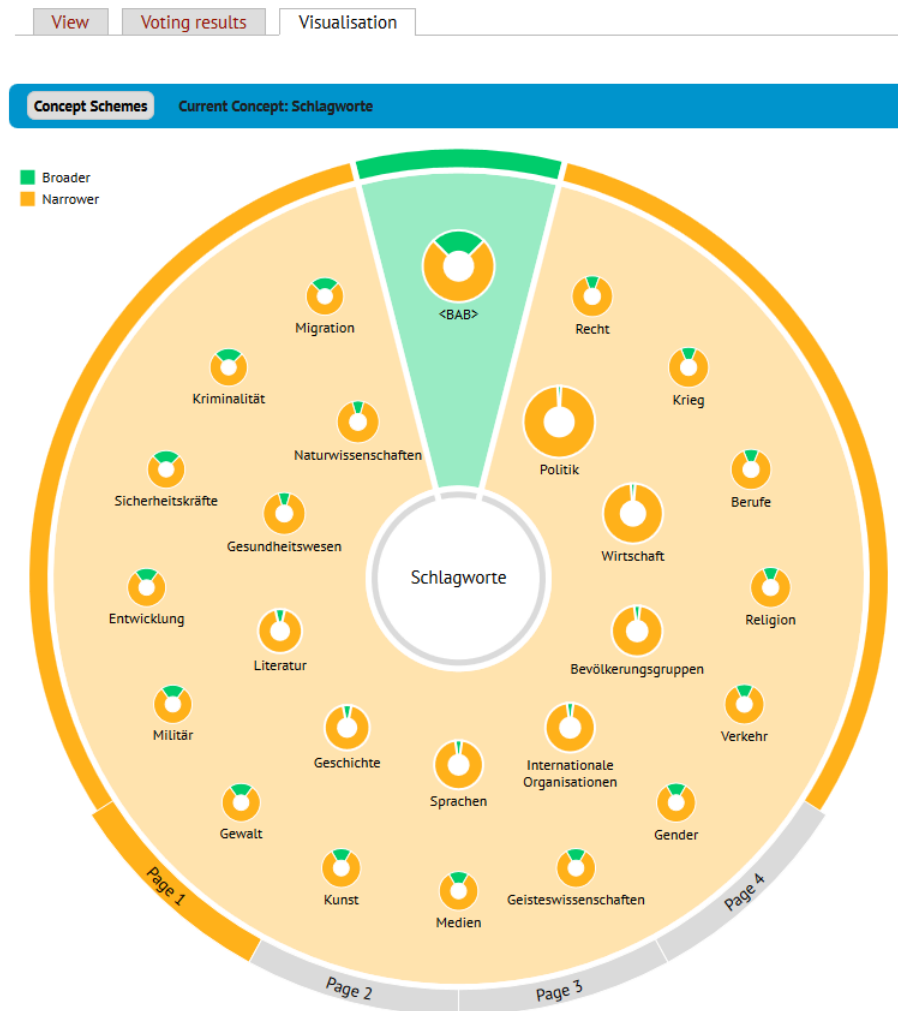


Figure 7: Visualisation of BAB thesaurus in BARTOC (<https://bartoc.org/en/node/2006/visual>)

