

@CHRISBASHTON

PUBLISHING CONTENT TO MULTIPLE PLATFORMS

Quite hard to come up with a single definition, because for me, Visual Journalism encompasses two things.

WHAT IS VISUAL JOURNALISM?

1) DATA PROJECTS

“Data journalism is about both finding the story in the data, and finding yourself in the story.

The first is Data Journalism.

Read quote.

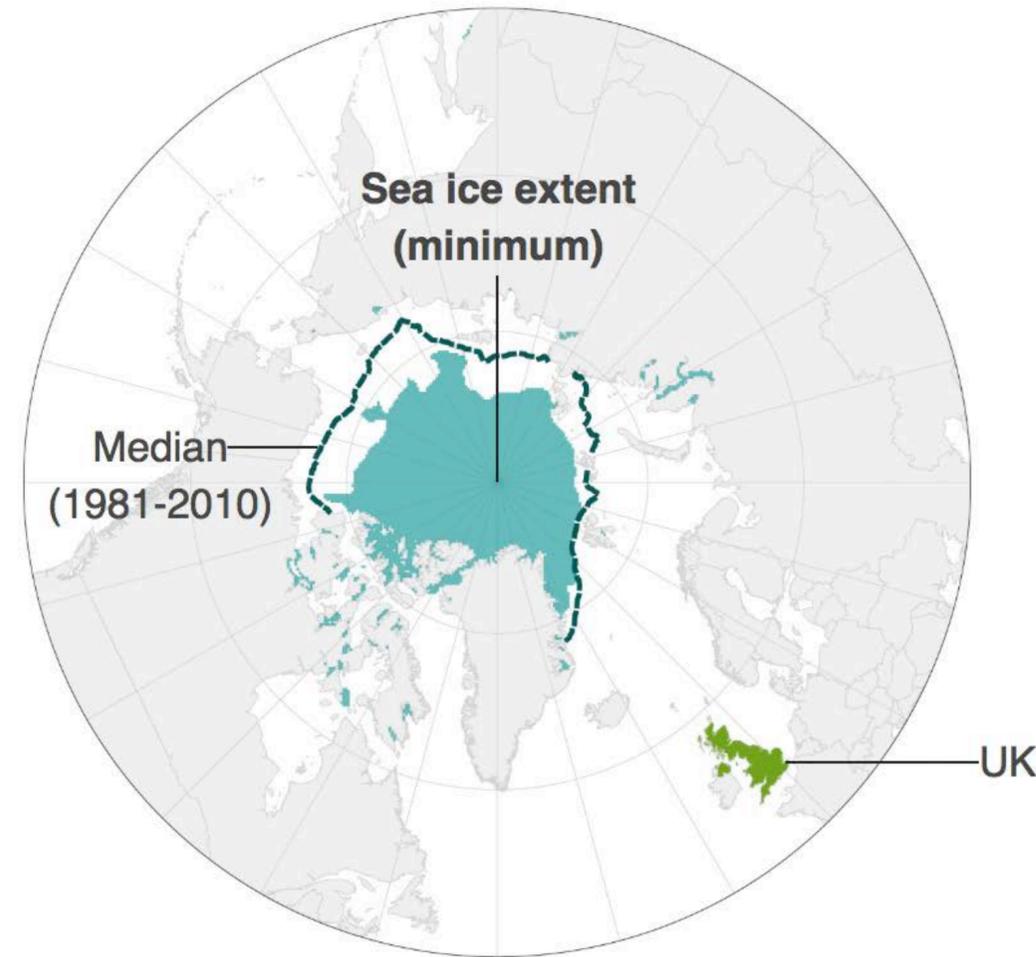
For example, finding yourself in a dataset of health ratings for restaurants might be “what’s the average rating in my area?”

The overarching narrative might be that there are 50% lower average ratings in the South than the North - what’s the

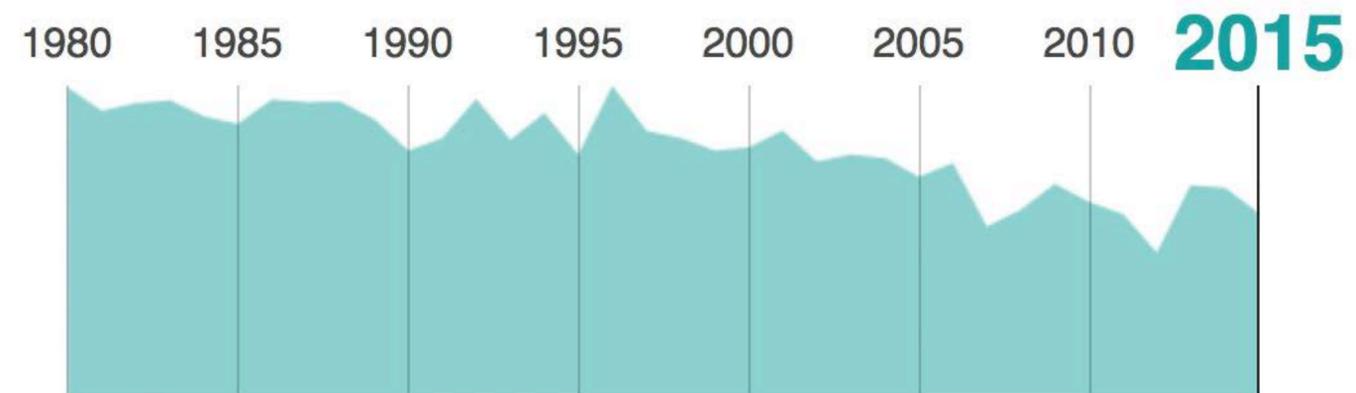
1) DATA PROJECTS

Six graphics that explain climate change

<https://bbc.in/2uh7c02>



Arctic sea ice min. extent: 1980, 7.8 million sq km. 2015, 4.6 million sq km



Source: National Snow and Ice Data Center

Here's a data journalism project that's all about the overarching narrative. "What's the story in the data?"

Here's one animation from the project which shows how the arctic sea ice levels have shrunk since 1980.

WHAT IS VISUAL JOURNALISM?

1) DATA PROJECTS

The screenshot shows the BBC Sport website interface. At the top, there is a navigation bar with the BBC logo, the user name 'ChrisBAShton', and a bell icon. Below this is a main navigation bar with links for Home, News, Sport, Weather, iPlayer, TV, Radio, CBBC, and More. A secondary navigation bar lists various sports: Home, Football, Formula 1, Cricket, Rugby U, Rugby L, Tennis, Golf, Athletics, and FIFA World Cup. A green breadcrumb trail indicates the current location: Olympics > Rio 2016 > Results | Schedule | Medals | Video | Sport by Sport.

Who is your Olympic body match?

Enter your details below to find your Rio 2016 body match from our database of more than 10,000 athletes taking part in the Games

Height
 cm ft/ in

Weight
 kg st/ lb lb

Date of birth

Match with athletes who are
 Female Male

The interface is decorated with illustrations of athletes in various body types and colors (blue, orange, green, blue) on a light green background with a white grid pattern.

Here is the Olympic Body match project we completed in collaboration with Sport.

The calculator takes your physical attributes and algorithmically matches you to your closest Olympian.

10,000 Olympians - and finding yourself in the data.

This data project is all about YOU. Personalisation. "Where do I sit in the data?"

1) DATA PROJECTS

لاعبي أولمبياد ريو 2016؟



9 أغسطس / آب 2016

من هو مثيلك الأولمبي في الجسم؟

أدخل بياناتك أسفل لمعرفة مثيلك الأولمبي في ريو 2016 من خلال سجلاتنا التي تضم أكثر من 10,000 لاعب يشاركون في الألعاب

تاريخ الميلاد

سنة شهر يوم

وزن

كغ

طول

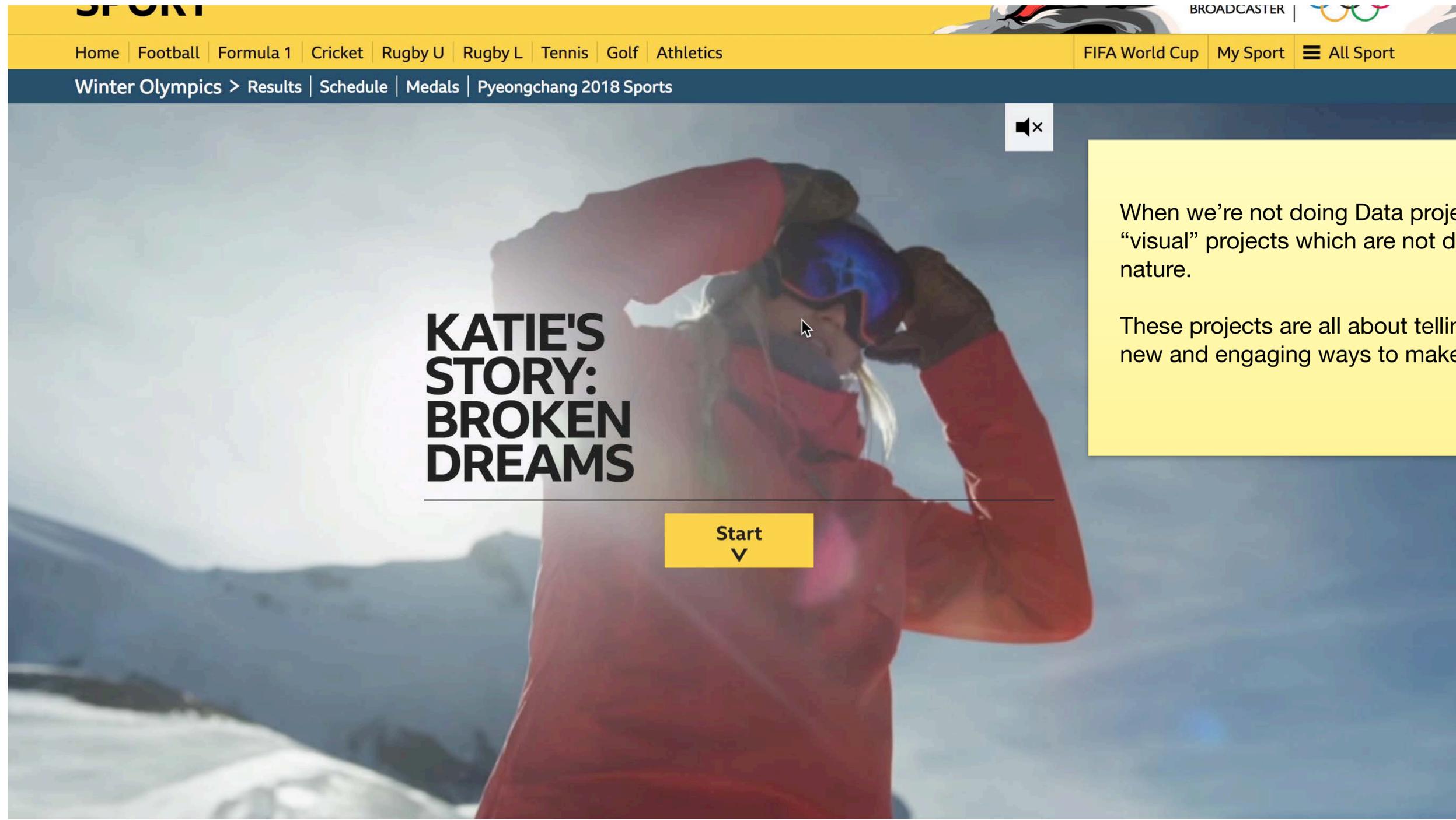
سم

تمائل مع لاعبين هم

ذكر أنثى

تعرف على مثيلك

2) VISUAL PROJECTS



When we're not doing Data projects, we have "visual" projects which are not data driven in nature.

These projects are all about telling the story in new and engaging ways to make a memorable

**EVERY PROJECT IS
MULTI-PLATFORM**

EXPLORATION OF SUPPORTED PLATFORMS

BBC ChrisBAshton News Sport Weather iPlayer TV Radio More Search

NEWS

6 things that could topple Donald Trump's border wa

Scroll down

So far, we've seen big, bold projects which take over the whole page. Here's an example from last year.

We build this type of content in a bespoke page, which we have complete control over.

Sure, we pull in the standard BBC header and footer, but everything else is hand-crafted Visual Journalism content.

By Lucy Rodgers & Nassos Stylianou
🕒 16 June 2017
[US & Canada](#)

US President Donald Trump's promise to build a "big, beautiful wall" between the US and Mexico was a rallying cry throughout his election campaign.

As president, Mr Trump has asked for design ideas for the barrier, with a chosen few to be selected this month for a prototype showcase this summer in San Diego, California.

 Share

NEWS



6 things that could topple Donald Trump's border wall

STANDALONE

Scroll down



We call this format the standalone wrapper.

By Lucy Hodgson & Niki Katsiyianou

16 June 2017

[US & Canada](#)

US President Donald Trump's promise to build a "big, beautiful wall" between the US and Mexico was a rallying cry throughout his election campaign.

As president, Mr Trump has asked for design ideas for the barrier, with a chosen few to be selected this month for a prototype showcase this summer in San Diego, California.

EXPLORATION OF SUPPORTED PLATFORMS

NEWS

How many £1m-plus homes are sold near you?

By Kevin Peachey, Clara Guibourg and Nassos Stylianou
BBC News

🕒 25 May 2018 | 📄 277



Most of our projects, however, are embedded into standard BBC articles.

Unlike the standalone projects, we don't have control over the page, so our content is going out into a hostile environment - who knows what JavaScript and CSS exists out there.

So... we put our content inside an iframe.

Ooh, I felt a shudder in the room then! I feel the same way!

Top Stories

Watch: England semi-finals in si
England face Sweden bidding for a place 28 years.

🕒 6 July 2018

England fans glued to Sweden clash

🕒 18 minutes ago

May seeks to sell Brexit plan to Tory MPs

🕒 2 hours ago

Features

I'm safe. Don't worry!

EXPLORATION OF SUPPORTED PLATFORMS

A total of 16,119 property sales for £1m or more were completed last year, up 5.4% from the previous high in 2016.

Over the past decade, most were sold in London, but sales have doubled in the East of England - the biggest increase of any region in England and Wales.

University cities such as Cambridge and Bristol have seen £1m-plus sales surge.

Rising house prices and demand prompted by investment in these areas has pushed many properties' sale prices above the £1m threshold.

Enter your postcode or local area

w1a



Westminster

Properties over £1m sold since 2007,
with the most expensive sold for _____.

If the postcode search does not load, [click to launch the interactive content](#).

The findings are based on analysis by the BBC data team of Land Registry figures for England and Wales. The data does not cover addresses in Northern Ireland and NIdirect Land Registry does not make comparable data available. It also does not cover Scotland, where Registers of Scotland data is not free to download.

Changes in million-pound home sales in England and Wales, 2007-2017

Tap or click to explore million-pound homes sold by area

This is the EMBED wrapper



In Pictures: The nation watches
England v Sweden



Laura Kuenssberg: The deal is
done



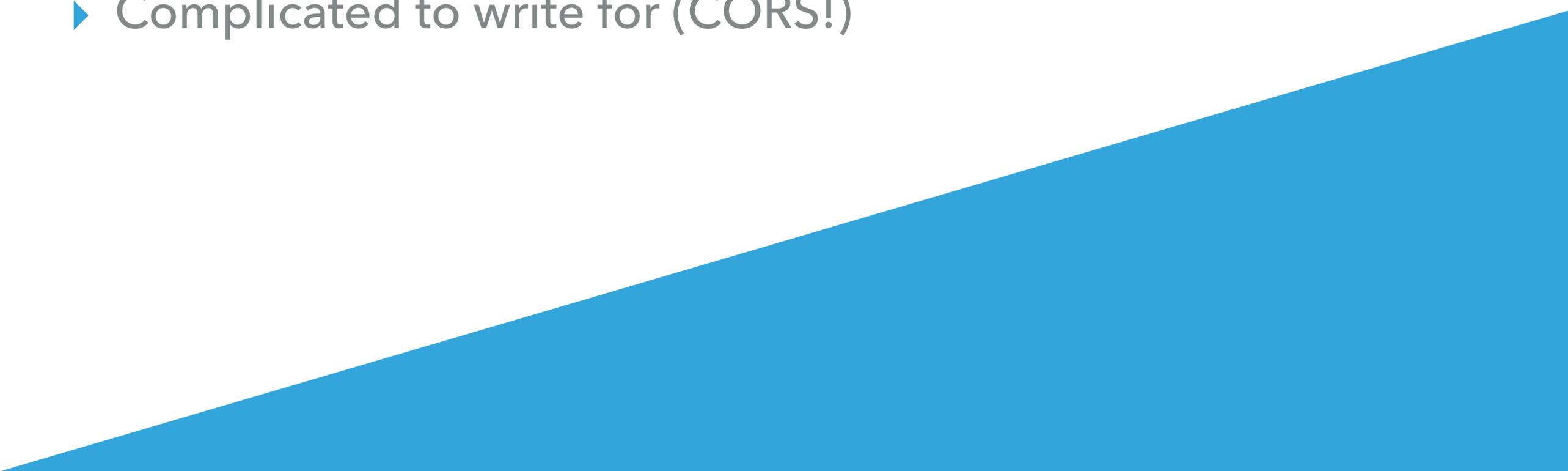
The mayor who wants a 'sexy'
police force

EMBED

A SLIGHT TANGENT . . .



