

**Microsoft Power BI Desktop:
A free and user-friendly software programme
for data visualisations in the Social Sciences**

*William Lyon**

Scholars who work in the humanities, especially those among us who do not do much quantitative research can often be daunted by data analysis and creating complex computer-generated visualisations. Digital humanities is growing, but it can seem that those involved in the field are cordoned off from researchers who do more classical analysis. What I would like to do in this short article is to focus on one tool in particular that I have used. It is simple, user friendly, free, powerful and perfect for those wishing to conduct analysis, GIS mapping and data visualisations without the daunting task of learning more advanced tools. The programme I shall focus on is Microsoft Power BI Desktop. To begin, I will first give an overview of the aspect of my research that resulted in finding and learning how to use this tool. I shall then review how I have used Microsoft BI and lastly, I shall review the tool's limitations.

I am a labour historian who currently focuses on Namibia for the period 189–1920 and was lucky enough to come across a large set of files, 11 000 in total, collectively known as the “Native Estate Files”. Hypothetically they include a file for every African labourer who died in colonial Namibia starting from 1917 up to the 1950s. I decided that I would use a portion of these files, those from 1917 to 1920 for my research and began the process of transcribing the data into Excel. My goal was to have enough information to extrapolate and attempt to answer questions such as: Where was the working population coming from? What were their average wages? What were the most prominent employers and industries? Where were most people working? Which family members were inheriting their estates? How were workers dying? And how many women were in the work force? Then, with this information, I could complement and even expand my qualitative sources, including written and photographic, government, missionary and private records.

The database eventually ballooned to over 1,000 workers with some very detailed information which I could not comprehend or analyse without some tools to help me. In conversations with colleagues who do data analytics, I learned about Strata.R (programming language) as well as a few other tools used by scholars in this

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field. Some are free and others can be rather expensive, but what concerned me was that learning many of them would take time and potentially a good amount of effort. While there is a decent chance I will learn and use such a tool in the future, for the short term I needed a tool which could help me visualise my data, but not require a large amount of exertion. At this point I was stumped and not sure exactly how to proceed.

