**GUIDELINE**

**Checklist for the development of portals for international development**

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This guideline has been developed by the authors in a collaborative manner over the period May 2018-May 2019 in consultation with the Knowledge Management for Development (KM4Dev) community. It is designed to provide guidance for development organizations who are setting up portals – also known as knowledge portals, hubs and websites – as a way of counteracting what is known as portal proliferation syndrome. The guideline provides a checklist of issues which are important in the development of portals, covering what to take into account before starting, during the design phase and implementation, and technical standards and specifications. The checklist will be further developed to identify the most important issues.

**Introduction**

The symptoms are familiar.  You seem to hear about a new climate information portal or knowledge platform being launched every week.  You check it out and it seems impressive at first glance.  Nice graphics.  Promising headings. Ambitious objectives. Cool tools.

But as you click further you start to wonder.  How's this different from that portal you heard about last week?  Or that big World Bank one (or was it UN) that's been around for a few years?  Which one is more useful for me, and how are they different?  How can I make sure I'm getting the best information?  There's so many out there, how can I make sense of them?  And which one would I recommend to my developing country partner with a patchy internet connection and not a lot of time to play with? (Geoff Barnard, 2011: unpaginated).

The field of international development has seen the establishment of an enormous number of portals, also knowledge as knowledge portals, platforms, knowledge hubs and websites. For example, a Google search reveals more than 4 million hits on this subject (see Figure 1). Even within specific development sectors there is a huge amount of overlap. Many of these different portals are providing the same information, reinforcing information overload. This phenomenon has been identified as the portal proliferation syndrome by Geoff Barnard (2011). Others have also observed the need for cooperation across portals (Ballantyne and Addison, 2000).
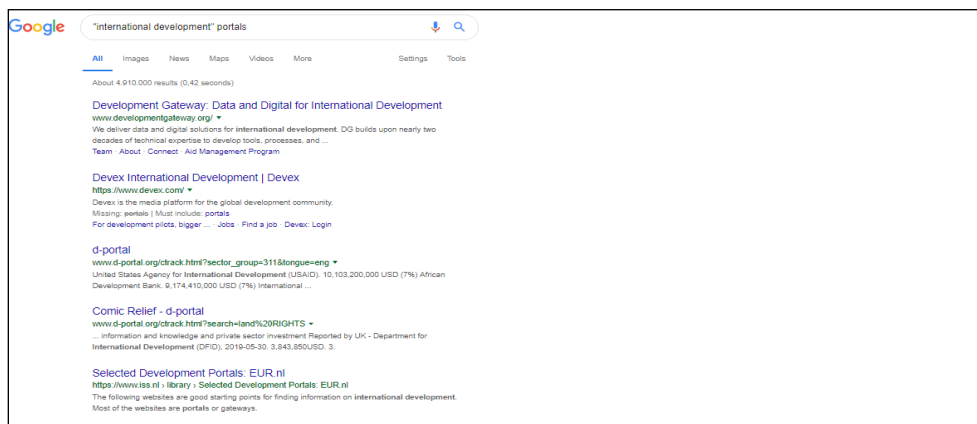


**Figure 1: Overview of google search of portals on 13 June 2019**

The field of international development has seen the establishment of an enormous number of portals, also knowledge as knowledge portals, knowledge hubs and websites, and even within specific development sectors there is a huge amount of overlap. Many of these different platforms are providing the same information, reinforcing the information overload. This phenomenon has been identified as the portal proliferation syndrome by Geoff Barnard (2011), although others have also observed the need for cooperation (Ballantyne and Addison, 2000).

The problem of portal proliferation has also been identified in the Agenda Knowledge for Development (Brander and Cummings, 2018), established to complement the Sustainable Development Goals and the Agenda 2020 (UN, 2015) from the perspective of knowledge. Knowledge Development Goal 6 'Knowledge strategies in development organizations' includes Target 6.4 which considers that:

> Development organizations should work with each other to find a complementary role in the knowledge ecosystem, rather than duplicating each other's efforts. For example, the many web platforms and portals for specific themes need to take an ecosystem approach and work with others. (Brander and Cummings 2018: 4)

To provide one example of the portal proliferation syndrome, the Food Security Information Network has identified some 51 'key actors' producing and sharing information on [food and nutrition security] on a variety of different platforms. Given this proliferation, when organizations plan to develop new knowledge portals, they need to be sure that they are needed and have their own specialized knowledge niche with unique online content or content combined in unique ways.

Within development organizations, staff members and their allied consultants in the field of Knowledge Management for Development (KM4D) have a wide amount of knowhow on how and why to establish portals but this often remains tacit knowledge – in the common sense that it is not codified and widely disseminated. For example, a critical portal design consideration is being in touch with the needs of constituents for portals and toolkits (Hansen undated). In this guideline, we have developed a checklist that brings together the experience of experts and others who developing and advising on portals as part of their daily work. A checklist format was developed because it is easy to use.