THERE ARE LOTS OF REASONS NOT TO USE IFRAMES

- ▶ Not responsive
 - ▶ Poor for SEO
 - ▶ Poor for accessibility
 - ▶ Complicated to write for (CORS!)
- 

...BUT THERE ARE LOTS OF GOOD REASONS TO USE THEM

- ▶ Great sandbox environment - both ways.
 - ▶ JS and CSS can't leak in, or out.
 - ▶ We have encapsulation of content.
 - ▶ We control the HTML and data, and can update it independently.
 - ▶ Important for syndication.
- 

BUT WE'RE SLOWLY DEPRECATING THEM

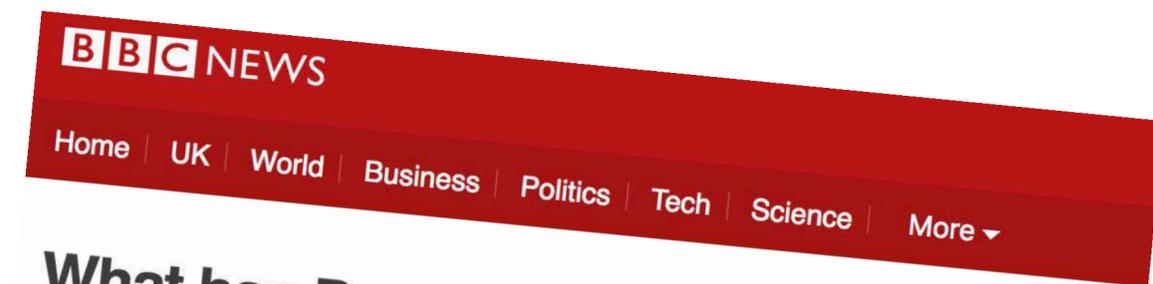
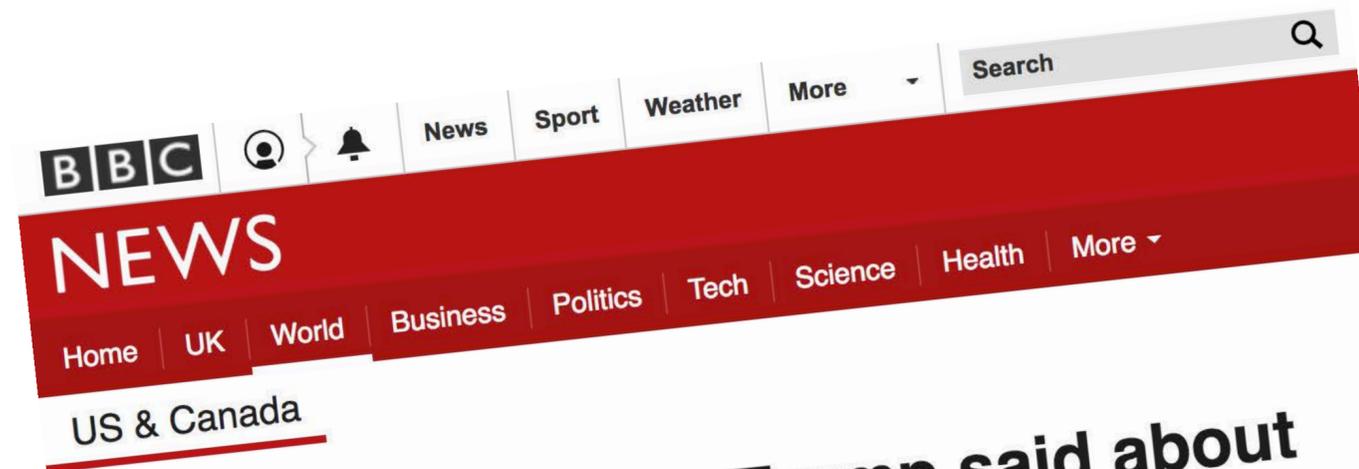
- ▶ Shadow DOM is the future
- ▶ Offers similar encapsulation, without the cons
- ▶ Increasing browser support
- ▶ Syndication could be achieved with oEmbed

```
▼ <div id="wrap">
  <h2>Web Components - Your Thoughts...</h2>
  ▶ <div id="img-holder">...</div>
  ▶ <p>...</p>
  ▶ <comment-box>...</comment-box>
  ▼ <template id="replyTemplate">
    ▼ #document-fragment
    ▶ <style>...</style>
    ▶ <article>...</article>
  </template>
  ▶ <article>...</article>
  ▶ <article>...</article>
</div>
▶ <script>...</script>
</body>
```

Shadow
DOM



EXPLORATION OF SUPPORTED PLATFORMS



What has President Trump said about your country?

17 January 2018

One year ago, the US elected a man who preferred the language of diplomacy.

Find out what President Donald Trump has said about your country, which foreign leaders he has met or called since taking office, and which countries he has mentioned in his tweets.



These two pages look the same, right?

The one on the right is our AMP page, and the one on the left is our normal ("canonical") article.

Every article gets published twice. The canonical version is rendered dynamically whenever the page is requested, whereas the AMP version is statically published only when an article is updated.

What has President Trump said about your country?

17 January 2018 | US & Canada

US elected a man who prefers plain speaking to the language of diplomacy.

President Donald Trump has said about your country, which foreign leaders he has met or called since taking office, and which countries he has mentioned in his tweets.



Enter a country...

EXPLORATION OF SUPPORTED PLATFORMS

BBC NEWS

Home | UK | World | Business | Politics | Tech | Science | Health | More

News | Sport | Weather | More

Search

US & Canada

What has President Trump said about your country?

17 January 2018

Share

EMBED



BBC NEWS

Home | UK | World | Business | Politics | Tech | Science | More

What has President Trump said about your country?

17 January 2018 | US & Canada

One year ago, the US elected a man who prefers plain speaking to the language of diplomacy.

Find out what President Donald Trump has said about your country, which foreign leaders he has met or called since taking office, and which countries he has mentioned in his tweets.

AMP

Enter a country...



🔄 ⓘ <https://www.bbc.co.uk/news/amp/world-us-canada-39732845> ☆

[Home](#) | [UK](#) | [World](#) | [Business](#) | [Politics](#) | [Tech](#) | [Science](#) | [More](#) ▾

What has President Trump said about your country?

🕒 17 January 2018 | [US & Canada](#)



One year ago, the US elected a man who prefers plain speaking to the language of diplomacy.

Find out what President Donald Trump has said about your country, which foreign leaders he has met or called since taking office, and which countries he has mentioned in his tweets.

Our AMP pages look similar to standard articles, but they are separate pages and are significantly stripped back and simplified.

We use AMP-IFRAME to embed our content, which is an AMP component that is a subset of HTML.

It's essentially an iframe but it's more locked down and there are some key differences between the two, which we will cover later.

Here's our project which keeps track of what Donald Trump has been tweeting about your country...

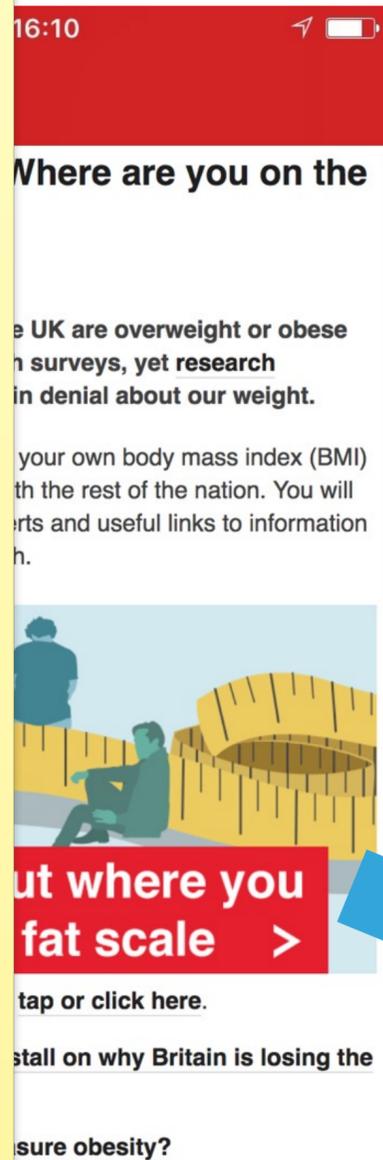
EXPLORATION OF SUPPORTED PLATFORMS

Wow - we've discussed three different ways of serving our content and we're still just talking about the web!

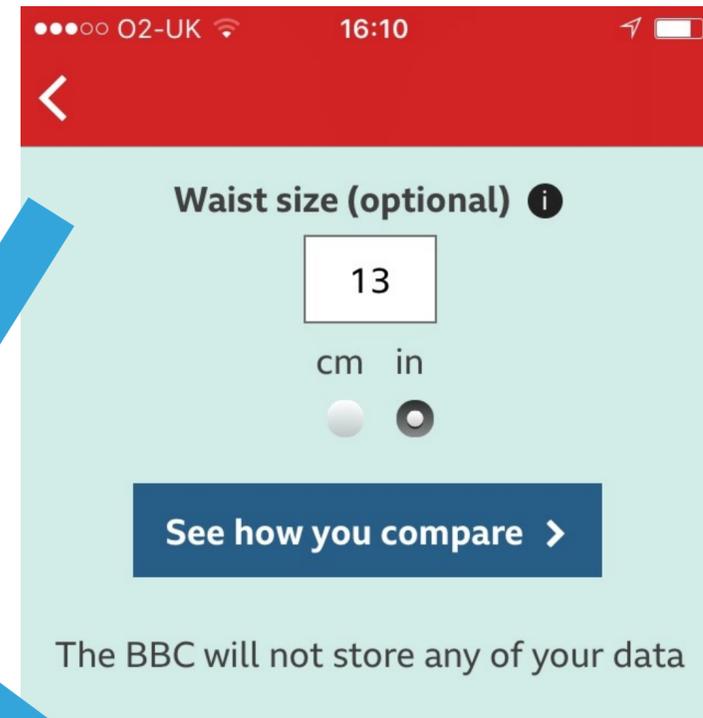
We also have the BBC News Apps for iOS and Android. These are "offline-first" experiences that fetch stories in advance when you're on WiFi, and render them natively, so that you can read stories even when you're on the Paris metro.

Our content is unable to be rendered natively - legacy issues - so instead we have a launcher image which, when tapped, opens our content in a standalone page.

Once we're in that standalone page, it's kind of like the standalone page in the first example, except that there is an app-specific protocol we have to follow. For example, to tell the app our content has loaded, we have to redirect the page to this weird BBC Visual Journalism app specific protocol. The app then removes the loading animation and displays our page.



bbcvisualjournalism://pageloaded

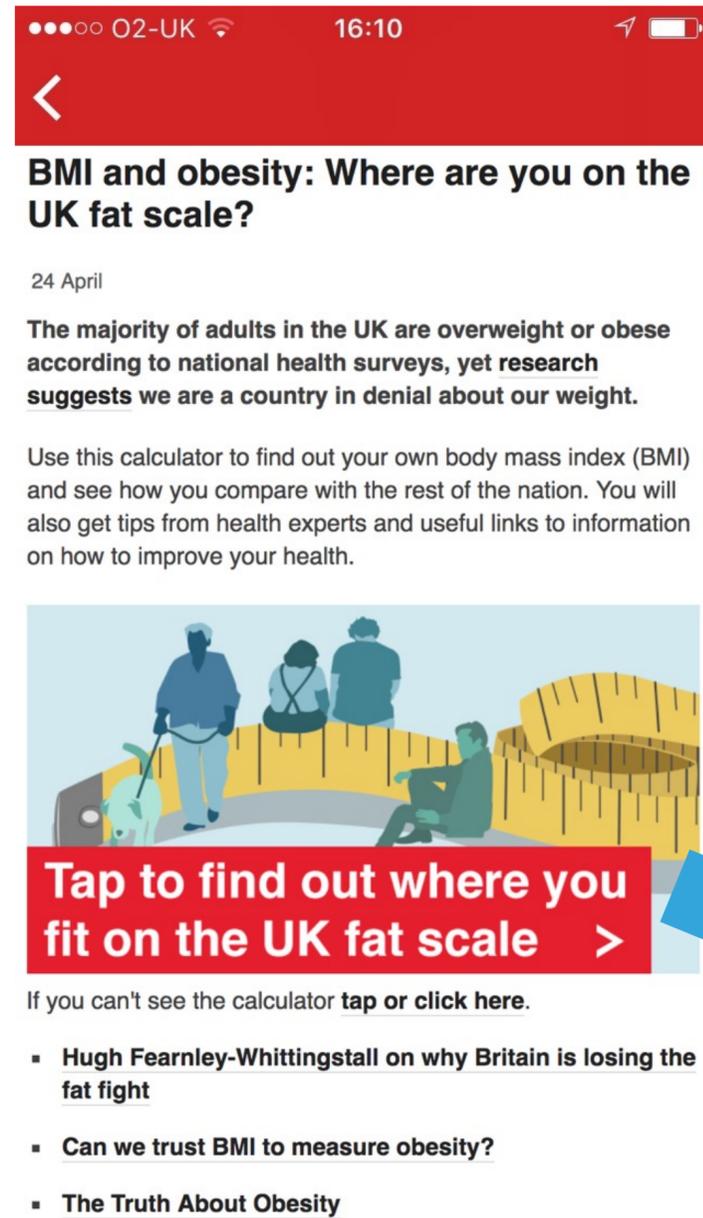


Your BMI

Your BMI is **37.3** which is in the **obese** category



EXPLORATION OF SUPPORTED PLATFORMS



02-UK 16:10

BMI and obesity: Where are you on the UK fat scale?

24 April

The majority of adults in the UK are overweight or obese according to national health surveys, yet research suggests we are a country in denial about our weight.

Use this calculator to find out your own body mass index (BMI) and see how you compare with the rest of the nation. You will also get tips from health experts and useful links to information on how to improve your health.

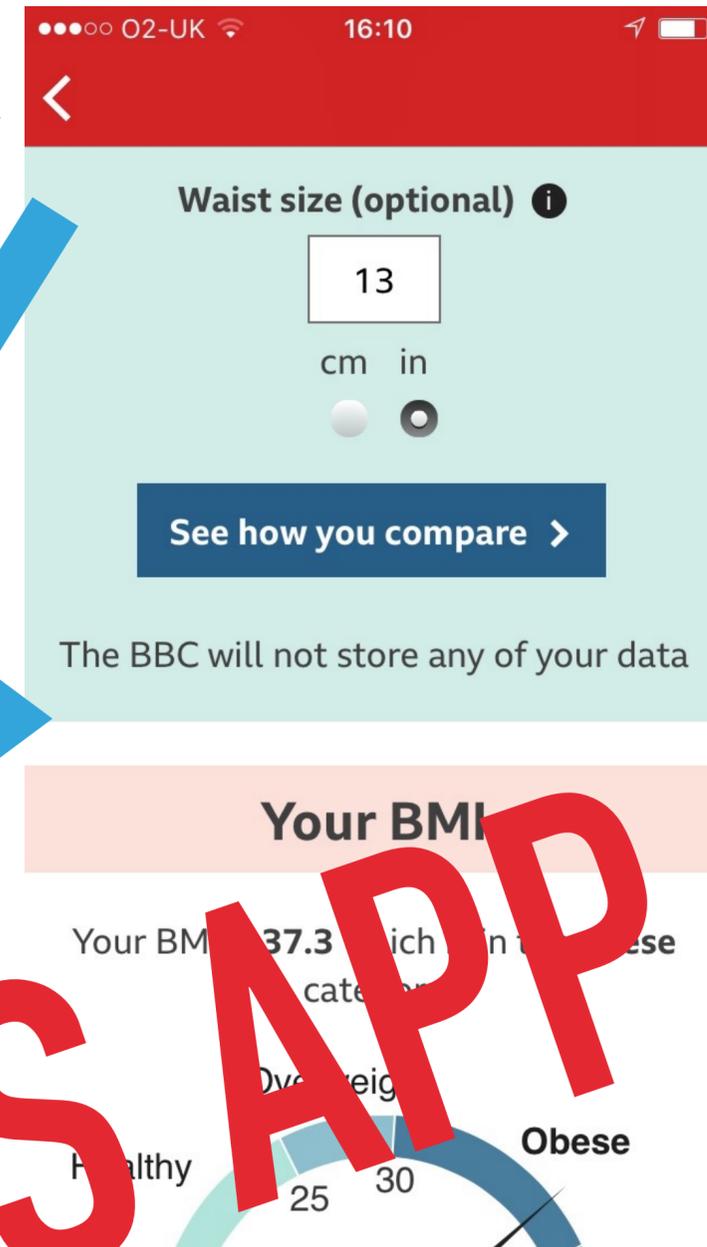


Tap to find out where you fit on the UK fat scale >

If you can't see the calculator [tap or click here](#).

- [Hugh Fearnley-Whittingstall on why Britain is losing the fat fight](#)
- [Can we trust BMI to measure obesity?](#)
- [The Truth About Obesity](#)

bbcvisualjournalism://pageloaded



02-UK 16:10

Waist size (optional) ⓘ

13

cm in

See how you compare >

The BBC will not store any of your data

Your BMI

Your BMI is 37.3 which is in the obese category

Healthy 25 30 Obese

NEWS APP

**PLATFORMS AREN'T "EITHER/
OR". EVERYTHING WE BUILD
HAS TO WORK EVERYWHERE.**

TO SUMMARISE THE PROBLEM...

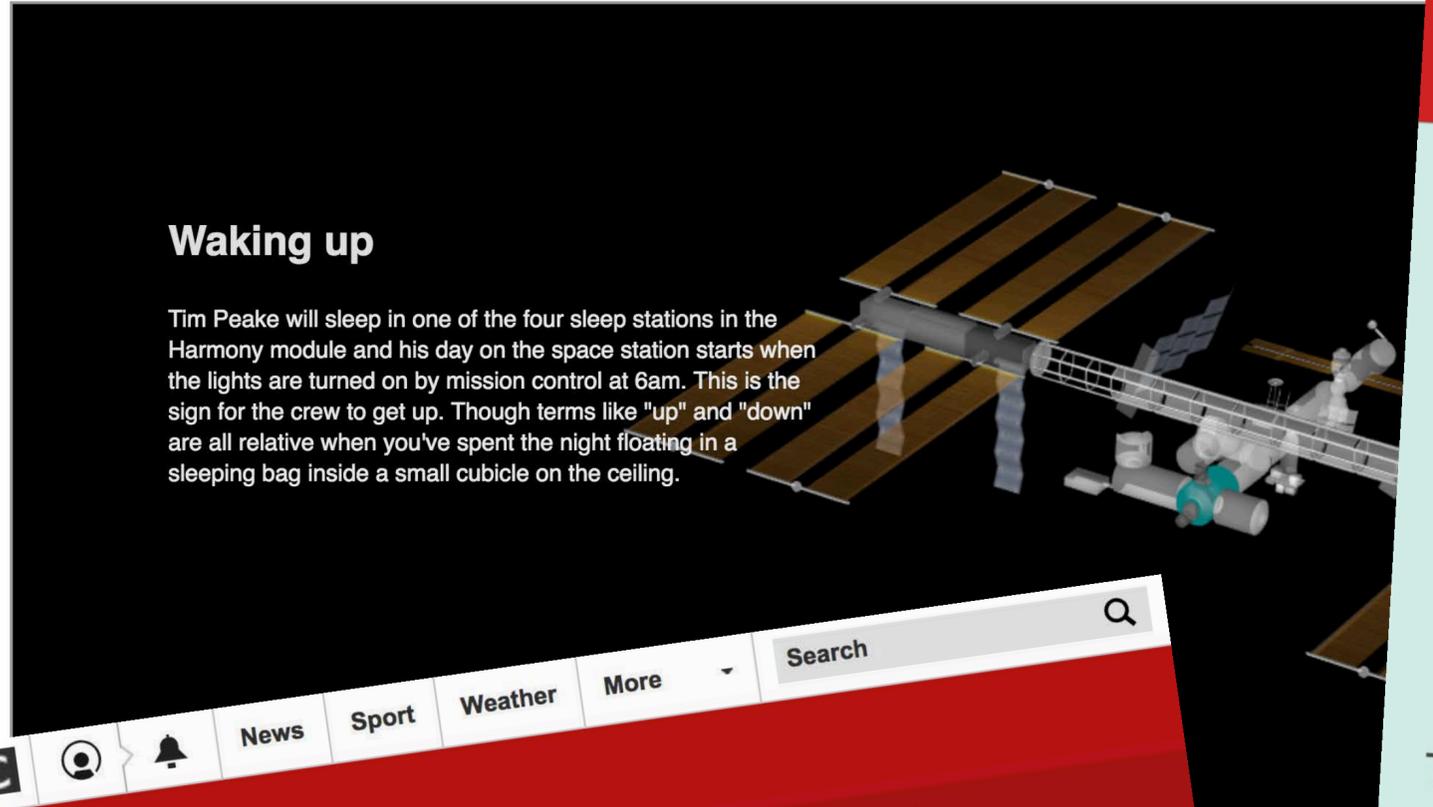


1) We have to build a complicated thing we've never done before, sometimes in less than 2 weeks...