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350	Peter	Kanga		NES [001]*		Yes	No				£ 7,00		B			
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352	Imbondi			Imbondi NES [002]	135/201	2239/101	Yes	No			£ 0,10		A	£ 0,10		
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355	Elinganja (Kapitan)			NES [002]	135/204	867/1461	Yes	No			£ 0,60		A	£ 0,60		
356	Nangoro			NES [002]	135/205	2009/2690	Yes	No			£ 0,20		A	£ 0,20		
357	Ipinge			NES [002]	135/206	1193/2780	Yes	Yes			£ 0,30		A	£ 0,30		
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360	Ifundaka			Ituro NES [002]	135/209	T2320		Yes	Yes		£ -		A			
361	Makisi			Idumiw NES [002]	135/210	2486/94, 81/94	Yes	Yes	Yes		£ 0,93		A	£ 0,93		
362	Nakakungo			Nakasiri NES [002]	135/211	757/666, 307	Yes	Yes	Yes		£ 0,78		A	£ 0,78		
363	Kamati			NES [002]	135/212	1183/1768/300	Yes	No			£ 2,68		B	£ 0,23	£ 2,45	
364	Imbondi			Atonio NES [002]	135/213	1798/2627/1912	Yes	No			£ 0,78		A		£ 0,78	
365	Schama			Shegam NES [002]	135/214	1868/2548/541	Yes	No			£ -		A			
366	Nambaku			Nambaku NES [002]	135/215	911/807/121	Yes	Yes			£ 0,63		A	£ 0,63		
367	Chimbanga			Auzura NES [002]	135/216	2733/3433/679	Yes	Yes			£ -		A			
368	Nepanda			NES [002]	135/217	1914/2594	Yes	No			£ 1,17		B	£ 0,38	£ 0,80	
369	Hauri			Hawi NES [002]	135/218	2543/3247/652	Yes	No			£ 0,08		A	£ 0,08		
370	Yatungwa			Yatingu NES [002]	135/219	2197/2897/548	Yes	No			£ 0,38		A	£ 0,38		
371	Kafuna			Kafina NES [002]	135/220	32/32/7	Yes	No			£ 0,83		A	£ 0,83		
372	Kolonial			NES [002]	135/221	1751/2504	Yes	No			£ 0,60				£ 0,60	
373	William	Ellis		NES [002]	135/222	5753/222/45/193	Yes	Yes			£ 4,13		B	£ 1,86	£ 2,85	£ 2,00
374	Petrus			Joseph NES [002]	135/223a		909	Yes	No		£ 1,70		B		£ 1,70	
375	Jakob	Phillip		NES [004]	135/507			Yes	Yes		£ 1,73		B	£ 1,73		
376	Tshitirifa/ Nanumyo			Thomas NES [002]	135/224a	2068/2869T	Yes	No			£ 1,60		B	£ 1,60		
377	Tshikongo			Thomas NES [002]	135/225		2869	Yes	No		£ 1,50		B	£ 1,50		
378	Johannes			NES [002]	135/226	1630/7539	Yes	No			£ 1,75		B	£ 1,75		
379	David			NES [002]	135/227		1630	Yes	No		£ 1,25		B	£ 1,25		
380	Sam Sekei	Rameloi		NES [004]	135/508			Yes	No		£ 2,17		B	£ 2,17		
381	Yambo			Markus NES [002]	135/229	T1119/ 1100	Yes	No			£ 1,50		B			
382	Chemetha			Eliphas NES [002]	135/230			Yes	Yes		£ 0,74		A	£ 0,74		
383	Tshikongo			NES [002]	135/231		6711	Yes	No		£ 0,58		A			
384	Wamangumba			NES [002]	135/232		5379	Yes	Yes		£ 0,73		A			
385	Kashupi			NES [002]	135/233		3208	Yes	No		£ 0,73		A			
386	Shulitu			NES [002]	135/234		2512	Yes	No		£ 0,73		A			

Figure 1: A screenshot of what my database in Excel looks like

A few weeks later, I had a conversation with a friend who works in business and he mentioned that he uses a tool called [Microsoft Power BI Desktop](#) to get quick overviews of large data sets so that he can use them to inform his decision making. This seemed like a potentially good solution. After researching the software, I realised that it is only available on PC and not Mac. For those of you who have a PC, downloading and starting to use the software will be no problem. For those who have a Mac, I recommend using [Bootcamp](#), which allows you to install Windows in addition to your Mac operating system. It will not have an impact on your current operating system and only requires that you have at least 30GB extra space on your hard drive.

Once you have a data set you would like to analyse, and you have installed Microsoft BI Desktop on your computer proceed to open the programme.

Upon opening the program, you will first need to select “Get data” on the left-hand side and pick a data set. I only have experience using Excel files, but it does have the ability to pull data from other sources. For more information on what types of data

are supported click [here](#). Once you have imported your data set you will come to a screen that will allow you to begin working as indicated in the image below.

