Experience 01

form factor

A significant challenge in making all the world's knowledge accessible to all the world's people will be to ensure that it is optimized and future-proofed for a rapidly-evolving digital consumption environment. The term Form Factor generally refers to the various entry points, devices, channels and formats that define a digital product offering. In the context of Wikimedia, form factor will include (a) the variety of devices that Wikimedia content can show up on now and in the future; (b) the size, and flexibility of the content itself. Such explicit form factor considerations are the main focus of this paper, however, other implicit aspects of form factor must be considered as well. Partnerships, for example, may require Wikimedia content to be adapted to, or deeply integrated into, third party products with assistance and guidance from the makers of those products - and several of the explicit considerations suggest this type of partnership. Likewise, ideas such as making Wikimedia content available as a utility, or layer on top of the Internet, is another implicit example of form factor, and explored in many of the concepts described in the paper.

When we talk about Form Factor we're talking about how to ensure that Wikipedia content is useful, optimized, and future-proofed for a rapidly-evolving digital consumption environment. For the purposes of this discussion, the term refers to (a) the variety of devices that Wikimedia content can live on now and in the future; (b) the size and flexibility of the content itself - we'll refer to these as *explicit* form factor considerations.

But there are some additional *implicit* form factor considerations as well:

- Partnerships: where Wikimedia content is adapted to, or deeply integrated with, third party products with assistance and guidance from the makers of those products

- Many of the topics in this document imply (but don't necessarily require) the existence of this type of partnership.
- Utility: a layer on top of the Internet. This would be enabled by Item 2, and is implied in many of the concepts listed later in this document.

This paper will focus mainly on the *explicit* aspects of form factor.

Sections

Sections
Devices
Takeaways and things to do:
Content
The Article vs. The Fact
Notes
Sources

Experience 02

Devices

The future will bring new devices and screen sizes. Wikimedia content should be easy to access and easy to use on every device

In the last five years alone we've seen a remarkable rise in the number of devices people use to consume internet content. In just three years, the Apple Watch has become the best-selling wearable device in the world and a common sight. In ten years, smart appliances have become a fixture in millions of homes. Just recently, Amazon announced a new line of Echo devices boasting its Alexa technology. Most of these devices only have audio capabilities, but some include small screens as well.

Amazon's Echo is the most popular smart speaker system and has already reached 10% of US respondents in the Digital News Report. Amazon's Alexa (which powers Echo) can already read Wikipedia articles by using text-to-speech technology, but its ability to hone in on specific facts within that article is limited.

In the near future, we'll see other competing devices come onto the market. In addition to text content, these devices will need audio content to play. If I ask Alexa to play Franklin D. Roosevelt's famous "Day of Infamy" speech, I'm prompted to buy it from Amazon Music (even though it's in the public domain). Other devices, without their own massive digital storefronts, will want to be able to use that kind of content from an openly licensed source. We should ensure that we are that source.

We should also put focus on optimizing all Wikimedia content for a range of devices with screens. Home entertainment devices are a major new platform for consumption of media. 82% of consumers expect such devices to be their most used devices in the next 5 years.

Desktop experiences (and even mobile experiences) are becoming less relevant. Even though mobile usage is still high, 2018 saw the first global decline in mobile sales and app installs and opens are in a downward trend too. Wikimedia properties will be left behind without a viable platform for atomic content that can adapt to these devices..

One exception, however, may be wearable devices. The current top wearable is the Apple Watch, but with its limited capabilities and tiny screen size there may not be much we can do there.

Takeaways and things to do:

Tactical To Do's

- Decide that it is in our best interest to influence, perhaps even control, the user experience that Echo and other device users have with Wikimedia content. It's not "our" content, but we are the stewards of the systems used to create and disseminate that content, and therefore it's our responsibility to

Experience 03

ensure those systems are used optimally and appropriately
- Encyclopedic content by itself, while useful and what we're best known for, isn't all we have to offer. We have a wealth of imagery, video, audio, and instructional content that better fits the audio and visual strengths of new devices.