2) IT HAS TO WORK ACROSS STANDALONE, EMBEDDED, SYNDICATED, AMP & APPS



mother-of-three Dawn Sturgess, lives after they took a sample from the outside of the building shortly after sp



Waking up

Tim Peake will sleep in one of the four sleep stations in the Harmony module and his day on the space station starts when the lights are turned on by mission control at 6am. This is the sign for the crew to get up. Though terms like "up" and "down" are all relative when you've spent the night floating in a sleeping bag inside a small cubicle on the ceiling.

BBC NEWS

Home UK World Business Politics Tech Science Health More

US & Canada

What has President Trump said about your country?

17 January 2018

One year ago, the US elected a man who prefers plain speaking to the language of diplomacy.

O2-UK 16:10

Waist size (optional)

13

cm in

See how you compare

The BBC will not store any of your data

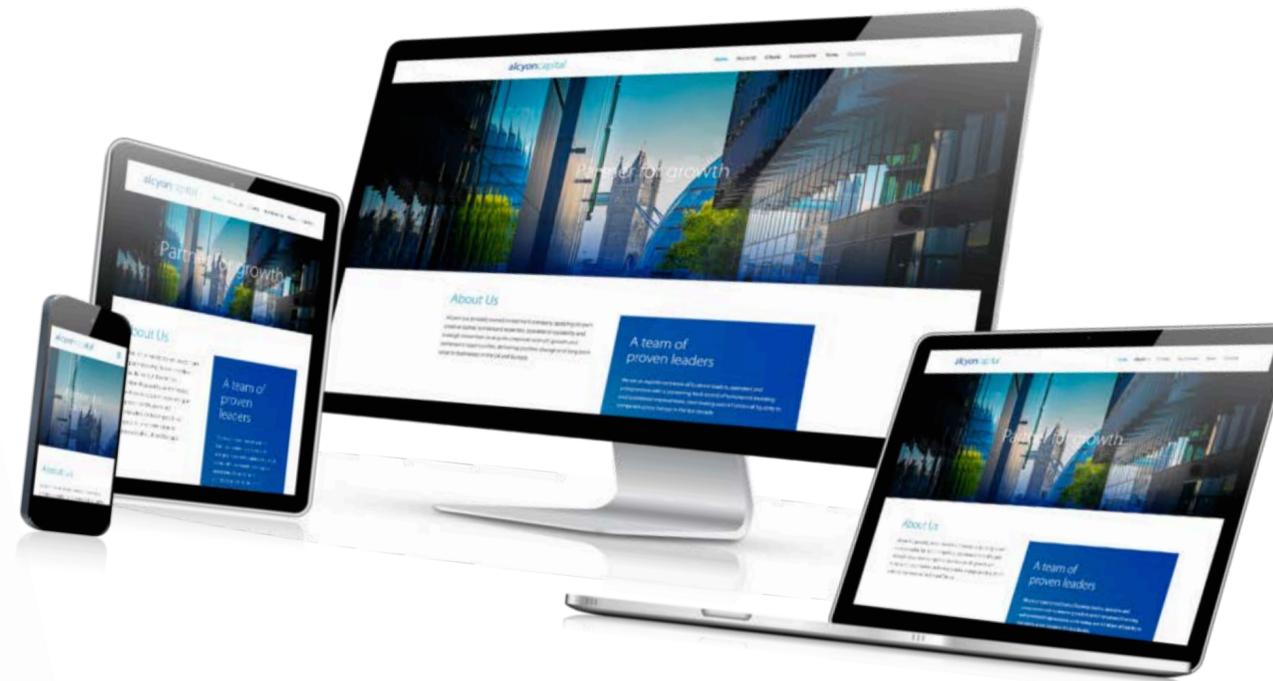
Your BMI

Your BMI is 37.3 which is in the obese category

Overweight

Healthy 25 30 Obese

3) IT HAS TO WORK CROSS-BROWSER, CROSS-DEVICE AND CROSS-INPUT...



4) IT HAS TO BE REPURPOSED IN POTENTIALLY OVER 40 LANGUAGES...



...each with their own complexities

(If you haven't worked with right-to-left scripts before, you're in for a treat!)

...ALL WHILE... 5) KEEPING THE CODE READABLE AND REUSABLE

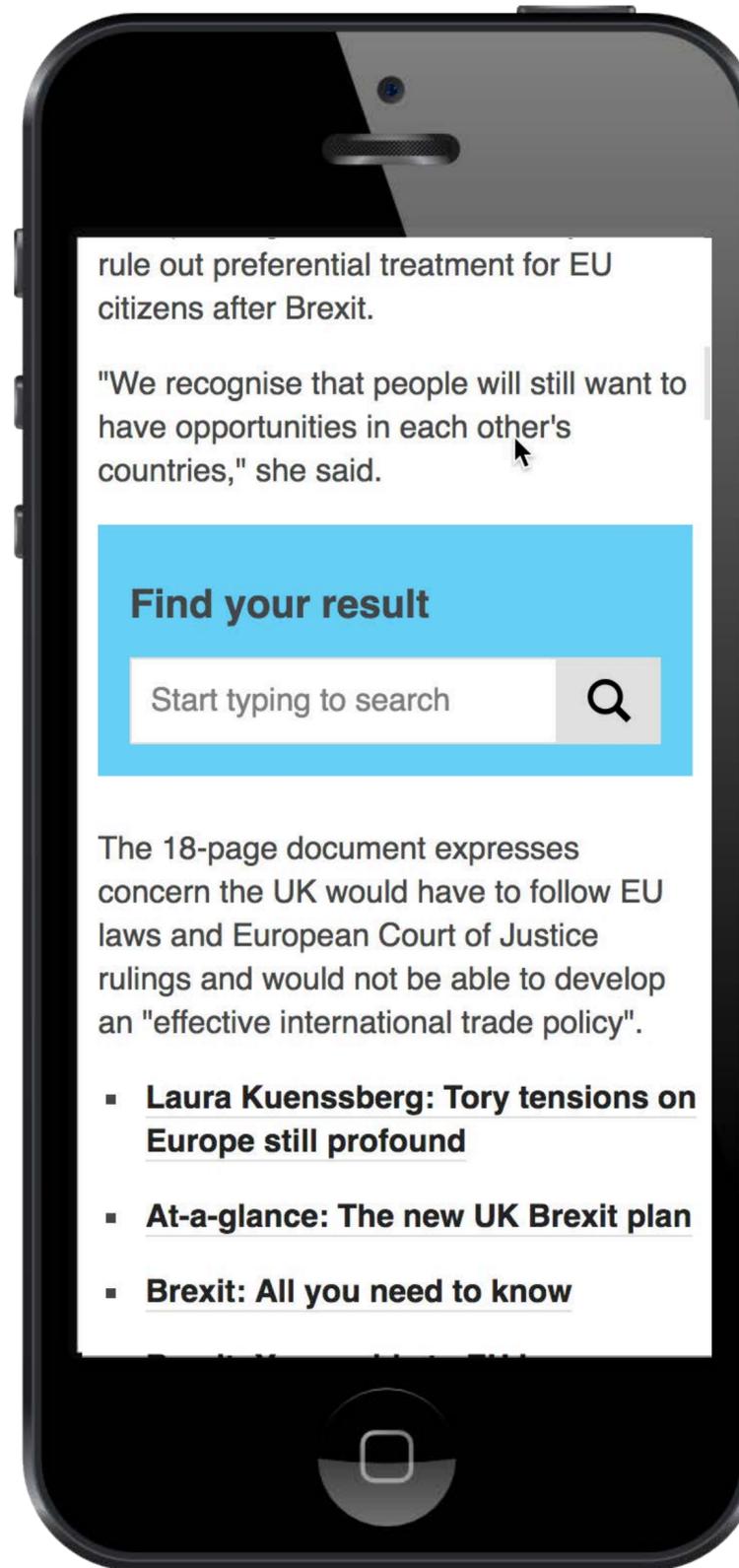
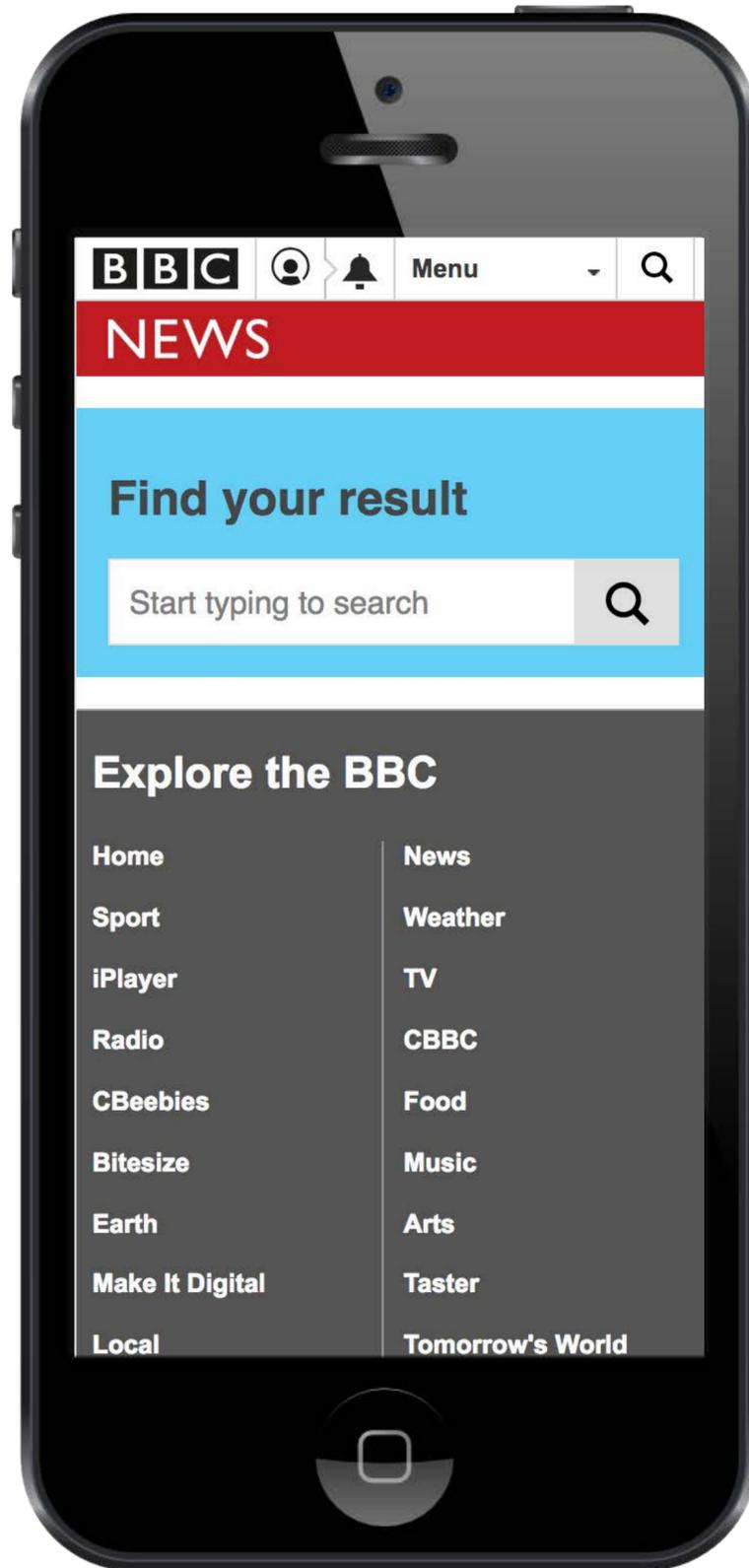


SO HOW DO WE DO IT?

HOW WOULD YOU DO IT?

**WE COULD TRY... BUILDING
ONE VERSION AND SEEING
WHAT BREAKS?**

GETTING EXAMPLE PROJECT WORKING ACROSS PLATFORMS



Let's try this example project.

I have three mobile phones here, looking at the standalone version, embedded version and app version respectively.

Standalone version works nicely... I see my dog, his name is Geoffrey, I can share on Twitter, I can go into a full screen gallery. All good.

If I try to use this directly in an iframe (embed), it's going to look something like this.

Iframes aren't responsive by default, so we're stuck with a postage stamp sized viewport to work within.

The scrolling works ok, and the share tools sort of work...

...but the full screen functionality doesn't take us full screen.

Finally, this is what the experience looks like in the app...!

WELL... THAT DIDN'T REALLY WORK.

- ▶ Usability problems in embed version
- ▶ Total fail in News App version
- ▶ Attempt #2: we *could* try building three completely separate versions...



SURE, THAT WOULD WORK...

- ▶ ...if only we had unlimited resources!
- ▶ We would build a standalone version from scratch, and
- ▶ ...an embeddable version from scratch, and
- ▶ ...an app version from scratch, and
- ▶ ...an AMP version from scratch, and...

NO.

- ▶ That sounds painful.
- ▶ ...four different versions = 4x the effort?
- ▶ Not really.
- ▶ But bugs are spotted, scope creeps in, deadlines are extended...

Ok, building something 4 times over does not mean 4 times the effort. There's a lot of code we can copy and paste, and maybe if we're clever we can have some sort of componentised structure to make code reuse easier.

But when you factor in all the changes that happen to a project over time, and that you'll have to reproduce those changes in multiple places and keep on top of testing all that, the time soon mounts up, and it COULD end up being 4x the effort, or even more!

ARGH, WE NEED TO BE SMARTER!

- ▶ Blindly using one version across all platforms doesn't work.
- ▶ Hand-crafting a bespoke version for each platform isn't sustainable.
- ▶ ...what's the alternative?

LET'S HANDLE THE EDGE CASES IN OUR CODE

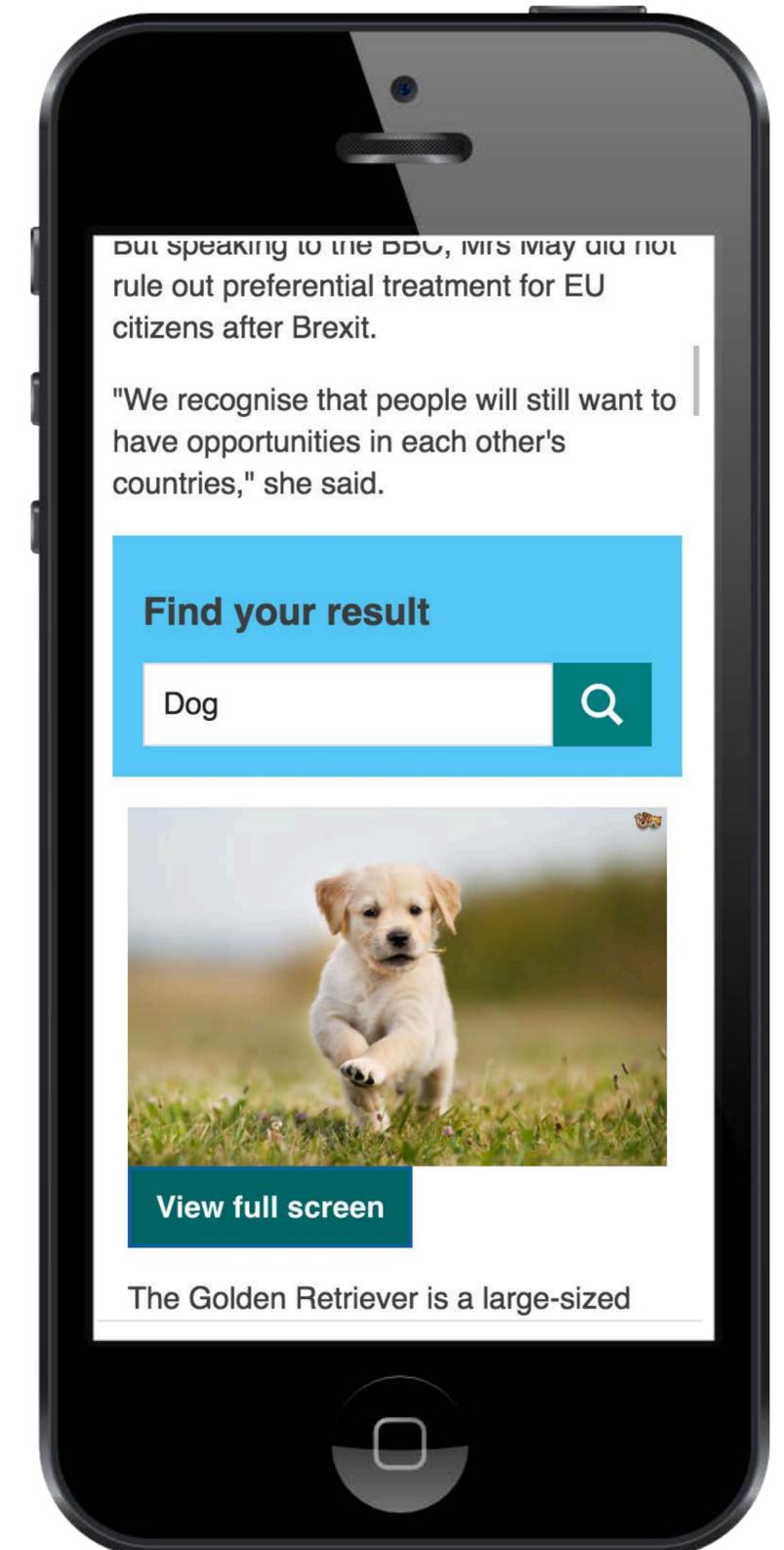
Our original idea - to try to reuse one version of our content - could work.

But it will take some effort.

We need to consider every single platform we support, and handle the complexities of the platform using forking logic in our code.