¹<https://bartoc.org>

²<https://www.w3.org/2004/02/skos/>

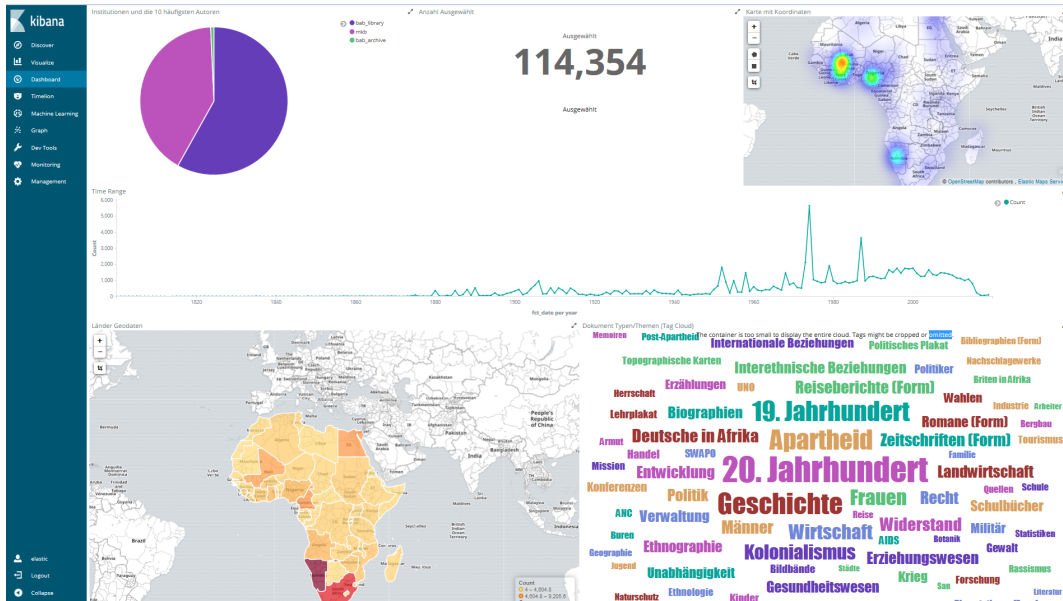


Figure 8: Kibana

6 Kibana

Kibana, a visual tool, can make mapped data visible and makes it easier to discover inconsistencies. There are at least hints for headings which are possibly not correct. This has an added advantage for the participants since it offers them a possibility to analyse their own catalogues and to quickly detect problems in mapping and/or indexing.

7 Data processing for the Research Data Viewer

The data must be available in a machine-readable form, e.g. a CSV-file.