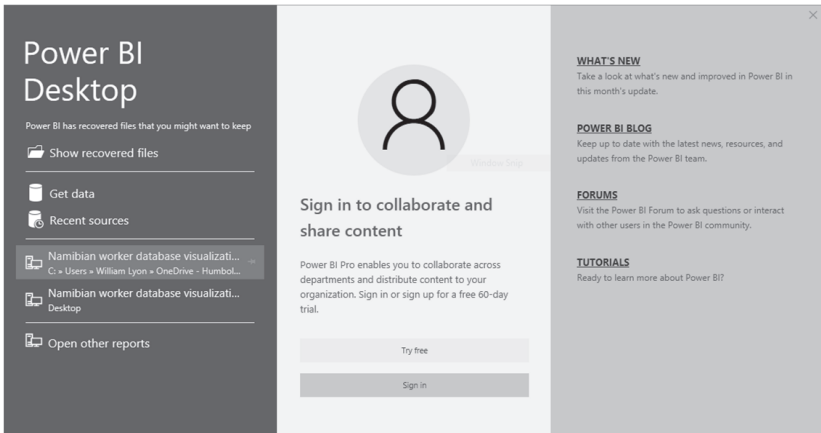


Figure 2 The Power BI Desktop Home Screen

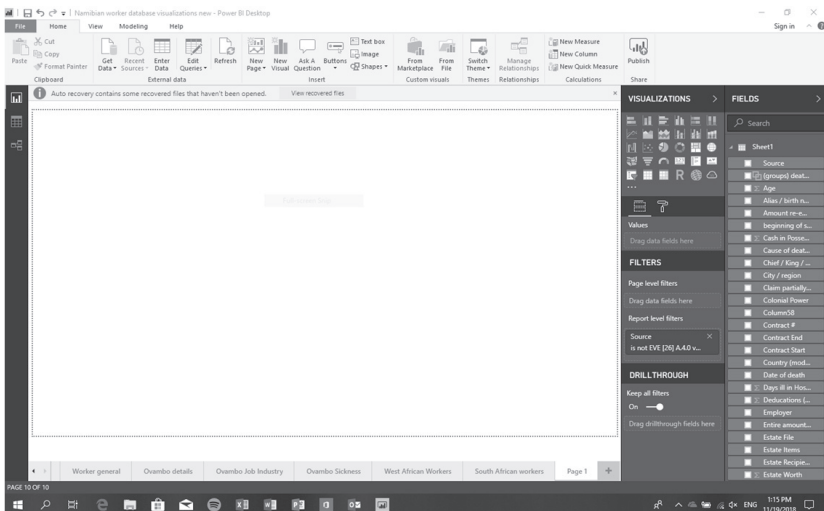


Figure 3: Blank screen before work has begun

Although the work screen may look daunting, because there is so much information displayed, in reality most tasks you would be interested in will be relatively simple to execute. On the right-hand side under Fields you will see the data set(s) you have selected and imported with every row representing a separate column in your excel spreadsheet. Then to the left of the “Fields” section there is the

“Visualisations” section with several icons visible, each representing a different visualisation option. To the left there is a large open space where your rendered visualisations will be displayed. Underneath this section you will see tabs where new pages can be created, and their names can be added and edited.

What I recommend you do first is simply begin experimenting. Select a visualisation and then test pulling different data points from the Fields section and placing them in the “drag data fields here” box. It is essentially plug and play. Some graphs can get relatively complicated, but others are very straightforward such as pie graphs. The GIS mapping is perhaps one of the most useful visualisations as it essentially does all the work for you as long as you can provide it with a city and country name in your data set. It also has the ability to use geographic co-ordinates, which is particularly helpful if you are doing detailed work in regions that may not have formal names you would find on maps. If you are working on data in the United States, it can also get very granular with state and county information.