LET'S FIX THE EMBED/IFRAME OUTPUT

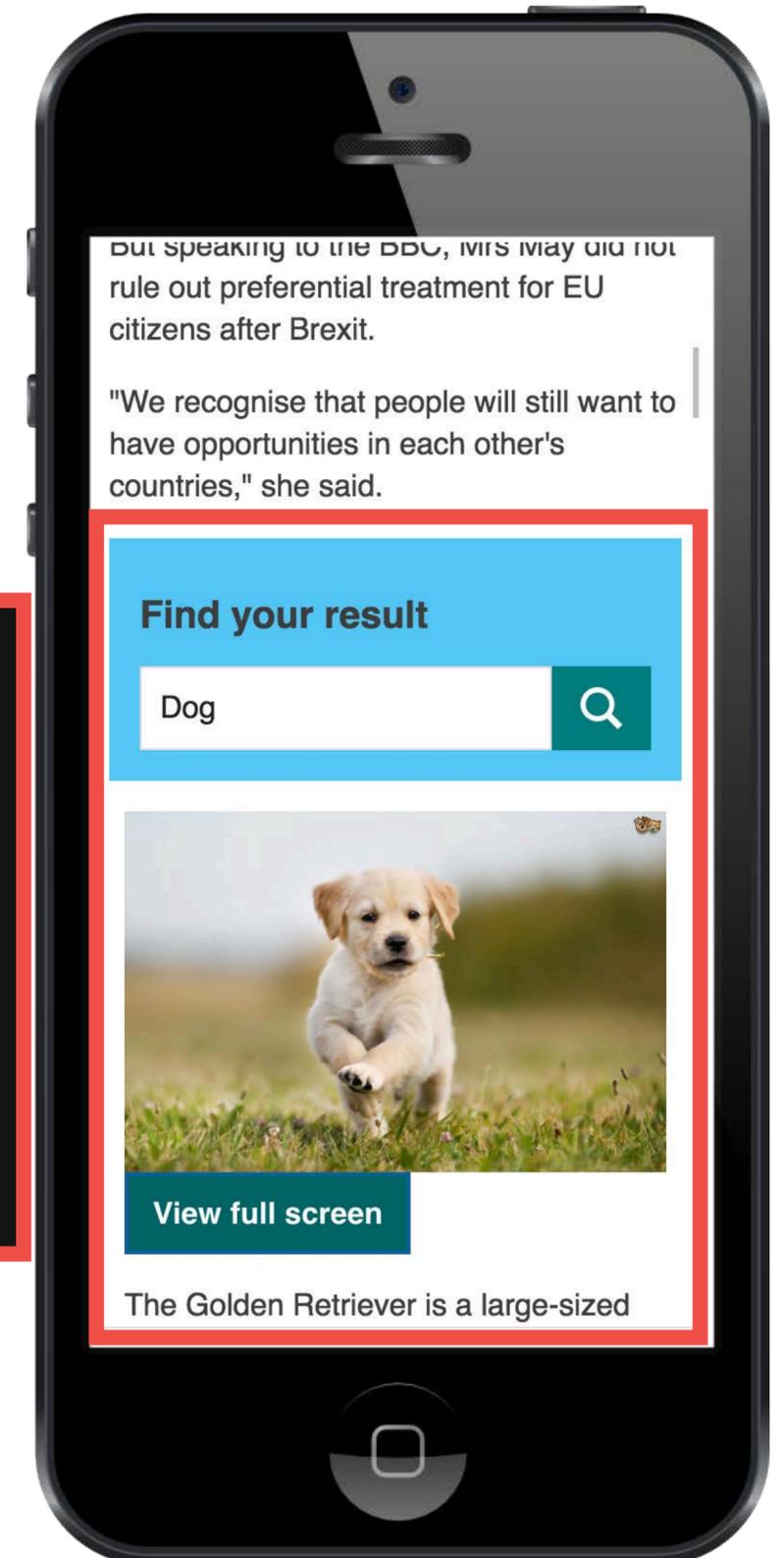
Let's start by making it resize properly.



FIXING IFRAME RESIZING

Application code (inside iframe)

```
if (isInsideIframe()) {  
  setInterval(() => {  
    window.parent.postMessage(document.body.offsetHeight, '*');  
  }, 50);  
}
```

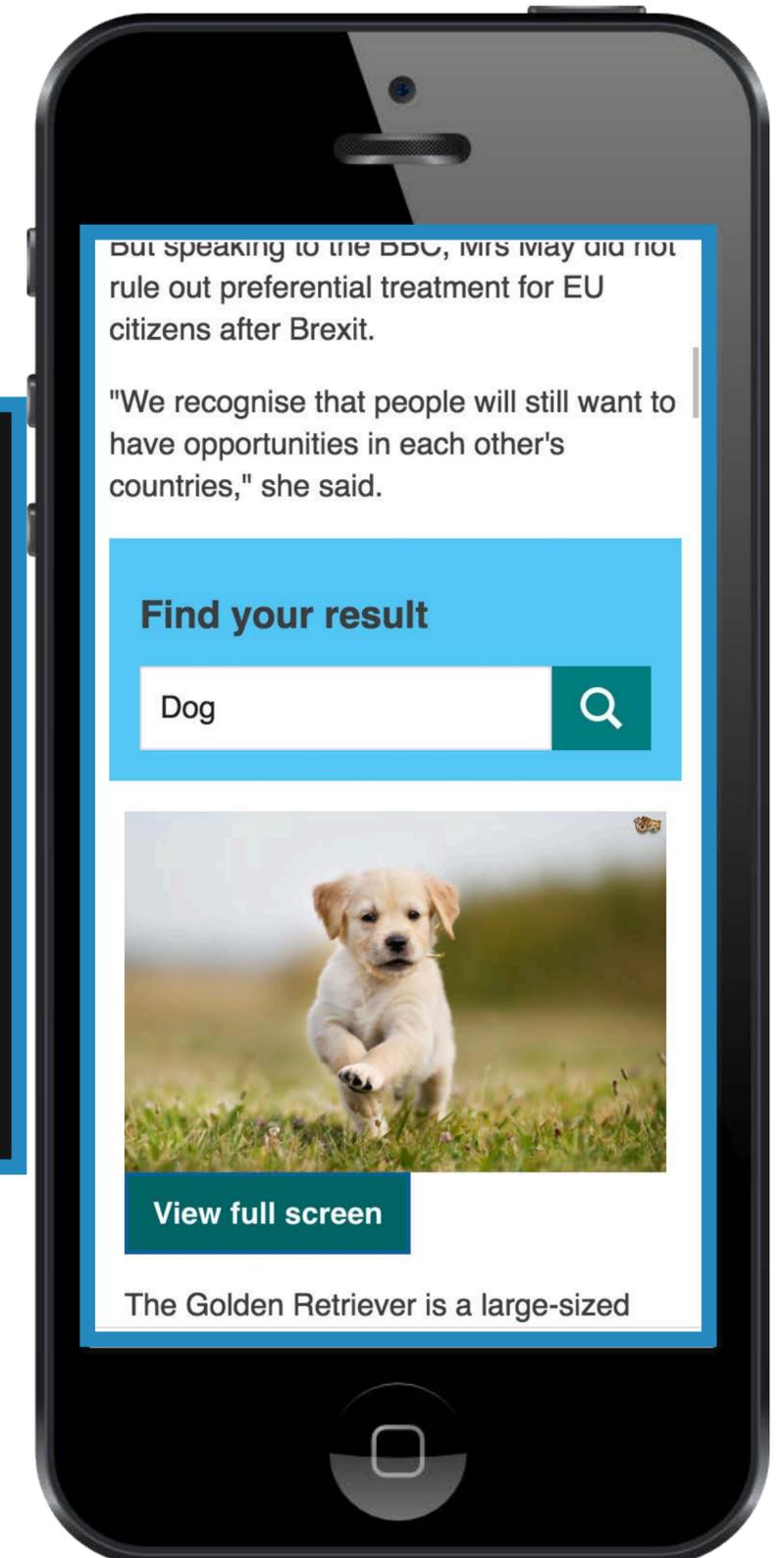


FIXING IFRAME RESIZING

Host page

```
<!-- this is the embedded version -->
<iframe id="interactive" src="standalone.html"></iframe>

<script>
window.addEventListener('message', (event) => {
  document.getElementById('interactive').style.height = `${event.data}px`;
});
</script>
```



FIXING IFRAME RESIZING: PUTTING IT TOGETHER

Host page

```

<!-- this is the embedded version -->
<iframe id="interactive" src="standalone.html"></iframe>

<script>
window.addEventListener('message', (event) => {
  document.getElementById('interactive').style.height = `${event.data}px`;
});
</script>

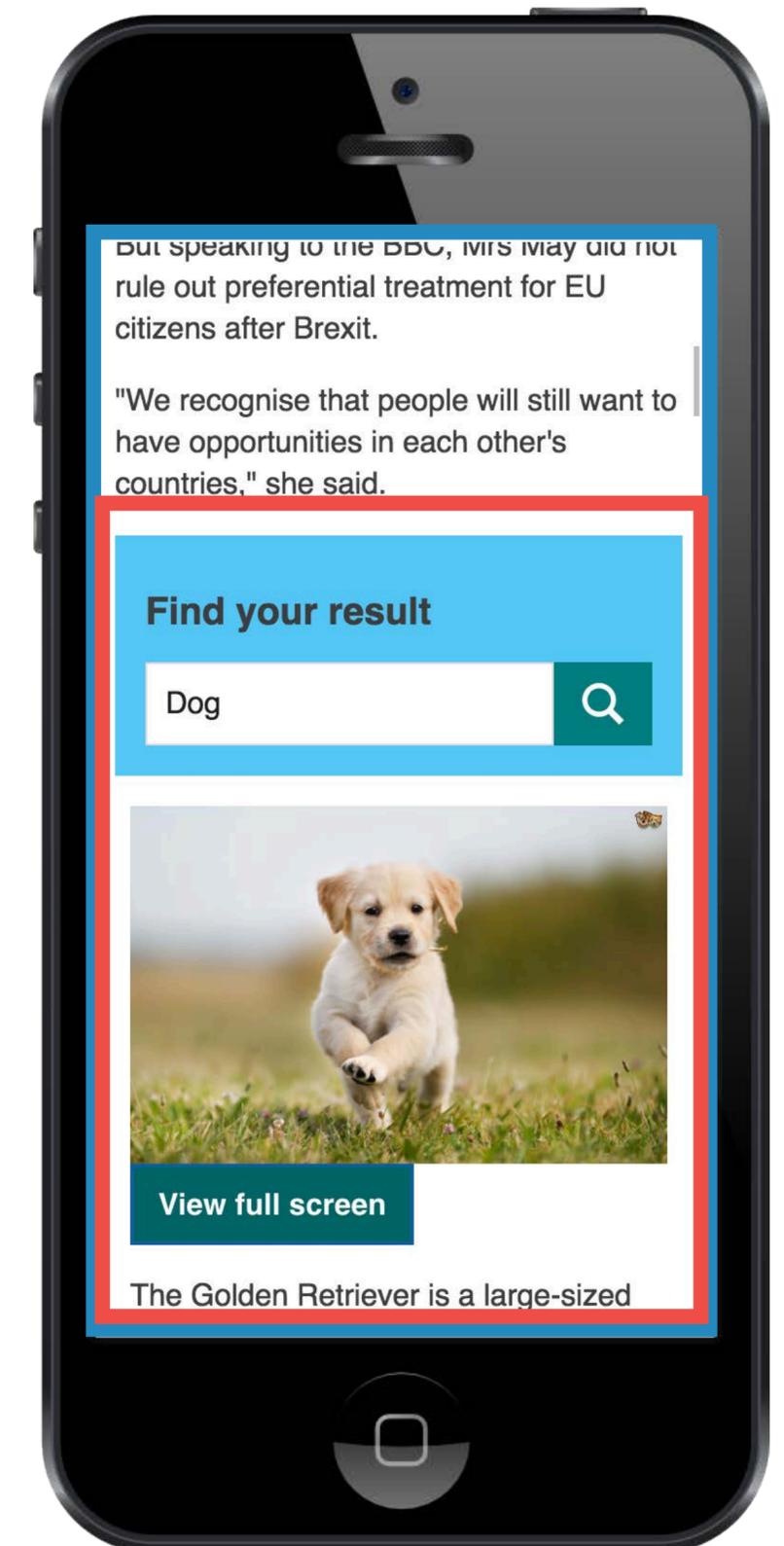
```

Application code (inside iframe)

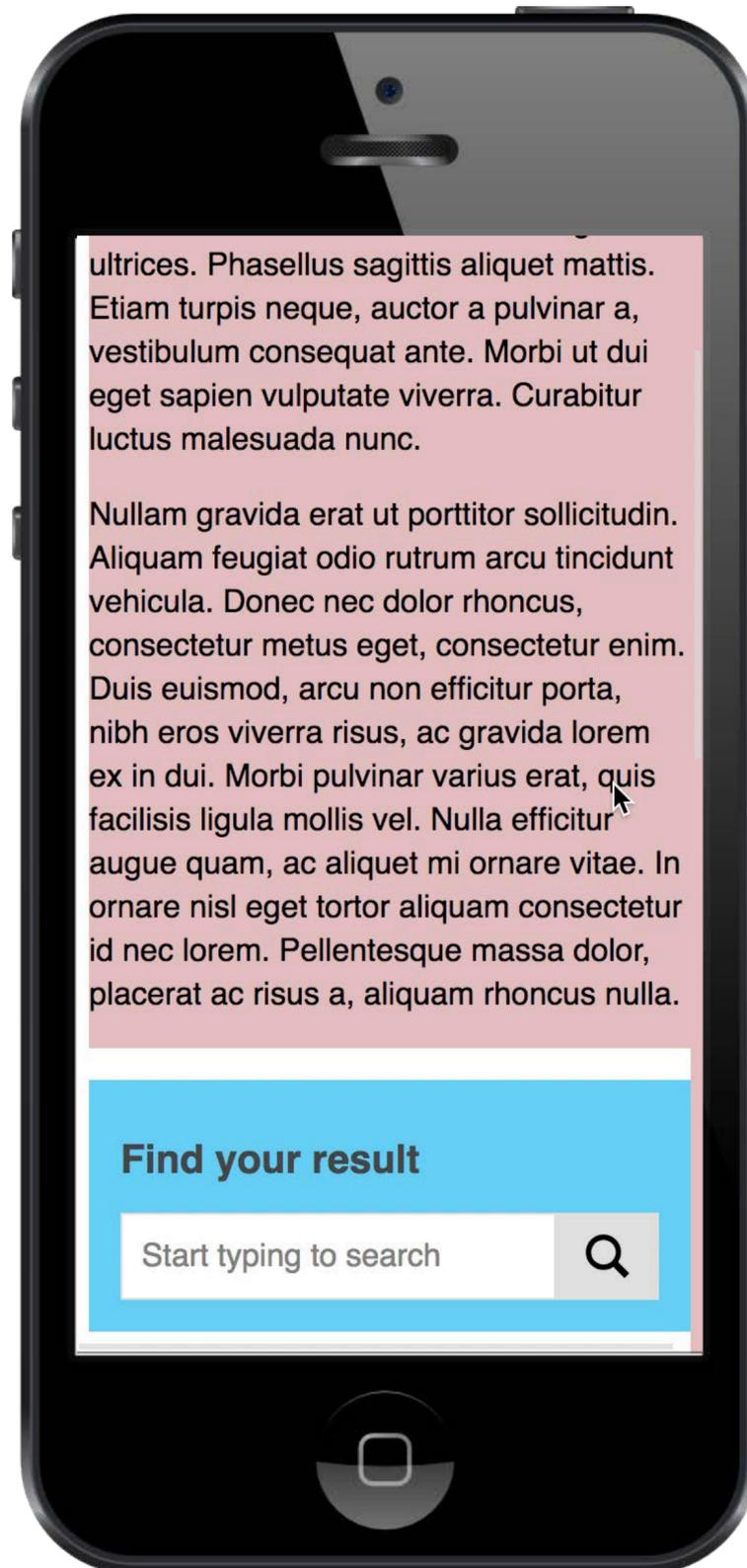
```

if (isInsideIframe()) {
  setInterval(() => {
    window.parent.postMessage(document.body.offsetHeight, '*');
  }, 50);
}

```



HANDLING PLATFORM COMPLEXITIES WITHIN THE APPLICATION CODE



- ▶ Iframe now resizes properly
- ▶ (Host page in pale red for clarity)
- ▶ ...but still quite a few things broken

It's looking better...!

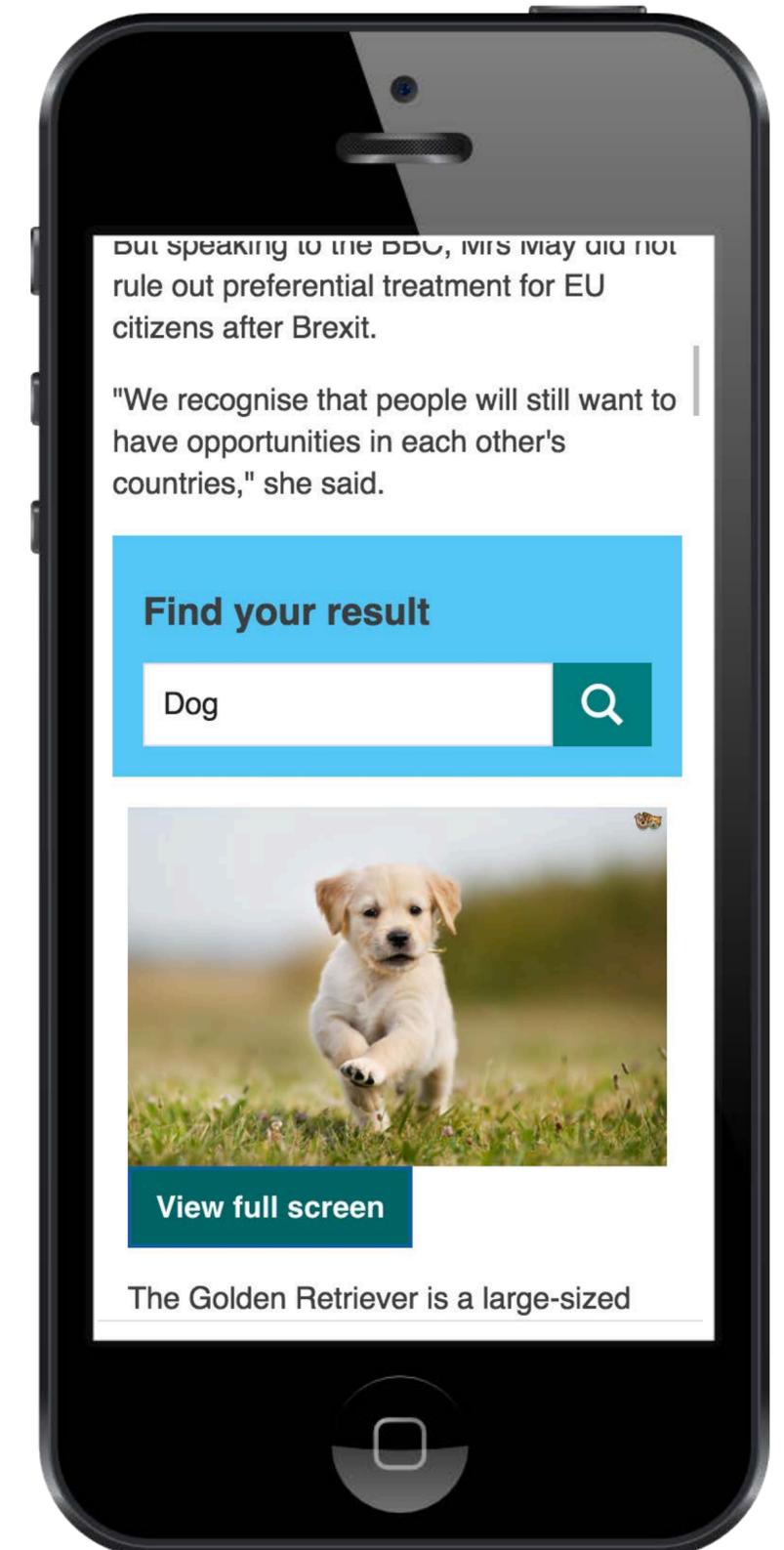
Notice that when we fill in our result, we're not automatically scrolled down the page.

We also never see what our dog's name is.

And full screen mode is totally broken.

Let's go ahead and fix those!