Technical To Do's

- Create tools and APIs that are purpose-built for the audio-based smart speaker/home assistant experience
- Improve our backend tech and documentation for thumbnailing uploaded images. We recently had an issue with the Amazon team regarding this (they were trying to download size-appropriate images linked to Wikipedia articles for the Echo Show, but were requesting files that were too big, too often)
- Improve our support for common multimedia formats, especially audio. We now have MP3 on Commons, but we should take initiative in making sure existing files are available in that format.
- Utilize Structured Data to make multimedia easier to find and easier to associate with content from a number of sources

Content

Wikimedia Content will have to adapt to accommodate different user needs

Currently, our flagship project, Wikipedia, specializes in long-form in-depth content. This should definitely be considered a strength, and one that serves most of our current user base well. Wikipedia's brand is currently (and probably solely) centered around accurate, informative, long form information.

But having only long-form information can be a problem..

Moving forward, it'll be critical for our content to adapt to shifting habits and the expectations of new audiences we begin to reach. As form factors change, the long form and complex nature of Wikimedia content may start to undermine the value of its accuracy and extensive coverage.

According to the 2018 Adobe Content Consumer Survey (US only), when content is too long, 47% of consumers stop reading, and 23% switch devices.

Our content needs to adapt to different contexts that reflect how people actually use social media and messaging

PROPORTION THAT USE FACEBOOK MESSENGER AND WHATSAPP FOR NEWS

Selected markets

Messaging Apps	Greece	Norway	United States	Australia	Finland	Argentina	Hong Kong	Malaysia
FB Messenger for news	22%	11%	7%	11%	5%	9%	8%	12%
WhatsApp use for news	4%	2%	4%	10%	10%	37%	38%	54%

Experience 04

The social messaging use case is a very important one to focus on because direct communication tools like Whatsapp and Messenger are on the rise for news, [2] particularly in emerging markets, Asia, and South America. This phenomenon barely exists in the US, but it is a huge content consumption driver in other countries.

Wikimedia projects need to become stronger here, and that means having content and systems that naturally fit with messaging usage patterns. This could include possible future features like:

- Chatbots - Imagine a Wikipedia bot on WhatsApp, Facebook Messenger, or Telegram that actually answers questions and links to citations when you talk to it. It could even be a form of interactive instruction that guides you through a topic based on your prior knowledge, available time, etc.
- Media bots - "Hey Wikipedia, show me video of World War II". Instead of taking you to a link, the bot can put customized/curated video clips right into the chat
- Have link previews that show the fact you're interested in - automated page links with <title> tags that have the text of the specific fact you want to share (so instead of seeing "Patrick Stewart - Wikipedia" as the link preview, users can see "Patrick Stewart was knighted on June 2, 2010"

Adaptive Learning [3] can help readers customize their path through content. Imagine a world where we could ask a reader what level of knowledge they have for a Wikipedia page topic, and then automatically reconfigure the facts and citations to fit the reader. For Readers with advanced knowledge, the page can automatically can skip the basics, while readers with basic knowledge can be presented with an "explain like I'm five" version. This approach also provides an on-demand customization experience which helps us avoid privacy concerns.

The Article vs. The Fact

All of the scenarios above are problematic for us right now, mostly because of one thing - our core, fundamental element is the article, not the fact.

As mentioned in the Discovery document, major Internet players like Google and Facebook are already grabbing our text content, chopping it up, and presenting it in factoid-sized chunks. We currently don't have influence over this process and the resulting user experiences, largely because we don't have any facility that we can point to and say, "do it this way, it's better and we've already done the work for you."

There are several ways we might achieve this "atomizing" of articles:

A. Automatically break up the entire article into elemental parts (sentences/passages perhaps)
B. Take the top *5* most important elements/sections from each article and atomize that (although it's unclear at the

Experience 05

moment how we would identify those top 5 elements).

C. Have the community decide which elements should be atomized for each article (essentially a new editor function/workflow)

Of these three options, option (A) is probably the most flexible, most likely to scale, and the most likely to fit every possible need we may have in the future.

The Reasonator project has made an attempt at "prettifying" Wikidata facts into human-readable form with mixed results. With better technology and techniques, we may find a better automated fact-generated system in the near future.