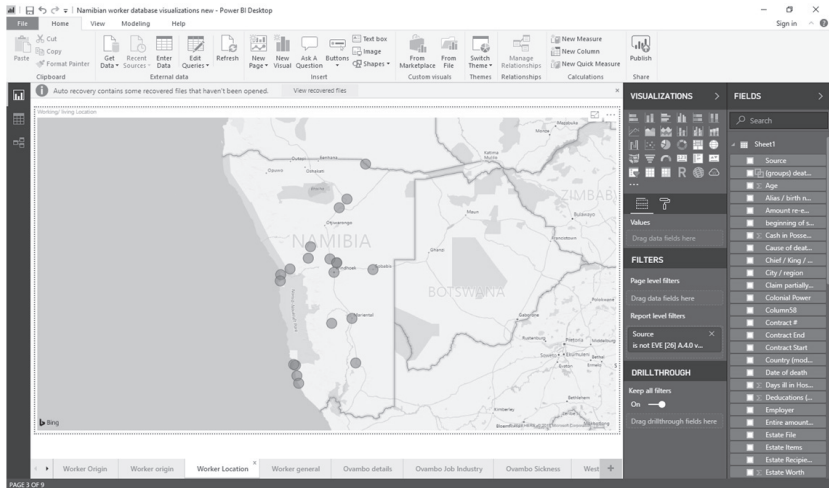


Figure 4” Using GIS to map out work sites in colonial Namibia

Each page can have as many visualisations as you would like and you have the ability to make graphs full screen as you can see above. What I have found to be useful if you are interested in exporting graphs and putting them for example in a presentation or in a paper, is that the images will often be too small unless you expand the visualisation to take up more space. So in practice this may mean having 3 to 4 visualisations on a page rather than more. For maps, it is best to have them take up the entire page as I did above or the details will be too small when you export the map.

What I have found to be most useful is simply experimenting with the great variety of options available in the programme. This will allow you not only to figure

out different capabilities, but also help you familiarise yourself better with your data. There is also very diverse and detailed [guides, information and videos available](#) from Microsoft which cover many themes that you may find challenging.

I have used the Microsoft Power BI Desktop to gain a better understanding of a very complex data set, but have yet to scratch the surface of what is actually possible. The capabilities are very robust and there are also more features available such as the ability to share and collaborate that I have yet to utilise. Whether you want to do some very quick but effective graphs or prefer to dig deeper into your data, the programme seems to be capable.

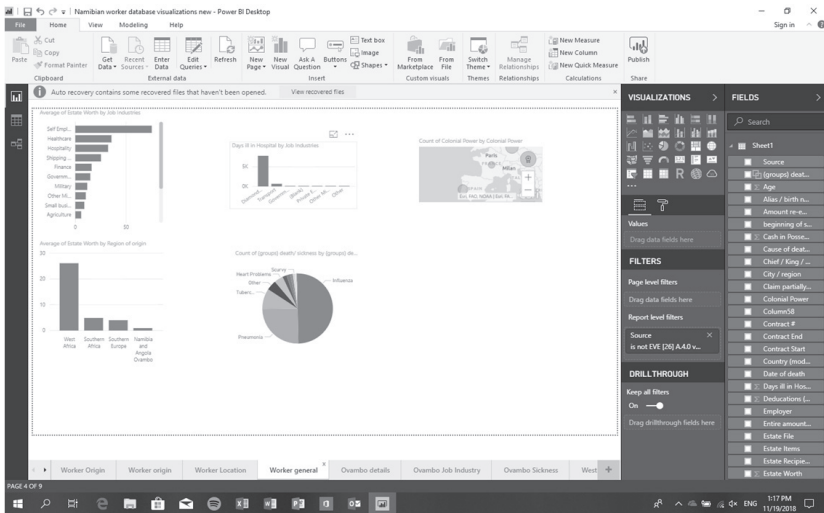


Figure 5: *This may be too many graphs if you want to export them*

I would caution that as a tool primarily for businesses, Microsoft BI is not customised for academics, but this does not adversely affect its usefulness for our field. Certain features such as the ability to export graphs directly into PowerPoint are not available for the desktop non-paying users, but in general, almost all other features are accessible in the free version. It is my opinion that tools such as this can help those of us, including myself, who are not inclined to use very complex data analysis programmes to take advantage of user-friendly options. This can help us to do better work and also allow academics to integrate and analyse data sets we may normally find too complex and large.

Hopefully you have found this useful and I hope that more of us can work together with other scholars to teach and learn new skills that can bring the humanities into the 21st century.

Please note that the 5 Figures reproduced here are too small and indistinct to give you more than a mere impression of what will appear on your screen. Please consult this short article which was published online on 11 December 2018, at <http://hgsa.co.za/microsoft-power-bi-desktop-a-free-and-user-friendly-software-programme-for-data-visualisations-in-the-social-sciences-will-lyon/>