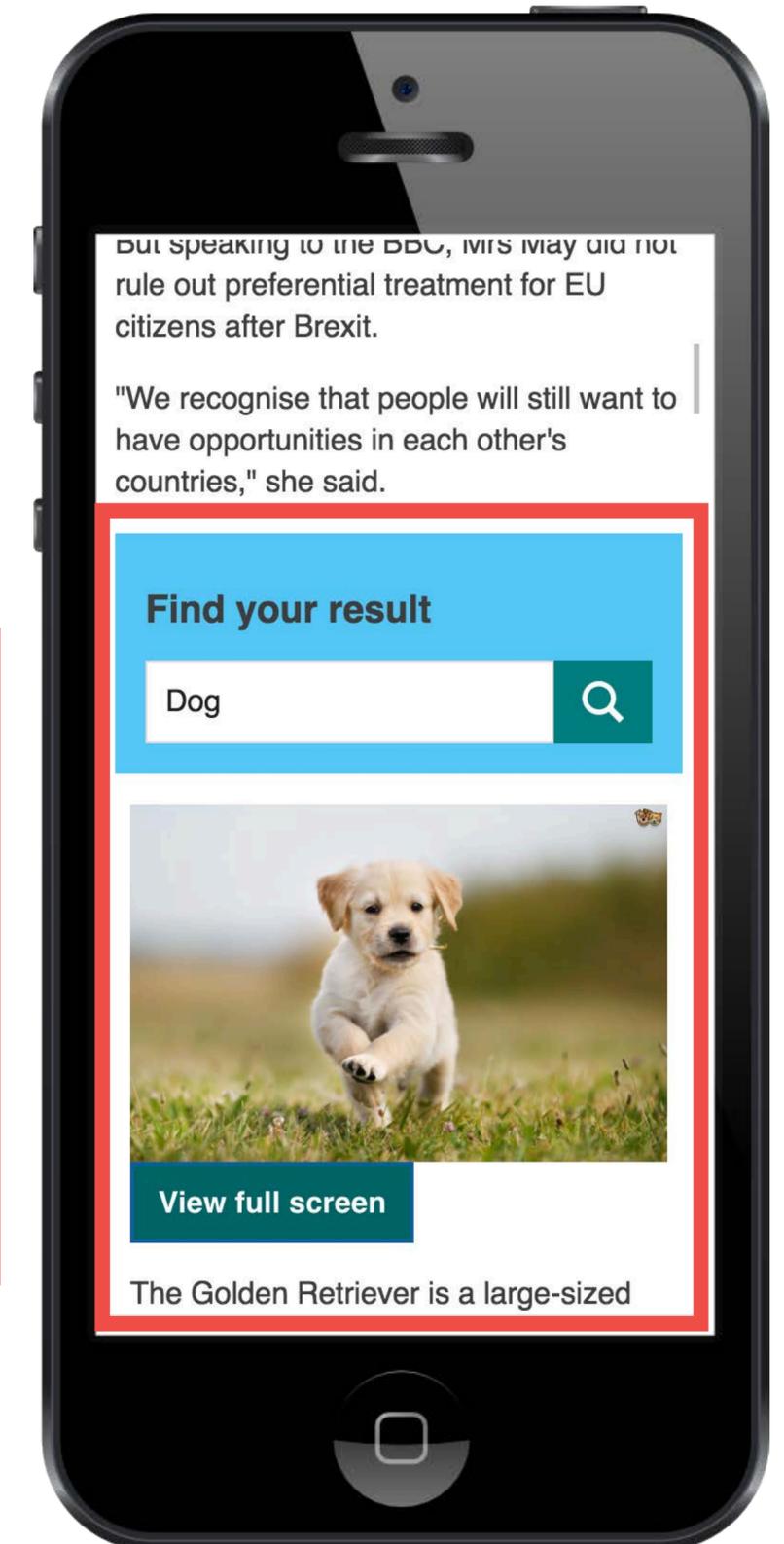
FIXING FULL-SCREEN MODE



FIXING FULL-SCREEN MODE

Application code (inside iframe)

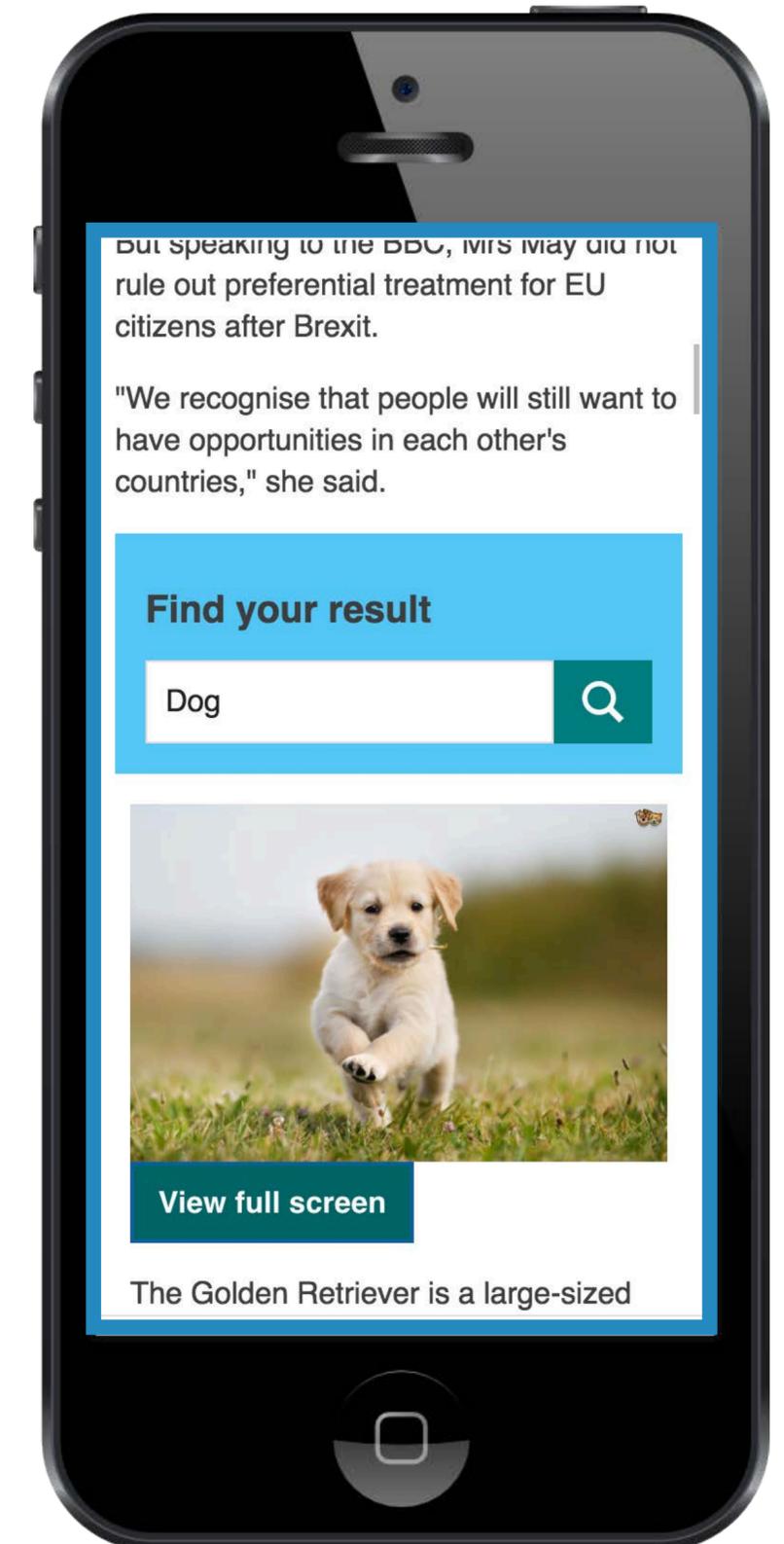
```
if (isInsideIframe()) {  
  window.parent.postMessage({ name: 'window:toggleFullScreen' }, '*');  
}  
else {  
  document.body.className += ' fullscreen';  
}
```



FIXING FULL-SCREEN MODE

Host page

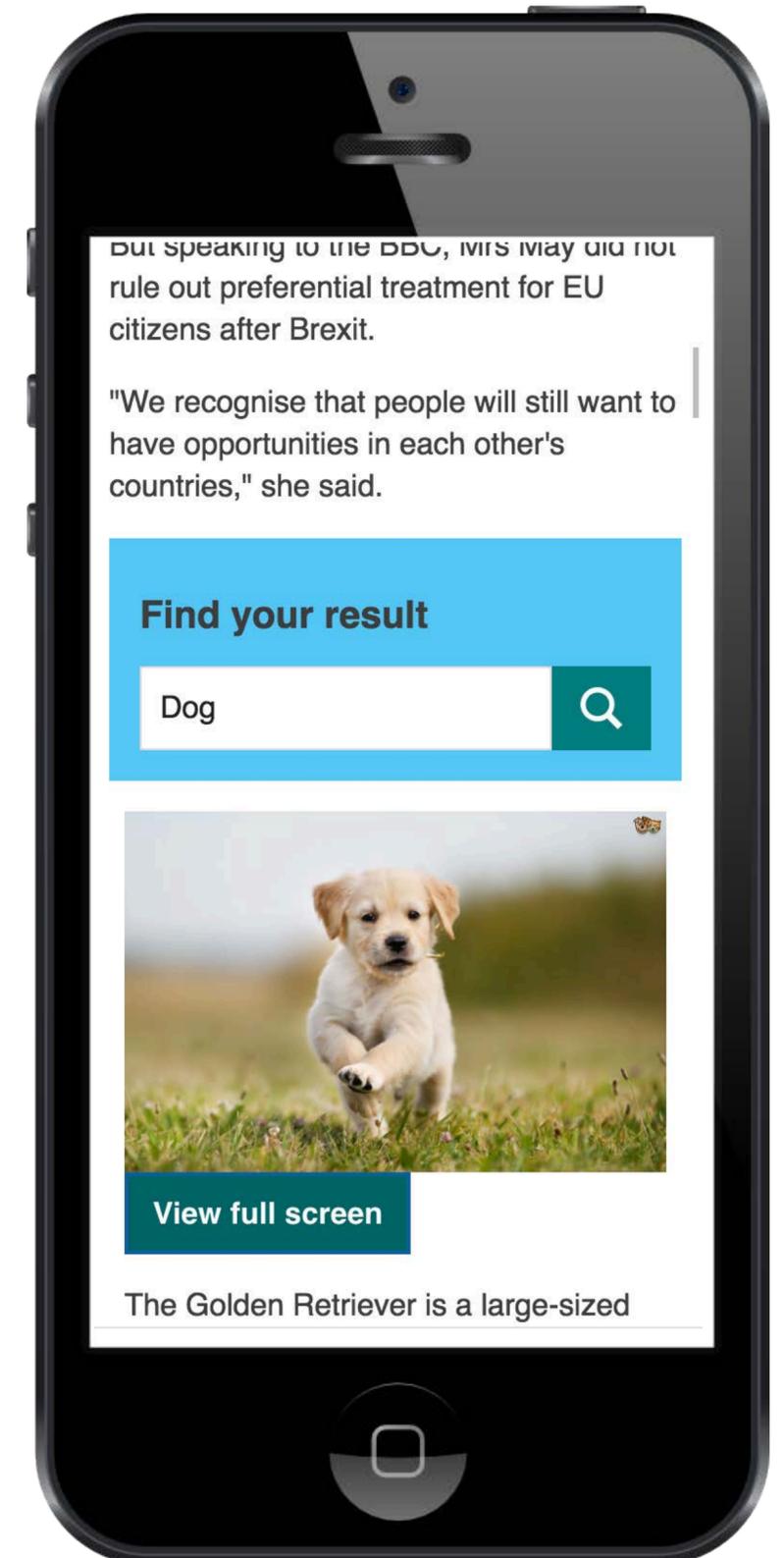
```
// host page
window.addEventListener('message', function () {
  if (event.data.name === 'window:toggleFullScreen') {
    document.getElementById(iframeUid).className += ' fullscreen';
  }
});
```



FIXING FULL-SCREEN MODE

Shared CSS

```
.fullscreen {  
  position: fixed;  
  top: 0;  
  left: 0;  
  right: 0;  
  bottom: 0;  
}
```



FIXING FULL-SCREEN MODE – PUTTING IT TOGETHER

```
● ● ●  
  
// host page  
window.addEventListener('message', function () {  
  if (event.data.name === 'window:toggleFullScreen') {  
    document.getElementById(iframeUid).className += ' fullscreen';  
  }  
});
```

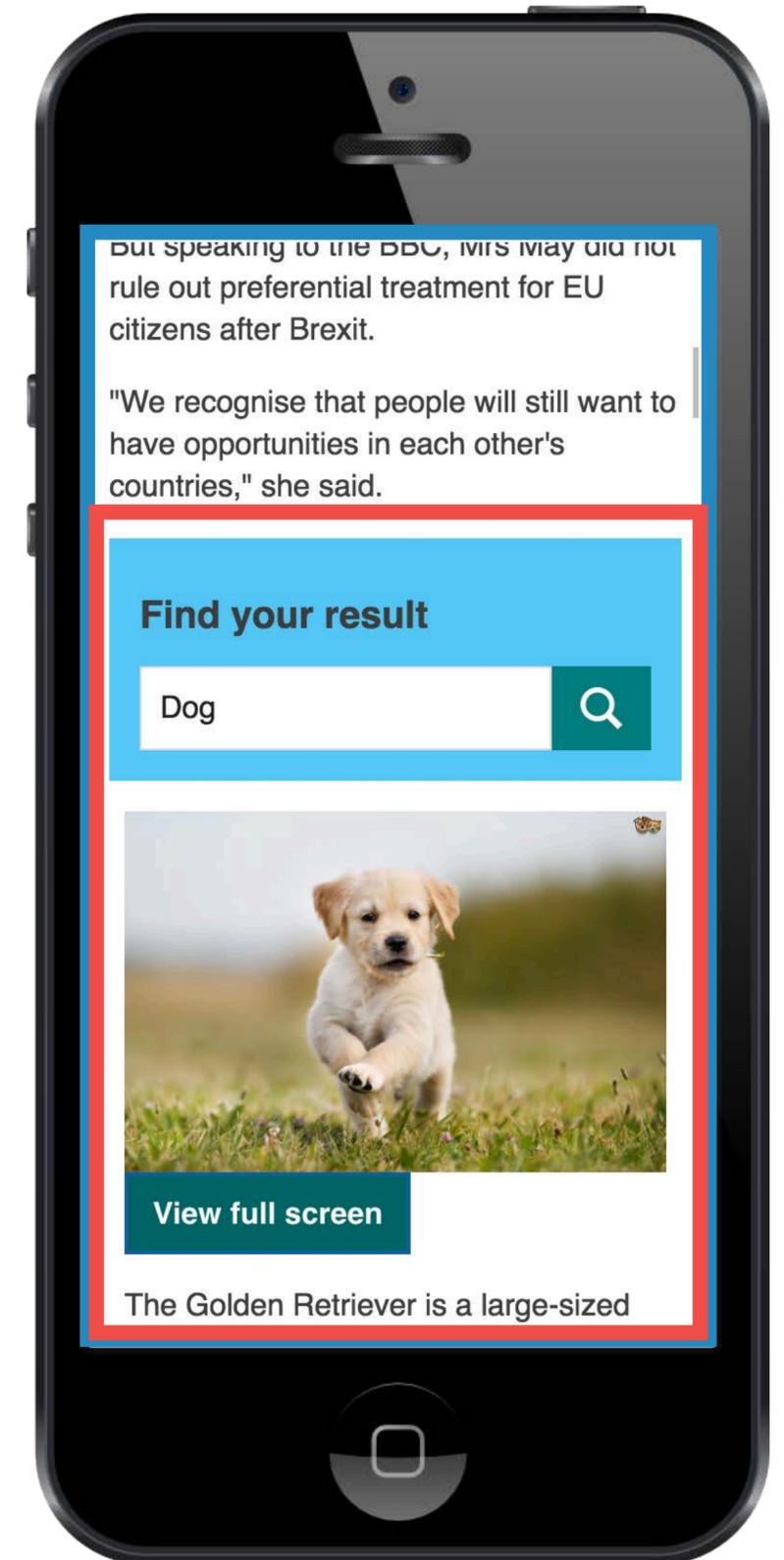
Host page

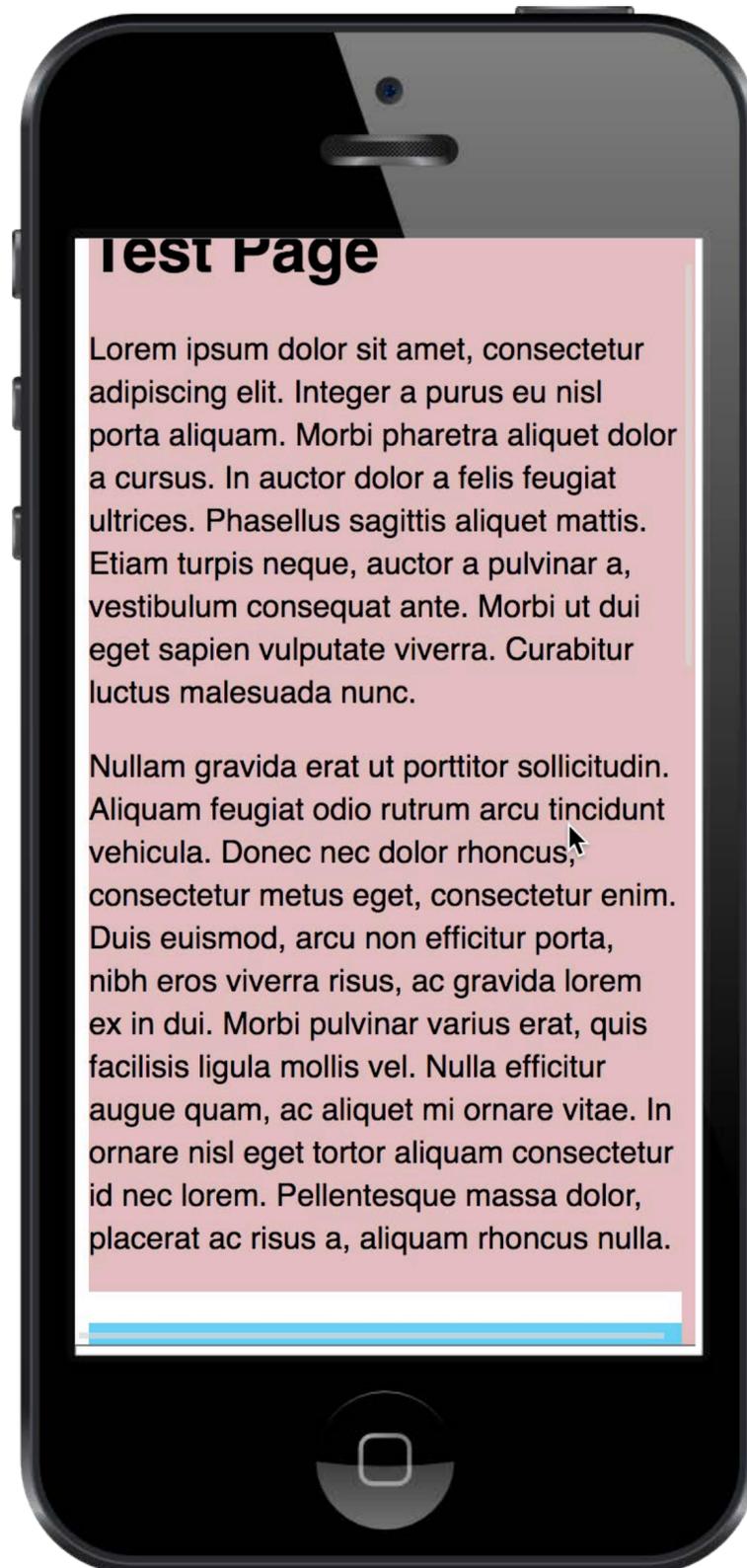
```
● ● ●  
  
.fullscreen {  
  position: fixed;  
  top: 0;  
  left: 0;  
  right: 0;  
  bottom: 0;  
}
```