**Developing the checklist**

The first version of this checklist was originally developed in May 2018 by Sarah Cummings as part of her work as Knowledge Management consultant for the Pakistan Evidence and Learning Platform (PELP), implemented the United Nations Institute for Training and Research (UNITAR). The PELP was supported by UK Department for International Development (DFID) as part of the Multi-Year Humanitarian Programme (MYHP), originally launched in 2014. In order to improve the initial effort, Sarah posted the original checklist to Knowledge Management for Development (KM4Dev)[i], a global, interorganizational community of practice of practitioners, policymakers and researchers concerned with KM4D. Many of the members of KM4Dev are experts in the development and management of portals. The message seeking support and feedback was as follows:

> I am mailing to pick your brains a little and to dip into the collective wisdom that is KM4Dev.
>
> With colleagues, I have been trying to develop a simple checklist as background to establishing new portals/knowledge hubs - as opposed to organisational websites - which you will see below, taking some of the principles of the Agenda Knowledge for Development into account. I would really appreciate your feedback. Do you think this is valuable at all? What have I missed altogether and what needs to be changed? Do you know of anything similar and better? (Sarah Cummings, 29 May 2018)

Several colleagues made suggestions to further improve the checklist:

Comment 1
This is already a good checklist. I miss one important category although it could fit under locally embedded: design with the user. Maybe good also to have a look at Principles [for] Digital Development: https://digitalprinciples.org/ (Martine Koopman, 29 May 2018)

Comment 2
… a number of issues supplementary to your list that could be considered in relation to establishing new portals/knowledge hubs. Here is a suggest list of additions/deletions:

Current - it should be updated regularly. There's nothing older than out-of-date knowledge...

Owned - someone should own every page, in the sense that someone is continuously responsible for regular and knowledge-based updating and extension over time

Analysable - it should be equipped with knowledge-based analytics to measure traffic in an honest and explicit way (page views are not enough!)

Viewable in low-bandwidth - websites full of flash graphics and pdfs are all very well in high-bandwidth situations, but are problematic in the low-bandwidth situations typical of many developing countries. This is not just a technical issue, but an ethical one.

Taxonomy-based - this is in your list, but I am not sure that it is a good idea for a website to be taxonomy based. When we put the African Health Observatory together, we developed and adopted an extensive taxonomy, which proved to be a cage rather than a framework. Taxonomies are difficult to maintain, especially in a multilingual context.

Locally embedded - again this is in your list. No objections, but I would amplify this to declare that it must be locally desired. There are too many cases of bright-eyed and bushy-tailed outsiders foisting unwanted websites on locals, who are then unjustly blamed for resulting failures. (Chis Zielinski, 30 May 2018)

**Discussion around the first revision**
Based on these comments a new version was posted to KM4Dev on 6 June 2018, also drawing on the Principles for Digital Development. Additional colleagues replied:

Comment 1
Very nice - and looks like it might be very handy for a project we are considering. (Ian Thorpe, United nations Children's Fund (UNICEF), USA, 6 June 2018)

Comment 2
Thank you very much for this checklist. It will be very useful for our upcoming project. Glad to know we are on the right track. (Candace Hosang Charbonné, United Nations, USA, 6 June 2018)

Comment 3
These are some of the things I consider, however they vary based on the scope of the project.

1) Open Source Framework (Drupal / WordPress)
2) Ubiquitous Web Applications (Accessible on all devices Phone, Tablet, Desktop) sometimes referred to as responsiveness
3) Usability (how easy is it for the users)
4) Accessible (Section 508 compliance - a Federal law that enforces a set of standards to ensure people with visual and hearing disabilities can access the web portal)
5) Multilingual (Drupal is very powerful in this area), Google translate is not the same thing as multi lingual
6) The search experience (Employing faceted search and taxonomy helps users to find information). Faceted search is a technique for accessing information organized according to a faceted classification system, allowing users to explore a collection of information by applying multiple filters
7) Geo Location - Depending on the nature of the project, at times it's good to factor in geo codes
8) Security. Unfortunately, the web is full of threats that emerge every single day. Is the platform prone to hacking, have the loopholes been closed?
9) AI Chat Bots. Artificial Intelligence is growing in heaps and bounds. The ability to integrate
10) Open ID / Single sign on. No one wants to remember a new password to access your platform. Giving users an option to sign in with google, Facebook helps.
11) Deployment Environment /Version control. The modern practice for developing web portals involves instituting a version control system that involves, a staging, development and production environment is critical in release management.
12) Backups. Scheduled and Automatic backups are best practices for preparing for a rainy day.
13) Analytics. You want to track usage metrics, and other data that

14) Error reporting. A robust error reporting schema helps you identify errors in real time. You don't want a situation where users are reporting dead links or any other errors, this can be quite an embarrassment.