Bild,"Bildnr.,"	Bildlegende,"	Bestand,"	Signatur,"	Objektbezeichnung,"	Titel,"	Formale Beschreibung,"	Fotografen,"	Inhalt,"	Personen,"	Orte,"	Körperschaften,"	Stichwort,"	Deskriptoren,"	Regionen / Länder,"	Klassifikation,"	Bezeichnung,"	
Schriftliche	Scherz, Annel	Scherz, Ernst	Böttger, Piet	Ebersbach, Il	Johannes	Kahle	Loening, Eva	Loening, Mar	Loening, Luis	Loening, Mar	Loening, Wal	Meyer	Nietzsche-Re	Scherz, Annel	Scherz, Ernst	Skoberla, Dr	Stauch, Aug
Schriftliche	Scherz, Ernst	Loening, Luis	Loening, Mar	Loening, Wal	Loening (Fam)	Loening Kind	Maharero (K)	Martin, Henn	Metzler	Scherz, Ernst	Auredanikas	Brakwater	Dordabis	Gaub	Ghansi	Gobabis	Grootfontein
Schriftliche	Scherz, Ernst	Fleck, Otto	Loening, Ann	Loening, Eva	Loening, Herr	Loening, Luis	Loening, Mar	Loening, Wal	Loening (Fam)	Metzler	Meyer, Hans	Nietzsche-Re	Scherz, Ernst	Gobabis	Okahandja	Olifantskloof	Ojiktoko See
Schriftliche	Scherz, Ernst	Esterhuizen	Janson, Hube	Johannes	Kadur	Kahle	Loening, Wal	Neumeister (P)	Peters-Holler	Rehder	Scherz, Ernst	Thobias	Wache, Fried	Zyl, van"	Br Fransfontein	Haribes (Farm	Khokwas
Schriftliche	Scherz, Ernst	Iffland, Heinz	Iffland, Heinz	Pückler-Musk	Scherz, Annel	Scherz, Ernst	Zander", "Berl	Florenz	Frankfurt an d	Hackhausen	Hamburg	Kleistow	Meran	Neuzelle	Rostock	Venedig	Zecherin", "E
Schriftliche	Scherz, Annel	Verzeichnisse	Maack, Reinl	Otto, Gottfr	Brandberg	Hasenwand (E)	Hungarob (Scl)	Lochmann W	Maack Grotte	Naib (Schluch	Numas (Schlu	Pyramide (Bra	Regenhöhle (E	Skelettwand	Straussenhöhl	Tissab (Brand	Namibia", "E
Schriftliche	Scherz, Ernst	Afrikaner, Jor	Bach, von (F)	Bachmann, Li	Bartsch	Boyle, Mary	Breuil, Henri	Hülsmann	Hugenhou (I)	Kurz, Otto	Otto, Dorothe	Philipp, Emil	Riehmer	Rüdiger	Rust, Godo	Rust, Ruth	Scherz, Ann
Schriftliche	Scherz, Annel	Okavango (V)	Bassermann, Fr	Blich (Plat	Guinde	Levinson, Olg	Maharero, Sa	Martin, Henn	Mayer	Möller	Rausch, Diete	Rausch, Irmg	Scherz, Ernst	Scherz, Marg	Seggens, Rosi	Van den Berg	Viereck, Al
Schriftliche	Scherz, Annel	Böttger, Piet	bothma, C.	Eriksson, Awe	Esterhuyse, J.	Fredericks, J.	Garredes, Fritz	Joubert, Piet	Kerby	Köhler, Oswir	Lenner, Cec	Lüderitz, Fran	Malan	Martin, Henn	Martin, Ise	Meyer, Erich	Potgieter, J.
Schriftliche	Iffland (Dr)	Koch, Charlie	Loeb, Edwin	Loeb, Ella-M	Martin, Henn	Scherz, Annel	Shoovaleka, I	Stetten, Jenn	Etoscha	Ondangwa	Ojiktoko (Val	Loeb Expedi	University of	Forschung	Gesundheitsw	Handel	Jugend
Schriftliche	Scherz, Ernst	keine inhals	Boyle, Mary	Breuil, Henri	Scherz, Ernst	Anneib (Farm)	Brandberg	Buschmanns	Gainatsob (Fa	Gaub	Giraffen Höhl	Kamanjab	Maack Grotte	Omandumba	Onguati (Farm	Ojtambi (Far	Outo
Schriftliche	Scherz, Ernst	Arnold, Willi	Bassermann, D	Becher, Adolf	Budack, Kuno	Finkeldey, He	Fisch, Maria	Fuchs, Paula	I Gies, Brigitte	Giess, Willy (I	Gündel, Ise	Hanno	Harnecker, G	Jordan	Jordan, Herth	Jordan, Her	
Schriftliche	Scherz, Ernst	mit Verzechr	Anibib	Daveb Ost (Fa	Gaistal	Huberstual (F	Omandumba	Phillips Höhl	Springbockfor	Tumb	Ukurenz", "F	"Felsbilder", "E	Erongo" "Alben	(Positive)", "Im	Album sind	Verzeichnisse	eingebunden f
Schriftliche	Scherz, Annel	mit Verzechr	Buschmanns	Ernestus	Etemba (Grot	Francis Festo	Giraffen Höhl	Hundab	Ghar	Karibib	Kaokavul	Khomas Hoch	Krumneck (Fa	Naab (Farm)	Naakluft	Nauzerus (Far	Onarus