Shared CSS

Application code

```
● ● ●  
  
if (isInsideIframe()) {  
  window.parent.postMessage({ name: 'window:toggleFullScreen' }, '*');  
}  
else {  
  document.body.className += ' fullscreen';  
}
```

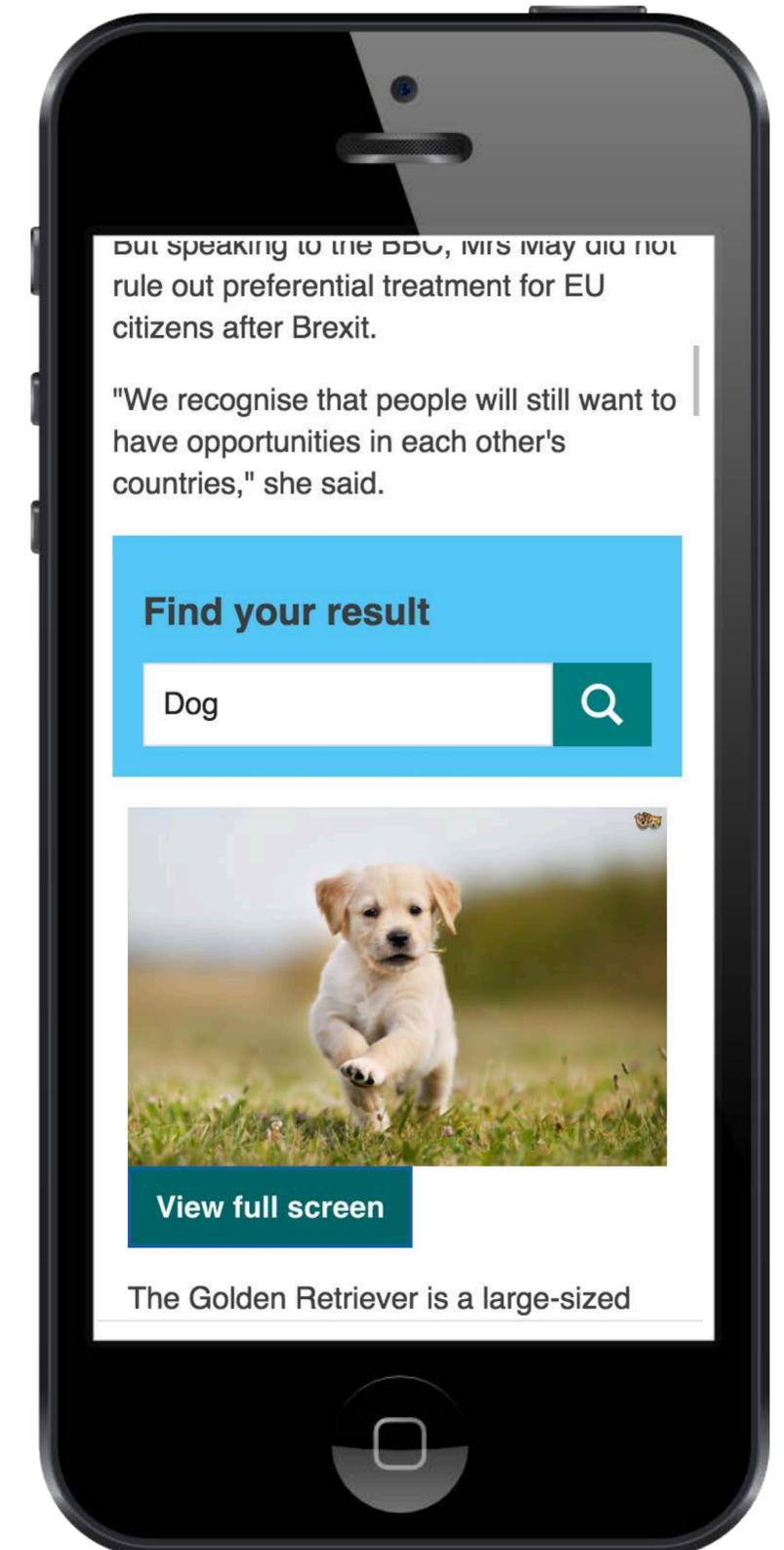




- ▶ Full screen mode works now.
- ▶ So just the scrolling behaviour to fix

Still not scrolled down automatically and still don't know the dog's name, but I can go full screen now!

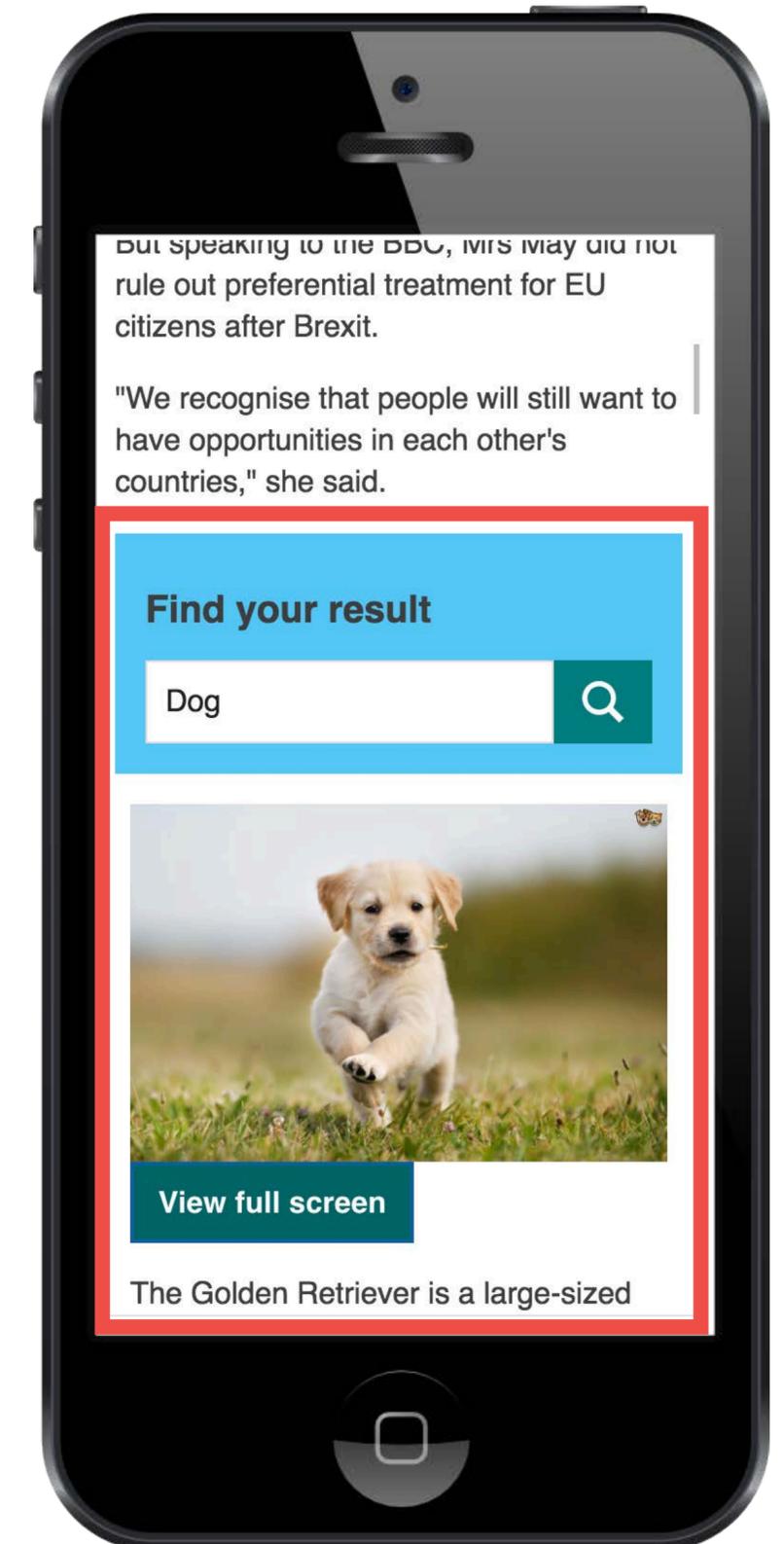
FIXING THE SCROLLING



FIXING THE SCROLLING

Application code (inside iframe)

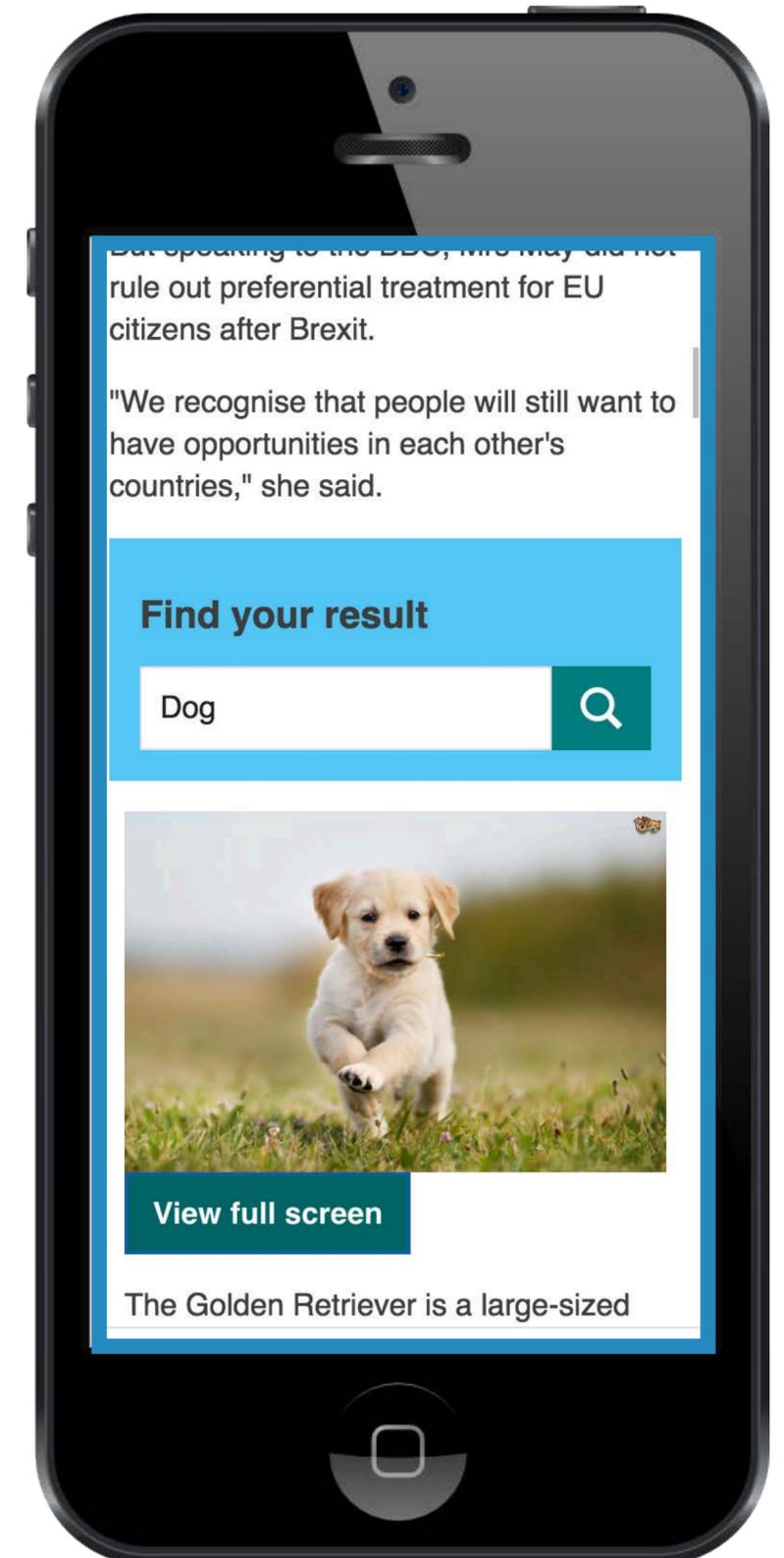
```
if (isInsideIframe()) {  
  window.addEventListener('message', evt => {  
    const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);  
    if (scrollPosCheck) {  
      respondToScroll(scrollPosCheck[0]);  
    }  
  });  
}  
else {  
  window.addEventListener('scroll', respondToScroll);  
}
```



FIXING THE SCROLLING

Host page

```
window.addEventListener('scroll', () => {  
  const iframe = document.getElementById('iframeUid');  
  const rect = iframe.getBoundingClientRect();  
  const scrollPosForIframe = parseInt(-rect.top, 10);  
  iframe.contentWindow.postMessage(`scrollPos:${scrollPosForIframe}`);  
});
```



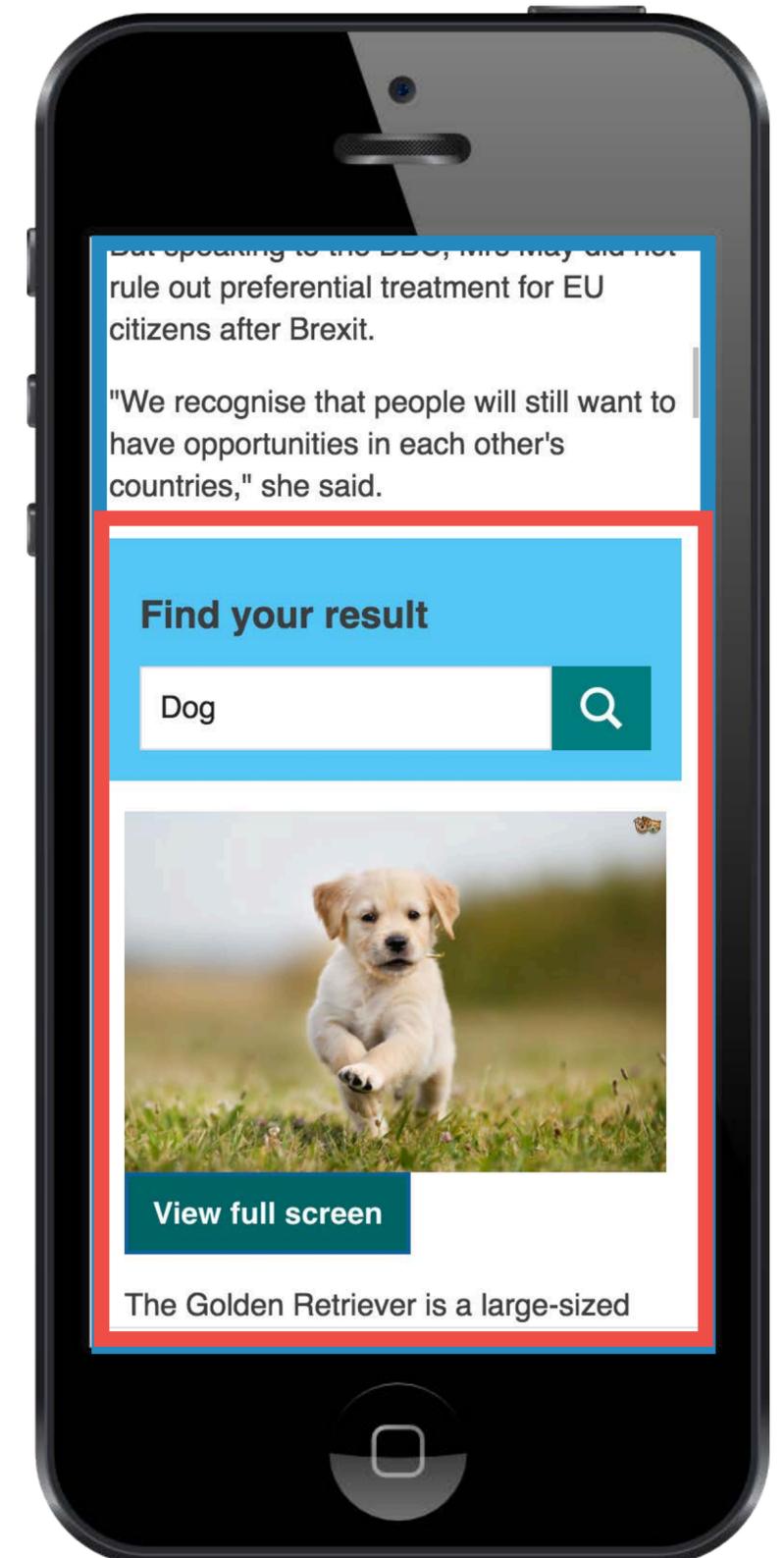
FIXING THE SCROLLING – PUTTING IT ALL TOGETHER

```
window.addEventListener('scroll', () => {  
  const iframe = document.getElementById('iframeUid');  
  const rect = iframe.getBoundingClientRect();  
  const scrollPosForIframe = parseInt(-rect.top, 10);  
  iframe.contentWindow.postMessage(`scrollPos:${scrollPosForIframe}`);  
});
```