15) Speed and Performance. Part of ensuring a rich user experience, is to make sure the web portal is fast, even for users with low bandwidth. Clever methods such as using a cache come in handy. (A cache is an interesting way of providing users with old content (not necessarily true). If you content does not change every single hour or day, assume you have 2 users on your website, if the first user accesses content, you can give the second user access to the same content since the cache has stored it, versus the old method of requesting the database for new content which is the same anyway. (Cavin Mugarura, Blue Node Media, Ghana,18 June 2018)

Comment 4
This is a very good list. I would consider adding who is the audience, the coordinator (manager) and some governance rules. (Ramin Assa, 9 July 2018)

Comment 5
This is a wonderful initiative and highly needed. We in ActionAid are developing a knowledge portal (for ActionAid and its partners use only for now) practically named "Learning and Knowledge portal". This will be to mainly support our programmes and help in the delivery of our mission. We have considered every single point that you have listed. It is good to know that we are not too off the mark in conceptualizing our portal.

A couple of items I would add, although not very different is

- Connected to organisation's mission – The theory of change of the portal should clearly state how it helps the realization of the organisation's goal. In certain cases, it may be how the portal supports project goals.
- Integrated – In relation to other portals, more than avoiding duplication, the portal should integrate and connect to the other systems that the organization (in our case) or the audience uses. This should serve as a one stop window for that particular knowledge need.
- Governance that derives from knowledge management principles – There should be a clearly stated governance policy. Here we are talking about both business governance that states who can use it, how and what but also IM rules that determine retention, archiving, workflows and search parameters…

I have an article on LinkedIn with our story on systems, please check it out https://www.linkedin.com/pulse/system-fairytale-actionaid-story-srividya-harish/?published=t

We are willing to be challenged on our assumptions. (Srividya Harish, Action Aid, 10 July 2018)

Comment 6
I like your list, and think this is definitely a worthwhile endeavour.   Portal proliferation syndrome is alive and well - so I think one can't bang on enough about how to avoid the most obvious pitfalls. Although I've divided up the topic differently, there's plenty of overlaps with issues I raised in the video I did for the Climate Knowledge Brokers group on 'Planning a Successful Knowledge Platform'.   It's aimed at climate information people, but the lessons and pitfalls are pretty universal.  I can't remember if I shared it on the list when it came out last year. (Geoff Barnard, 11 July 2018)

**The second revision**
Following these comments, a further revised version of the checklist was posted as a Google document which could be edited by anyone with the link. This resulted by further revisions by Michael Schoenmakers, Nancy White and Victor van Reijswoud. Their comments were resolved and a new version was developed on 7 May 2019. This version was further edited on 21 May by Nancy White This version will remain on a Google document and can be further amended[ii]. It is published under the Community Commons Attribution-NonCommercial-ShareAlike license CC BY-NC-SA.

**Next steps**
This is not yet the final version of the guideline. In the future, it will be tested for consistency and completeness, although we will need to investigate how this could be done. We will also consider whether this can be used for the evaluation of portals. In a future version, we will also aim to differentiate between more and less important items, identifying the 10 most important. For these next steps, we will also go back to KM4Dev and ask for their opinions on these issues.

**The checklist**

| | **Category** | **Explanation** |
|---|---|---|
| | **Before starting** | |
| ☑ | Purpose | Have a clear purpose. What is the portal trying to achieve? What is the Theory of change? (Why do you think this portal will fulfil the purpose?) This can be very simple. |
| ☑ | No replication | Be unique: Don't duplicate what is already available from other knowledge portals. Be clear what niche it is filling and how it is different from other offerings. |
| ☑ | Value-added | Add value to already existing digital content by adding new resources, by making resources more accessible, combining content with other sources to make new content, or by explaining it in a way |

| | | that its value is clearer. New content and greater accessibility add value. |
|---|---|---|
| ☑ | Locally desired | Make sure the end users want this resource. There are too many cases of outsiders starting unwanted websites. |
| ☑ | Governance | Develop governance based on knowledge management principles. This should include business governance that states who can use it, how and what but also information management rules that determine retention, archiving, workflows and search parameters. |
| ☑ | Locally embedded | Embed the sources appropriately in the local context both in terms of value proposition and creation, software and hardware choices. |
| ☑ | Sustainable | Plan for ongoing funding from donor commitment and a sustainable business model. Self-maintained hubs, such as KM4Dev, are extremely unusual and cannot be assumed. |