Schriftliche	Scherz, Ernst	mit Verzechr	Gaub	Grauwater	Grootfontein	Ivanhoe	Konkip	Langeberg (Fa	Löwenquelle (M	Margaretenta	Neu Heus (F	Olive (Farm)	Ombu	Onguati (Farm	Ojiktoko See	Ojimbenge	Ojtsamba (F
Schriftliche	Scherz, Annel	Forschung", "K	Namibia", "Alben	(Positive)", "Im	Album wurden	Verzeichnisse	eingebunden mit	Angaben zu	Negativ Nr., "Aufnahme	technik und	Fundort der	Felsbilder (Namen	und	Numerierung)", "S29_0013 (E	S47_0029)	NZ-S29_0	
Schriftliche	Scherz, Ernst	Gaerdes, Johi	Giess, Willy (I)	Remken	Scherz, Annel	Scherz, Ernst	Wis, Hans-Jc	Zyl, van", "Kur	Marienusfluss	Popa Falls	Ruacana", "F	"Felsbilder	Reise", "Angol	Kaokoland (hi	Namibia", "Alben	(Positive)", "Im	Album w
Schriftliche	Scherz, Ernst	"Annelie	Kaukau-Feld", "Khoisan	Reise", "Busch	Omaheke	USA", "Alben (I	S25_0049 bis	0077, 0080 bis	0150, 0156 bis	0169.", "Objekt	20581 /	Bibliothekskatalog	"S39"				
Schriftliche	Scherz, Ernst	"Annelie	Marshall, Joh	Marshall (Far	Scherz, Annel	Kaukau-Feld	Ojjiwarongo"	Khoisan	Reise", "Busch	Omaheke	USA", "Alben (I	S25_0156 bis	0170", "Objekt	20581 /	Bibliothekskatalog	"S38"	
Schriftliche	Scherz, Annel	Barrack (Hau)	Bauer (Gefrei	Bauszus (Hau	Bayer (Gerge)	Bender (Hau)	Beuge (Oben)	Burgis	Cornelius	Czelschke (L)	Epstude (Reit	Flotzinger	Freitag (Leut	Göing, Karl	Goesgen (I		
Schriftliche	Baikry	Bamberger	Barnabas	Becker (Hau)	Bethe (Major	Boemken, vo	Borschke (Re	Buschmann (I	Erst	Esto	Estorff, von (F	Fritz	Fry (Oberve	Hantelmann	Hensel (Ober	Isaak, Sarah	Itza
Schriftliche	"Kurt_S	Walde	Askevold	Bader (Unten)	Baier (Sergea	Bal	Becker (Hau)	Boemken (Ha	Bültzingsdöw	Bullrich	Busse, Irmgar	Erdmann	Estorff, von	Freitag (Leut	Göing, Karl	Gosler	
Schriftliche	"Kurt_S	Kuhnert	Wiswamm"	"Kilindini	Kiuriru	Mombasa	Tanga", "Denkmal	Deutsche Kol	Militär	Reise	Stadtgesch	Sansibar	Tansania	Uganda", "Alben	(Positive)", "Einige	farbig gedruckte	Illus
Schriftliche	Bertram	Crofts, Betty	Dellus (Leutn	Denner	Eitel	Friedrich	Eise	Ermskeil (Ritt	Guteitz (Ober	Hermis	Hymock	Killsch-Korn	Lepper	Lindemann (C	Mecklenburg	Meyer, Georg	Moll
Schriftliche	Scherz, Ernst	Meyer, Hans	Scherz, Annel	Scherz, Ernst	Haribes (Farm	Mukuror	Swakopmund	Windhoek", "S	Euel	Hausarbeit	Hühner	Kakteen	Kamele	Katzen	Kochen	Lebensmittel	Rinder
Schriftliche	Scherz, Ernst	Flockemann, Fuss	Hippel, I	Scherz, Ernst	Lüderitzbucht	Swakopmund	Fischen	Reisehöfe	Gebäude	Hunde	Leuchttürme	Meere	Pferde	Rinder	Schepen	Far	
Schriftliche	Scherz, Ernst	24. Seite 7	Ni	Bötcher (Apo	Bauer, Uschi	Brunst, S.	Ebersbach, Il	Ebersbach, Il	Esterhuizen	Frahm, Herr	Fuss-Hippel, I	Hartlief, Inge	Kahle	Knirk	Hartlief	Lazarus, Gust	Loening, Eva
Schriftliche	Scherz, Ernst	siehe jedoch	Iffland (Dr)	Koch, Charlie	Loeb, Edwin	Loeb, Ella-M	Martin, Henn	Scherz, Annel	Shoovaleka, I	Stetten, Jenn	Etoscha	Küene (Flus)	Ondangwa	Digkango (Via	Loeb Expedi	University of	Forschung
Schriftliche	Scherz, Ernst	Breuil, Henri (I	Martin, Henn	Rust, Godo	Scherz, Annel	Scherz, Ernst	Schröder, Ott	Strew, R.	Taubner", "Br	Gross Spitzkop	Klein Ameib	Klein Spitzkop	Maack Grotte	Numas (Schlu	Omandumba	Ojimpaupe (F	Pontokberg