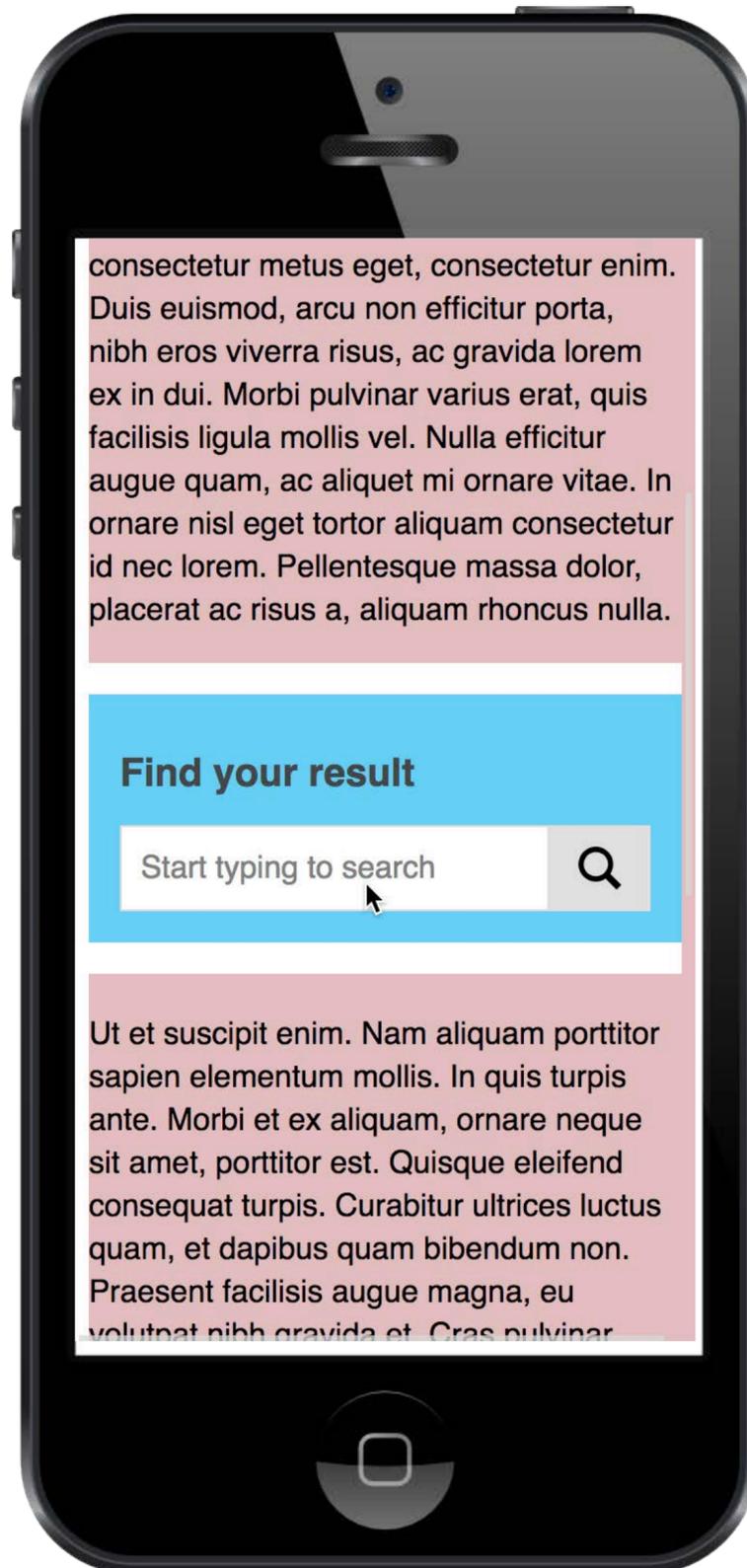
Host page

```
if (isInsideIframe()) {  
  window.addEventListener('message', evt => {  
    const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);  
    if (scrollPosCheck) {  
      respondToScroll(scrollPosCheck[0]);  
    }  
  });  
}  
else {  
  window.addEventListener('scroll', respondToScroll);  
}
```

**Application code
(inside iframe)**

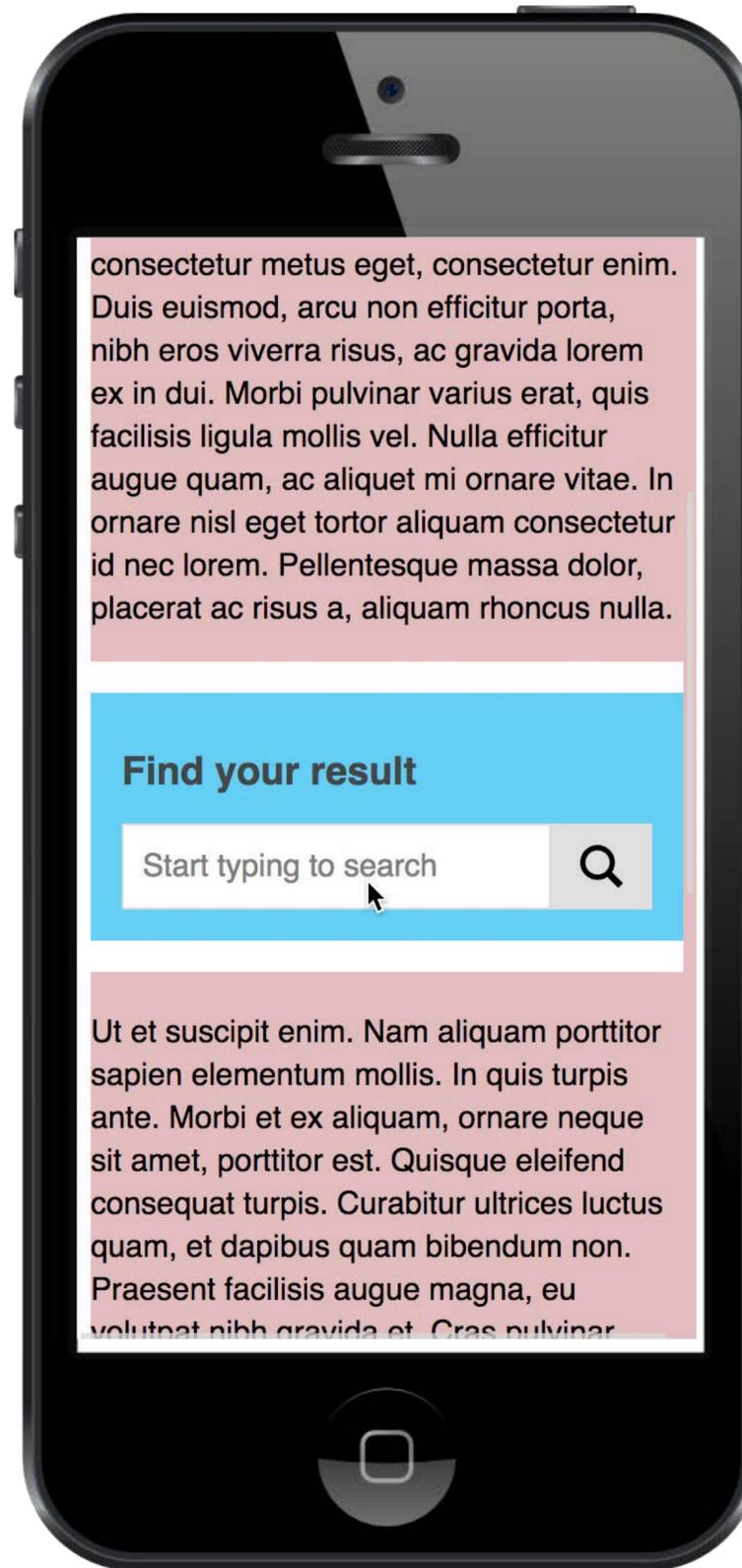
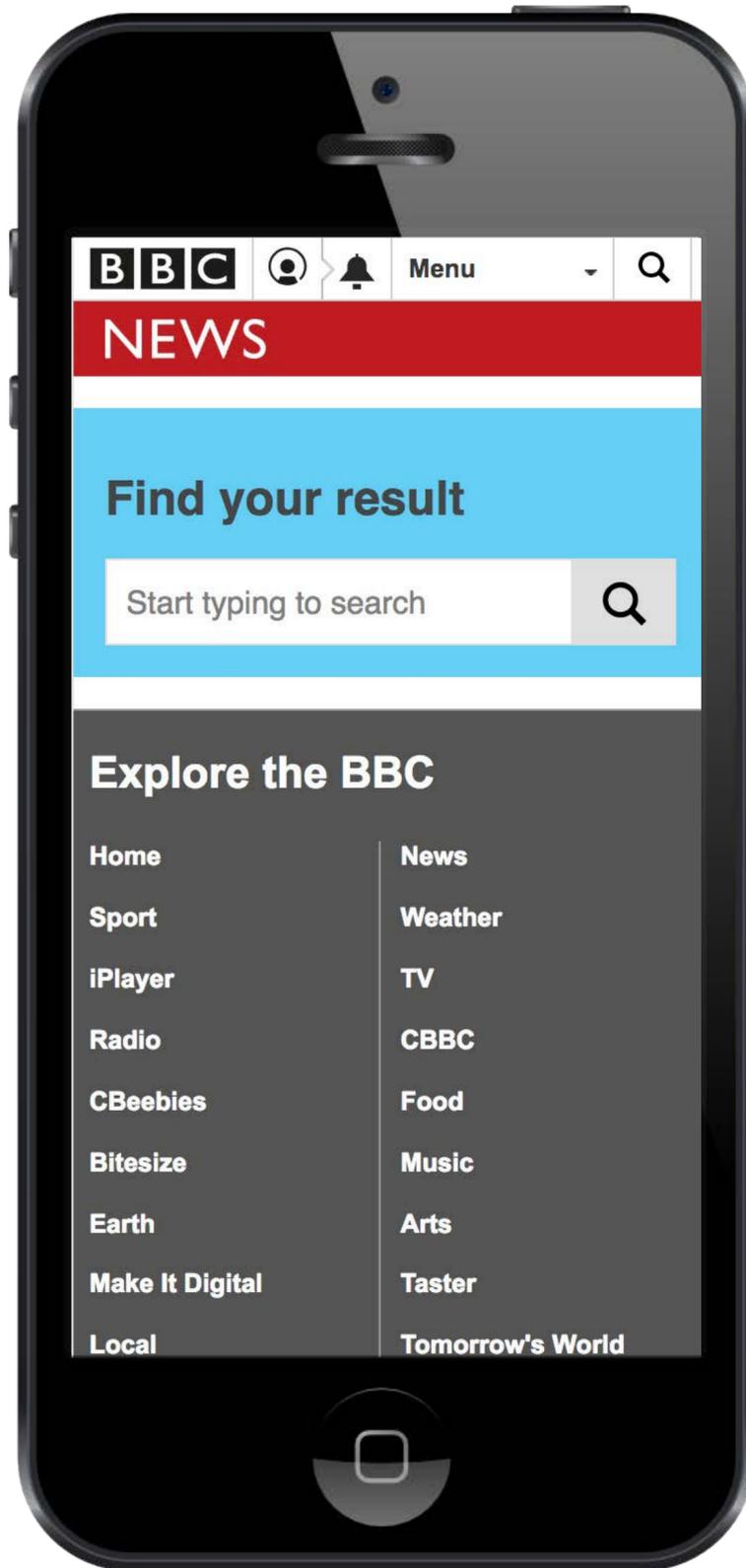


HANDLING PLATFORM COMPLEXITIES WITHIN THE APPLICATION CODE



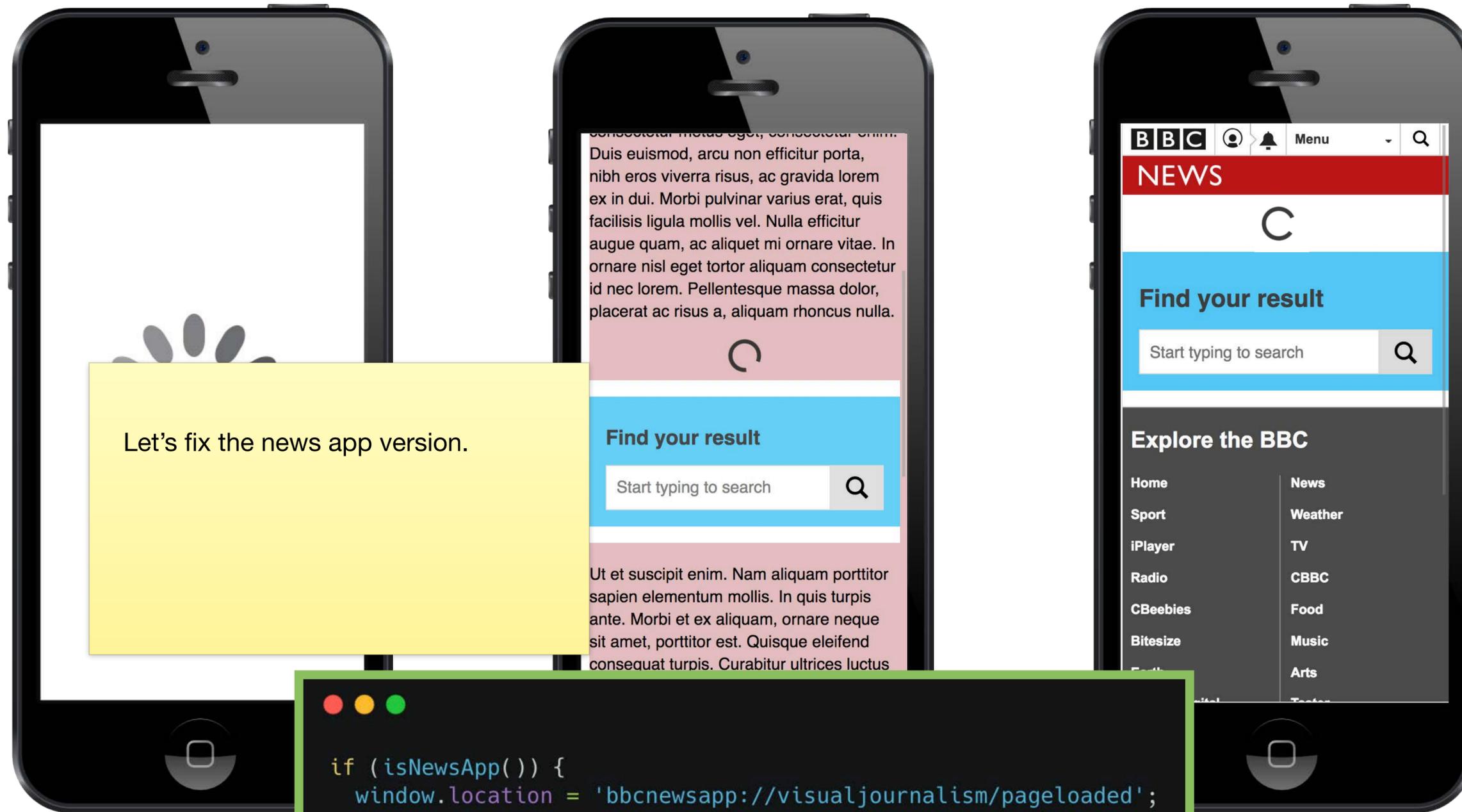
► It's all working now!

HANDLING PLATFORM COMPLEXITIES WITHIN THE APPLICATION CODE



Now we have 2 out of 3 working!

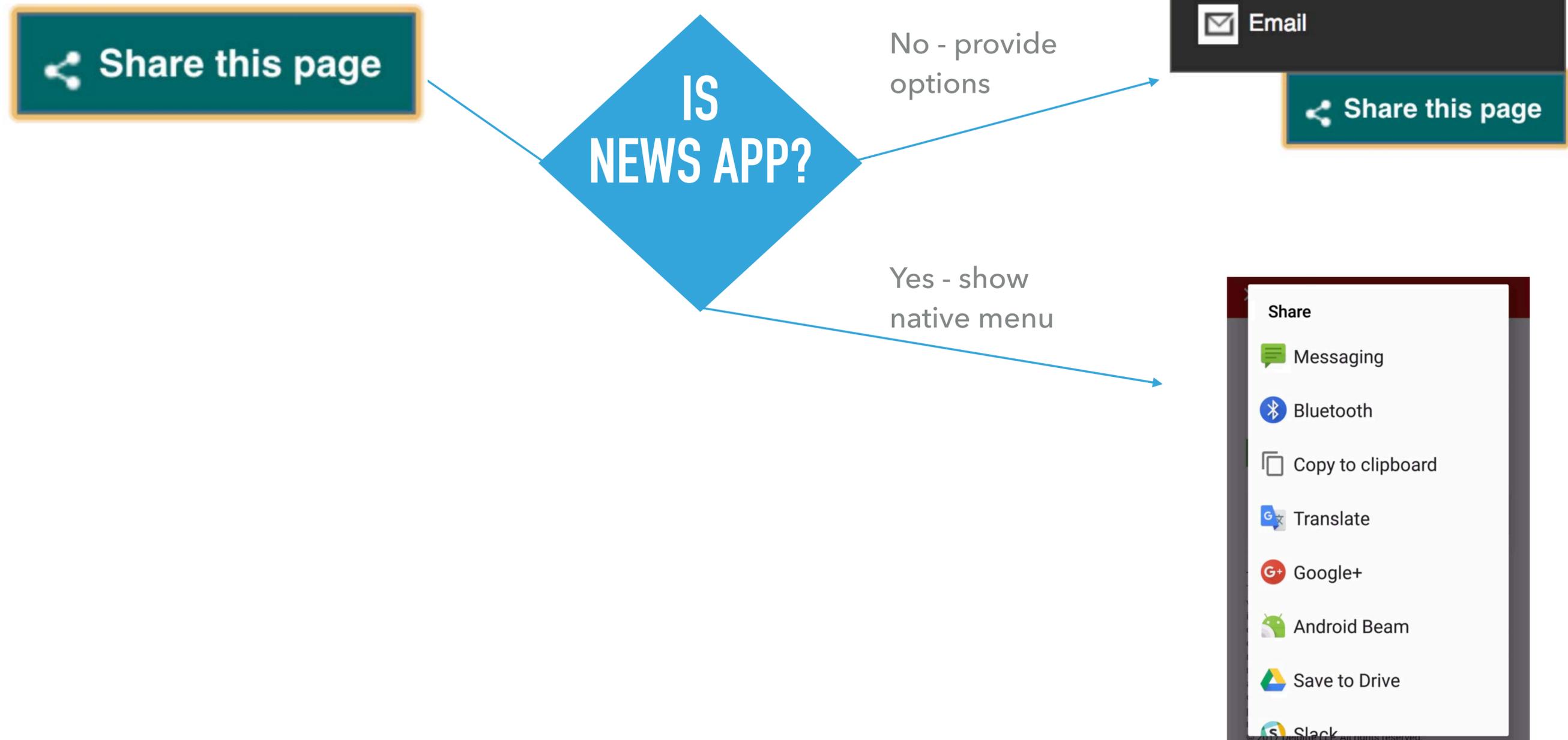
HANDLING PLATFORM COMPLEXITIES WITHIN THE APPLICATION CODE



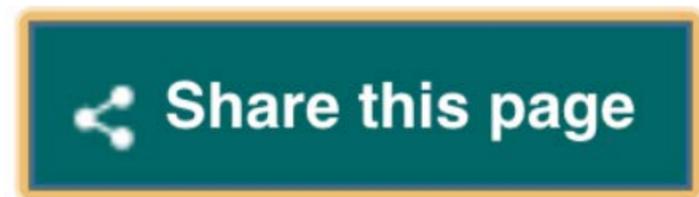
Let's fix the news app version.

```
if (isNewsApp()) {  
  window.location = 'bbcnewsapp://visualjournalism/pageloaded';  
}  
else if (isInsideIframe()) {  
  window.postMessage('pageLoaded');  
}  
else {  
  removeLoadingSpinner();  
}
```