**Design phase**

| | | |
|---|---|---|
| ☑ | Design with the user | Know your users: Get to know the people you are designing for through conversation, observation and co-creation. |
| ☑ | Design for scale | Think beyond the pilot and make choices that will enable widespread adoption later, be affordable and usable by a whole country or region, rather than by a few pilot communities. It should be possible to take platforms beyond the core capability through the addition of additional functionalities. |
| ☑ | Open standards | Consider using Open Standards: An open approach to digital development can increase collaboration and avoid duplicating work that has already been done. Programs can maximise their resources — and ultimately their impact — through open standard, open data (following FAIR data principles), open source software and open innovation. http://www.ipm-coalition.org/lexicon/7#letter_o |
| ☑ | Privacy and security | Take measures to minimise collection of and protect confidential information and identities of individuals represented in datasets from unauthorised access and manipulation by third parties. Be aware of and follow any applicable laws and policies. |
| ☑ | Language | Consider Translation: Most knowledge hubs are in English in international development, but other languages may be more accessible to the proposed target groups. Although Google translate can support this process, proper translation is desirable, although it does have cost and time-lag implications which might not be feasible. |
| ☑ | Low-bandwidth | Design for Low bandwidth: Portal should be viewable in low-bandwidth settings. Consider that flash graphics and pdf are problematic in the low-bandwidth situations of your users. This is not just a technical issue, but an ethical one. |
| ☑ | Ease of use | Make it simple to use for the different user groups – administrators and members – and it should be simple to add content, preferably in a decentralised manner. |

**Implementation**

| ☑ | Current | Update content regularly. Out-of-date knowledge is at best useless and could be incorrect or wrong. |
|---|---------|-----|
| ☑ | Owned | Someone should own every page in the sense that someone is responsible for ongoing knowledge-based updating and extension over time |
| ☑ | Collaborative | Share information, insights, strategies and resources across projects, organisations and sectors, leading to increased efficiency and impact. |
| ☑ | Realistic | Keep realistic expectations of the amount digital interaction that can be built because the behaviour of digital interaction takes time to build |
| ☑ | 'Analysable' | Include knowledge-based analytics to measure traffic honestly and explicitly. Metrics available through most software will include unique and repeat visits; traffic sources which can be organic, referral direct or from social media); bounce rate; top pages; and conversion rate. Page views are not enough!) |
| ☑ | Face-to-face | Online interaction on a hub/portal is easiest to start when it has roots in face-to-face interaction and the building of trust, although ability to meet F2F is a privilege which might not be feasible. |

**Technical standards and specifications**

| ☑ | Open Source | Use an open source software, such as WordPress and Drupal. |
|---|-------------|-----|
| ☑ | Platform Responsiveness | Design for accessibility on all devices Phone, Tablet, Desktop The most important is that they are cross-platform (MS, OSX, Linux, Android and iOS) and that it works well on the mobile platform. |
| ☑ | Accessible | Section 508 compliance - a US Federal law that enforces a set of standards to ensure people with visual and hearing disabilities can access the web portal |
| ☑ | Search experience | Employ faceted search supported by controlled vocabularies to help users find information. Faceted search is a technique for accessing information organised according to a faceted classification system, allowing users to explore a collection of information by applying multiple filters. The facets filters show result numbers avoiding the frustrating feeling of ending up on a page saying "no content found'. |
| ☑ | Geo-location | Factor in geo-location as a potential visualisation tool when appropriate. This should be option as some users prefer to be anonymous for security reasons. |
| ☑ | Security | Refers to access control, secure access, database encryption, malware data prevention, mitigating DOS attacks, addressing OWASP top 10 risks. |

| ☑ | Single sign-on | No one wants to remember a new password to access the platform. Giving users an option to sign in with Google, Facebook, etc. helps (OAuth login). |
|---|---|---|
| ☑ | Deployment management | The modern practice for developing web portals involves instituting a version control system that involves, a staging, development and production environment is critical in release management |
| ☑ | Backups | Scheduled and automatic backups taking place outside the USA in areas, such as Europe, with privacy protection laws. |
| ☑ | Error reporting | A robust error reporting schema helps to identify errors in real time. |
| ☑ | Speed and performance | Part of ensuring a rich user experience is to make sure the web portal is fast, even for users with low bandwidth. |

**Platform for online communities/networks**

| ☑ | Development appropriate and low bandwidth ar Email based | Dgroups www.dgroups.info |
|---|---|---|

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i https://dgroups.org/groups/KM4Dev-l
ii https://docs.google.com/document/d/1SkE1LL37glfYv348a2OtJ--3h0IL881rUJx2XxxIrPc/edit?usp=sharing