Figure 9: CSV-file (BAB archives)

Medien	Invetarnummer	Objekt (Kurzbezeichnung)	Titel	Material & Technik	Maße	Periode	Anfangsdatum	Enddatum	Datierung	Kultur	Herk.6: Land	Depart
1,III 1	"Köcher / Pfeil (17)"	"Köcher / Eisen / Holz"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1a	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1b	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1c	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1d	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1e	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1f	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1g	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1h	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1i	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1k	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1l	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1m	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1n	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1o	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1p	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1q	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1r	"Pfeil"	"Holz / Eisen"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 1s	"Köcher"	"Leder / Holz"	"0", "0", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 2	"Tasche"	"Leder"	"L 20 cm, B 18 cm, 1894", "1894", "vor 1894"	"Mandingo", "Senegal"	"Westafrika"	"Franziska Jenni"						
1,III 3	"Gewehr"	"Vorderlader"	"Holz / Messingnägeln / Knochenstückchen"	"L 85 cm, 1936", "1936", "1936"	"Marokko"	"Martin Jenny"						
1,III 4	"Harfenlaute"	"kora"	"Kalebasse / Bambus / Leder"	"L 79 cm, 0", "0", "Senegal"	"Westafrika"	"Martin Jenny"						
1,III 5	"Köcher / Pfeil (6)"	"Köcher / Holz / Eisen"	"L 71 cm - 73 cm, 0", "0", "Mandingo"	"Senegal"	"Westafrika"	"Martin Jenny"						
1,III 5a	"Pfeil"	"Holz / Eisen, geschmiedet"	"L 71 cm, 0", "0", "Mandingo"	"Senegal"	"Westafrika"	"Martin Jenny"						
1,III 5b	"Pfeil"	"Holz / Eisen, geschmiedet"	"L 71 cm, 0", "0", "Mandingo"	"Senegal"	"Westafrika"	"Martin Jenny"						
1,III 5c	"Pfeil"	"Holz / Eisen, geschmiedet"	"L 71 cm, 0", "0", "Mandingo"	"Senegal"	"Westafrika"	"Martin Jenny"						
1,III 5d	"Pfeil"	"Holz / Eisen, geschmiedet"	"L 71 cm, 0", "0", "Mandingo"	"Senegal"	"Westafrika"	"Martin Jenny"						
1,III 5e	"Pfeil"	"Holz / Eisen, geschmiedet"	"L 71 cm, 0", "0", "Mandingo"	"Senegal"	"Westafrika"	"Martin Jenny"						
1,III 5f	"Pfeil"	"Holz / Eisen, geschmiedet"	"L 71 cm, 0", "0", "Mandingo"	"Senegal"	"Westafrika"	"Martin Jenny"						
1,III 5g	"Köcher"	"Holz / Leder"	"L 73 cm, 0", "0", "Mandingo"	"Senegal"	"Westafrika"	"Martin Jenny"						
1,III 6	"Sack"	"Bast"	"L 80 cm, B 15.5 cm, 0", "0", "Mali"	"Senegal"	"Westafrika"	"Martin Jenny"						
1,III 7	"Matte"	"L 135 cm, B 76 cm, 0", "0", "Ghana"	"Senegal"	"Westafrika"	"Martin Jenny"							
1,III 8	"Matte"	"Palmrinde"	"L 141 cm, B 83 cm, 0", "0", "Ghana"	"Senegal"	"Westafrika"	"Martin Jenny"						
1,III 9	"Sanza"	"Lamellophon"	"Holz / Eisen"	"L 19 cm, B 16 cm, 0", "0", "Sambia"	"Zentralafrika"	"Martin Jenny"						

Figure 10: CSV-file ethnological collection (Museum der Kulturen)

The files will be processed as follows:

Step 1: Normalisation

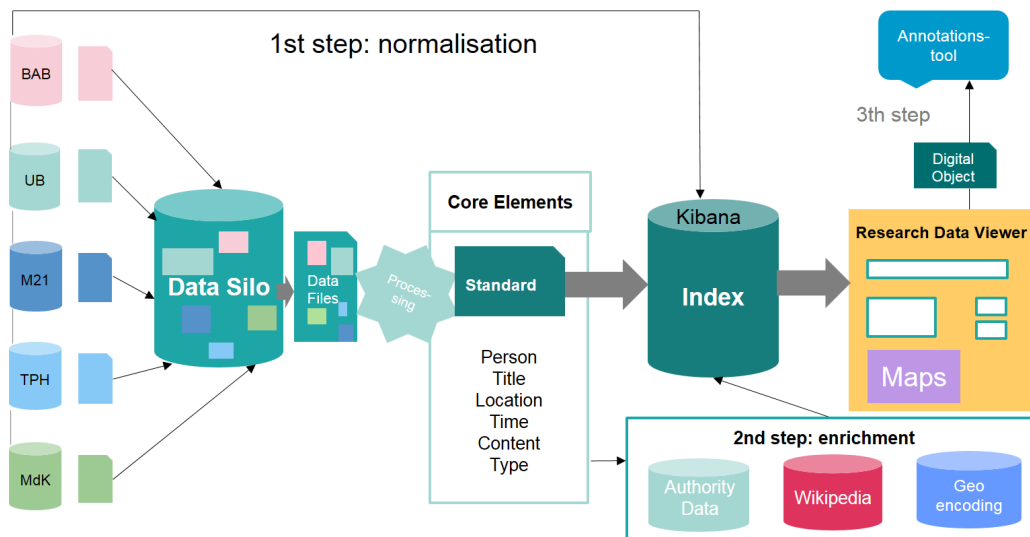


Figure 11: From raw data to the research data viewer: data processing

- Each file undergoes a mapping with the core elements via GoogleDocs Spreadsheet, which means that they are transformed into a defined standard format and ingested into an elasticsearch-index.

- Kibana visualises data. This is followed by an examination and – if necessary – adjustments to the original data or the Google Spreadsheets Mapping and is therefore a repeat of step 1.
- Developing of a prototype of the "Research Data Viewer" which hopefully can easily be adjusted to further technological advancements.

Step 2: Enrichment

- The core elements are normalised as far as possible in the standard format (e.g. time values, country names). The geographical terms are enriched with data from Geonames in order to match them with a geocode. However, because in most cases only the location names are available, automatic enrichment must be supervised in order that no wrong matchings are reported. A viable compromise must be found between recall and precision. How many location names can be enriched and how high the feasibility is for a correct enrichment remains to be seen. Location names can then be linked for instance to Wikipedia, as well as persons and subjects if they are unambiguously identified.

Step 3: Setting up an annotation tool

- A research platform must also enable the exchange among researchers as well as between data, pictures, objects and researchers. The annotation tool aims to encourage researchers, as well as all those who know Africa, to present their knowledge to the public. In many cases, only a few details are known e.g. to describe photos. Hints to persons, situations, and locations are most welcome.

8 Consolidation

There is a plan to install a beta-version of the "Data Research Viewer" in the first quarter of 2018, in order that data can be searched for and retrieved.

This would be the moment to bring the project into daily life. All participating institutes must have an agreement to keep the portal running.

At present, "Basler Africa Portal" is only a temporary working title. A more fitting name with a more appropriate acronym is yet to be found.

9 The vision for the future

As mentioned above, the project aims to incorporate research data about Africa in order to bring together knowledge about Africa which has been gathered by people in Switzerland, Europe, and all over the world and make it accessible through one integrated search.

We focus especially on the southern part of the continent as well as Tanzania, where the five founding institutes mentioned in this text have close partners with whom they collaborate and do research. It is an aim to include research carried out by our research colleagues in Africa in order that their scientific results become more visible and accessible in the Western world.

Viewpoints developed by African researchers can bring new and different input into Western research. At the same time, African researchers also receive knowledge and in many cases access to research about Africa which has been conducted in Basel and elsewhere.

Admittedly, the expansion is a very ambitious project. The realization isn't ensured yet and depends above all on the financial and personnel capacities of the Basel University Library. Nevertheless, there are already contacts to interested parties for future collaborations.