Takeaways and things to do:

Tactical To Do's

- Embrace a "factoid" paradigm; a lot of people still want to read long-form content, but a lot of people don't.
- Encourage and enable quick answers to discrete questions. ensure those systems are used optimally and appropriately
- Explore how we can optimally serve content in short-form environments like social messaging

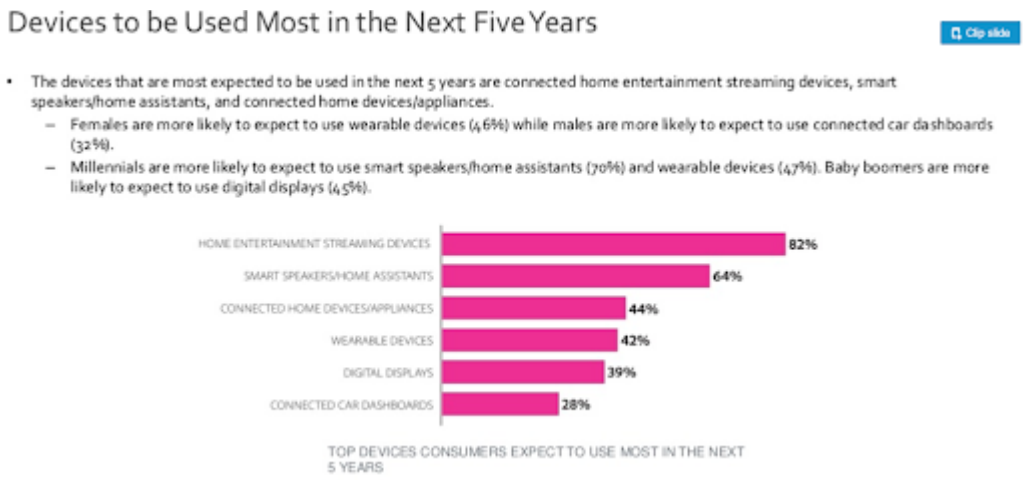
Technical To Do's

- Architect a methodology for breaking up, storing, and serving our text content into individual, atomic elements that can be paired with citations
- Explore content adaptation architecture so that pages can change their form based on context and/or reader needs
- Build our own social media/messaging APIs and improve our integration with others
- Explore automated video/audio file creation (combining multiple clips or images into one and sending it off to the user's touchpoint)
- Utilize Structured Data to help put it all together. This could potentially be Wikidata (or a new feature on Wikidata), or an entirely new tool altogether since some fact formats just don't easily fit into Wikidata right now.
- Improve our on-wiki search capabilities to enable "factoid" searches on our sites just as we would on other platforms. This could include integrating structured data into search to ensure semantic matches, improve accuracy, and enable highly focused searches (see structured data search on Commons as an early example).

Experience 06

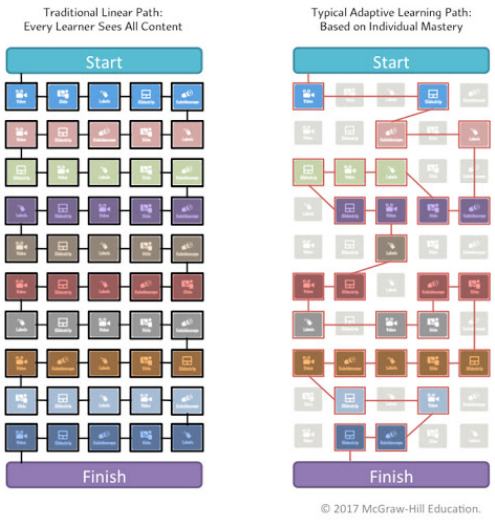
Notes

[1] 64% of respondents in Adobe's Content Consumer survey said that smart speakers/home assistants are devices they expect to use most in the next 5 years.



[2] http://www.digitalnewsreport.org/survey/2018/the-rise-of-messaging-apps-for-news/

[3] Adaptive Content Learning provides a possible framework for the future



Experience 07

Sources

R. Isler Research and Insights, Other contributors[1]: A. Baso, C. Gauthier, A. Hollender, D. Horn, J. Katz, J. Minor, T. Negrin, M. Novotny, N. Pangarkar, O. Vasileva

1. https://www.slideshare.net/adobe/2018-adobe-consumer-content-survey
2. http://www.digitalnewsreport.org/survey/2018/the-rise-of-messaging-apps-for-news/
3. https://meta.wikimedia.org/wiki/Reasonator

Version History

VERSION	DATE	NOTES
DRAFT	12.3.2018	

[1] If your name was left off the list by mistake please contact JMinor or MNovotny