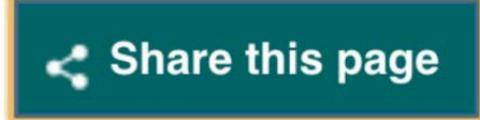
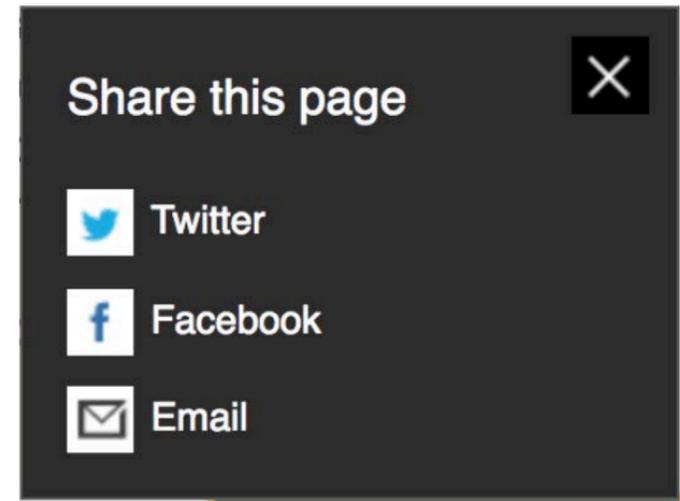
SHARING IN THE APP



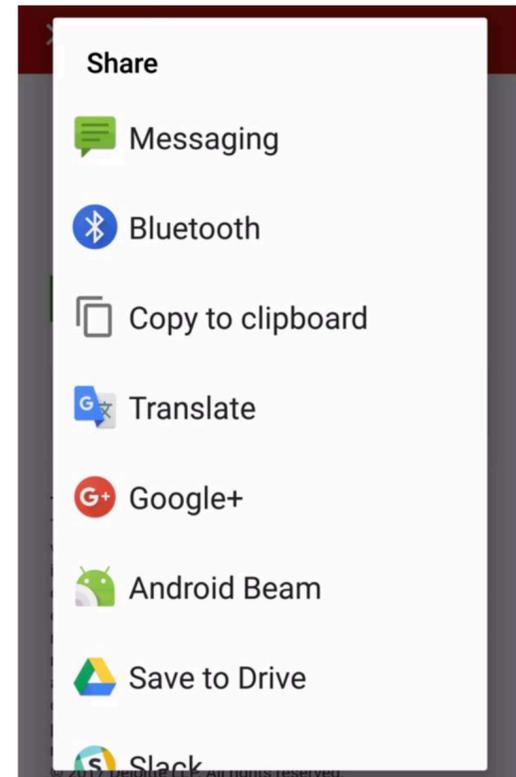
SHARING IN THE APP



No - provide options

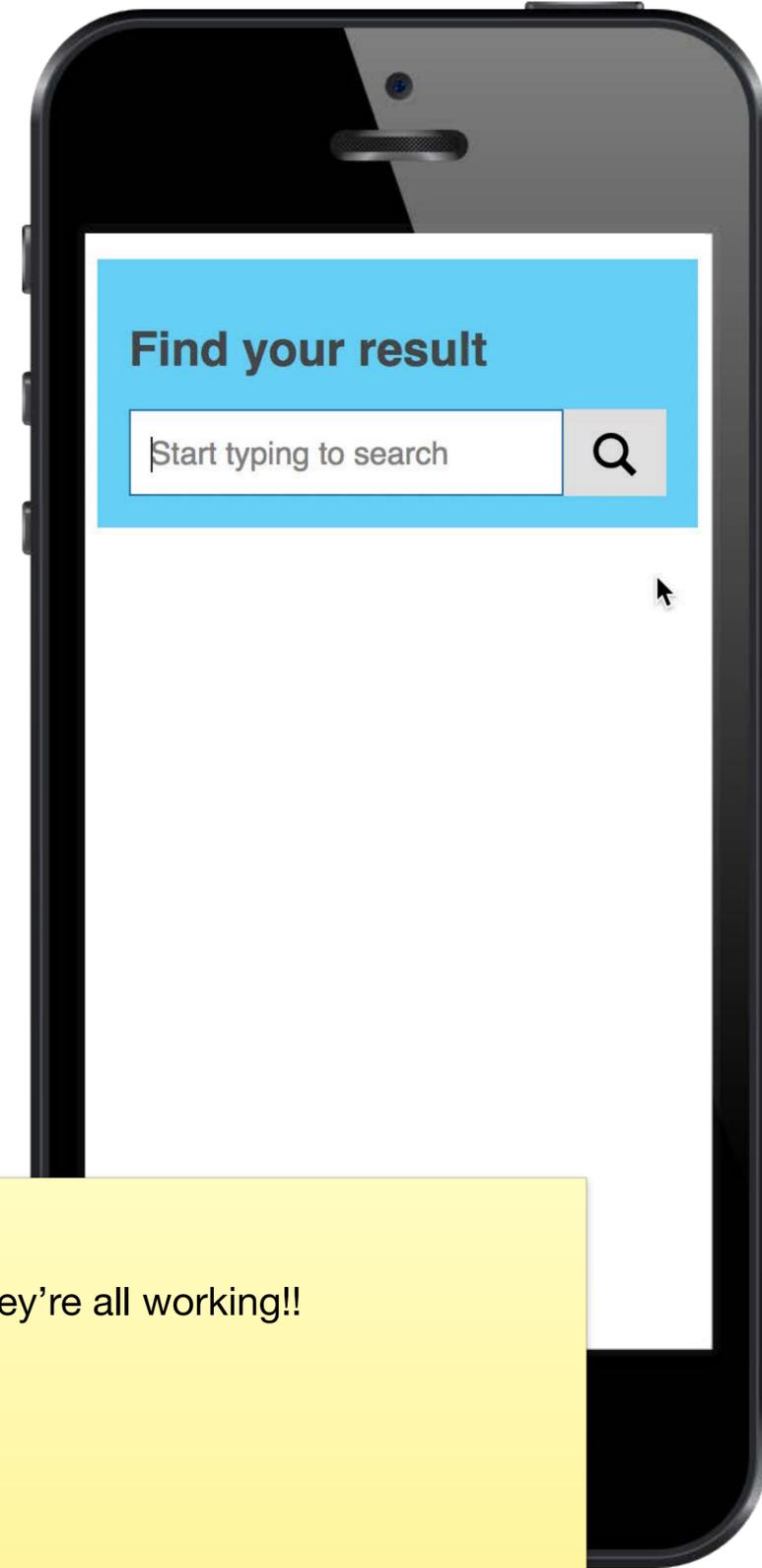
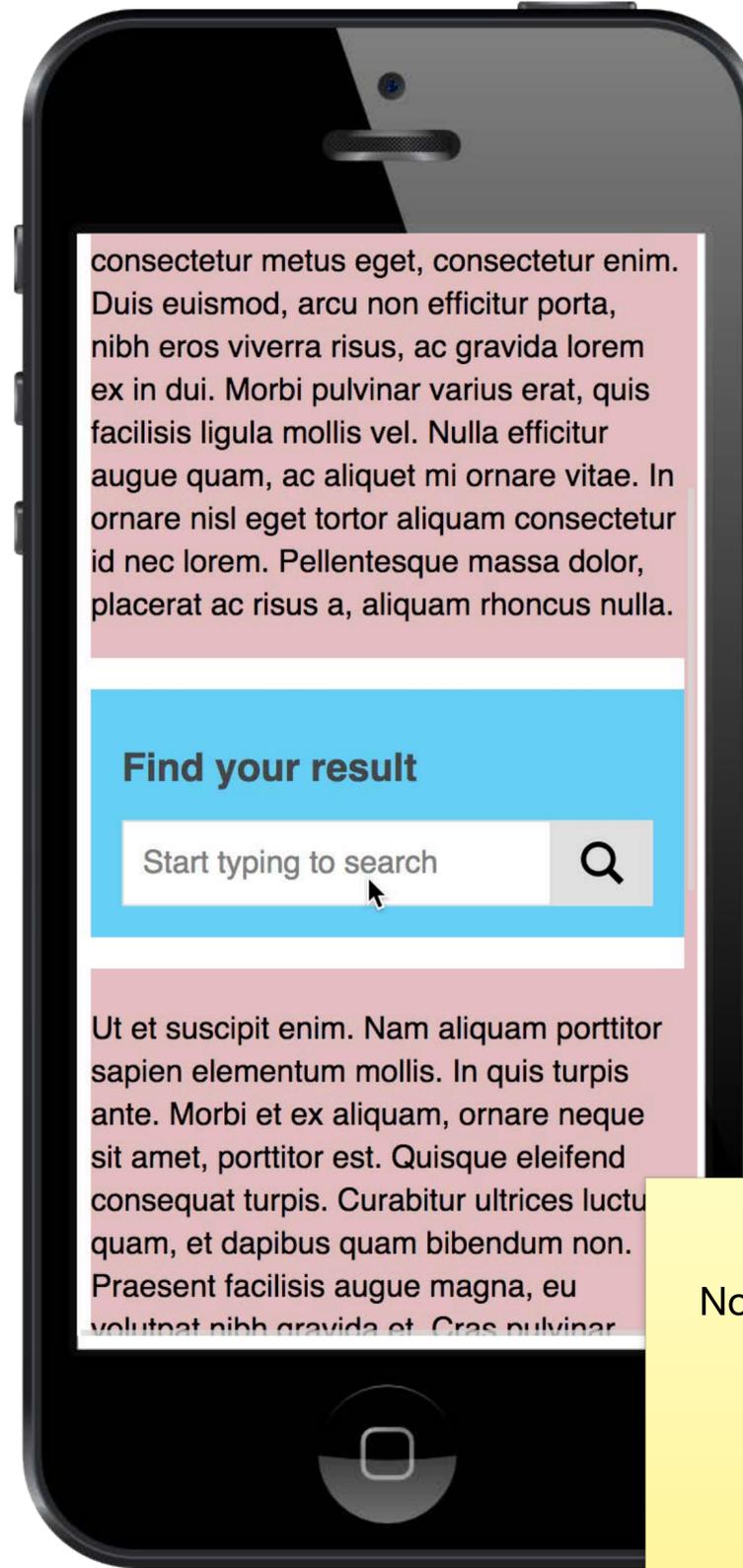
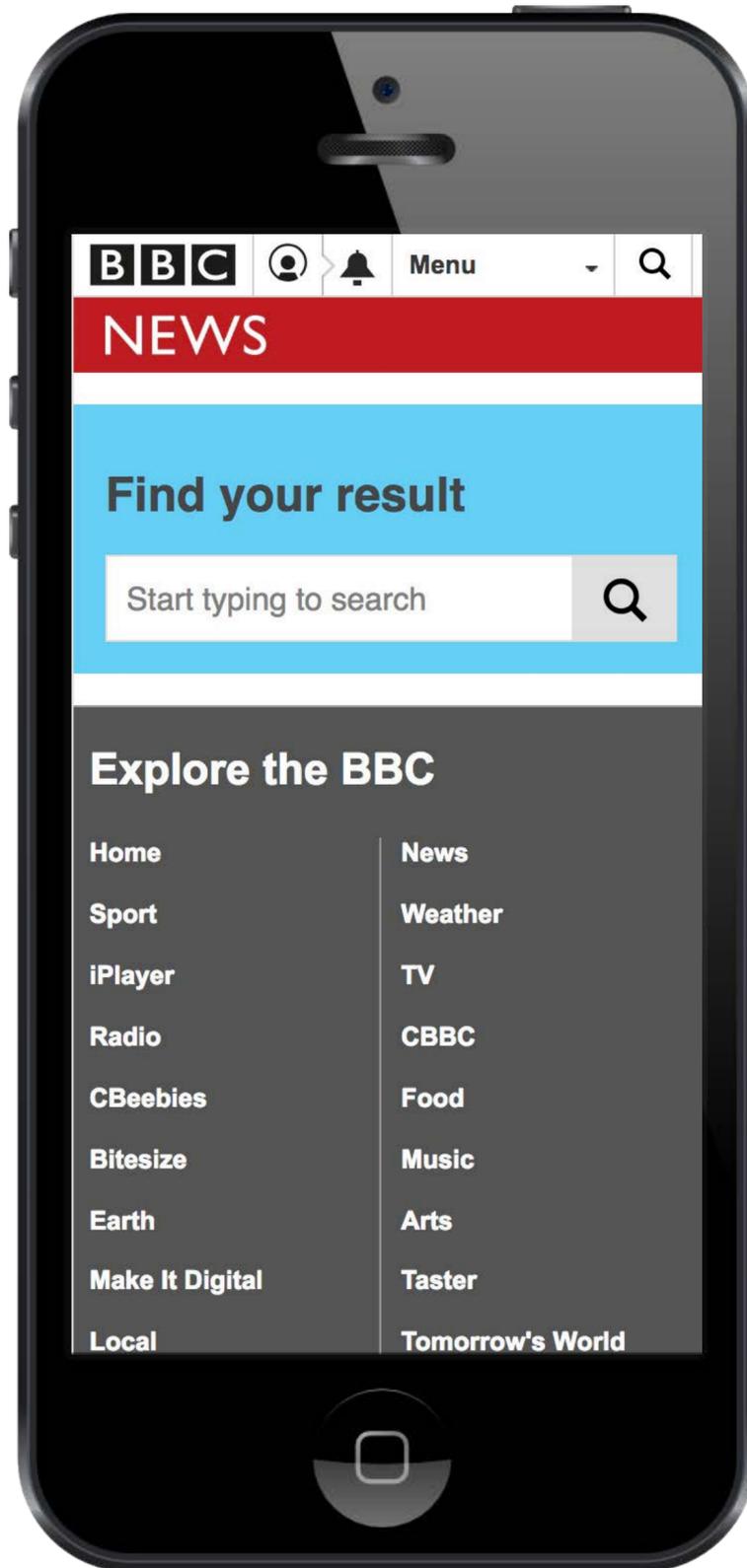


Yes - show native menu



```
if (isNewsApp()) {
  shareButton.action = 'bbcnewsapp://visualjournalism/share';
}
```

HANDLING PLATFORM COMPLEXITIES WITHIN THE APPLICATION CODE



Now they're all working!!

**... BUT HOW'S OUR
CODE LOOKING?**

WHAT HAPPENED TO OUR CODE?!

```
if (isInsideIframe()) {
  setInterval(() => {
    window.parent.postMessage({ name: `resize:${document.body.offsetHeight}`, '*'});
  }, 50);
  window.addEventListener('message', evt => {
    const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);
    if (scrollPosCheck) {
      respondToScroll(scrollPosCheck[0]);
    }
  });
} else {
  window.addEventListener('scroll', respondToScroll);
}

fullScreenButton.addEventListener('click', e => {
  if (isInsideIframe()) {
    window.parent.postMessage({ name: 'window:toggleFullScreen' }, '*');
  } else {
    document.body.className = document.querySelector('.fullscreen')
      ? document.body.className.replace('fullscreen', '')
      : 'fullscreen';
  }
});

if (isNewsApp()) {
  shareButton.action = 'bbcnewsapp://visualjournalism/share';
  window.location = 'bbcnewsapp://visualjournalism/pageloaded';
} else if (isInsideIframe()) {
  window.postMessage('pageLoaded');
} else {
  removeLoadingSpinner();
}
```

EW.

- ▶ You could clean that up by moving things around, but:
 - ▶ We'd still have the complexities of each platform bundled into our app...
 - ▶ ...and duplicated for every project.
 - ▶ We have to change our code when we add support for a new platform.
 - ▶ We have to keep track of a lot of moving parts here.

WE NEED TO ABSTRACT AWAY THE COMPLEXITIES OF EACH PLATFORM

It's clear that handling the complexities of the platforms in our code is not sustainable. We need to be smarter.

We need to abstract away the complexities of each platform.

INTRODUCING...

THE WRAPPER PATTERN

LOOK AT THIS CODE...

```
if (isInsideIframe()) {  
  window.addEventListener('message', evt => {  
    const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);  
    if (scrollPosCheck) {  
      respondToScroll(scrollPosCheck[0]);  
    }  
  });  
}  
else {  
  window.addEventListener('scroll', respondToScroll);  
}
```

WHAT IF THIS...

```
if (isInsideIframe()) {  
  window.addEventListener('message', evt => {  
    const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);  
    if (scrollPosCheck) {  
      respondToScroll(scrollPosCheck[0]);  
    }  
  });  
}  
else {  
  window.addEventListener('scroll', respondToScroll);  
}
```

...COULD BECOME THIS?

```
import wrapper from 'wrapper';
wrapper.onScroll(respondToScroll);

respondToScroll(scrollPosCheck[0]);
}
});
}
else {
  window.addEventListener('scroll', respondToScroll);
}
```

OR LOOK AT THIS CODE...



```
if (isNewsApp()) {
  window.location = 'bbcnewsapp://visualjournalism/pageloaded';
}
else if (isInsideIframe()) {
  window.postMessage('pageLoaded');
}
else {
  removeLoadingSpinner();
}
```

DOESN'T IT LOOK BETTER LIKE THIS?

```
import wrapper from 'wrapper';  
wrapper.markPageAsLoaded();
```

```
://visualjournalism/pageLoaded';
```

```
    window.postMessage( 'pageLoaded' );  
}  
else {  
    removeLoadingSpinner();  
}
```

**WE'RE DESCRIBING OUR APPLICATION
AT A HIGHER LEVEL. WE DON'T CARE
ABOUT THE IMPLEMENTATION DETAILS.**

WE HAVE ALL SORTS OF UTILITY METHODS IN THE API

- ▶ **url**
- ▶ **getScrollPosition**
- ▶ **scrollTo**
- ▶ **onScroll**
- ▶ **markPageAsLoaded**
- ▶ **viewportDimensions**
- ▶ **track**
- ▶ **toggleFullScreen**

REMEMBER THIS?

```
if (isInsideIframe()) {
  setInterval(() => {
    window.parent.postMessage({ name: `resize:${document.body.offsetHeight}`, '*'});
  }, 50);
  window.addEventListener('message', evt => {
    const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);
    if (scrollPosCheck) {
      respondToScroll(scrollPosCheck[0]);
    }
  });
} else {
  window.addEventListener('scroll', respondToScroll);
}

fullScreenButton.addEventListener('click', e => {
  if (isInsideIframe()) {
    window.parent.postMessage({ name: 'window:toggleFullScreen' }, '*');
  } else {
    document.body.className = document.querySelector('.fullscreen')
      ? document.body.className.replace('fullscreen', '')
      : 'fullscreen';
  }
});

if (isNewsApp()) {
  shareButton.action = 'bbcnewsapp://visualjournalism/share';
  window.location = 'bbcnewsapp://visualjournalism/pageloaded';
} else if (isInsideIframe()) {
  window.postMessage('pageLoaded');
} else {
  removeLoadingSpinner();
}
```

IT BECOMES SIMPLY... THIS

```

wrapper.onScroll(respondToScroll);

fullScreenButton.addEventListener('click', wrapper.toggleFullScreen);

wrapper.markPageAsLoaded();

    if (scrollPosCheck) {
        respondToScroll(scrollPosCheck[0]);
    }
});
} else {
    window.addEventListener('scroll', respondToScroll);
}

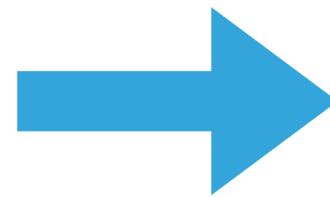
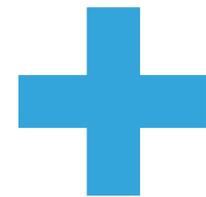
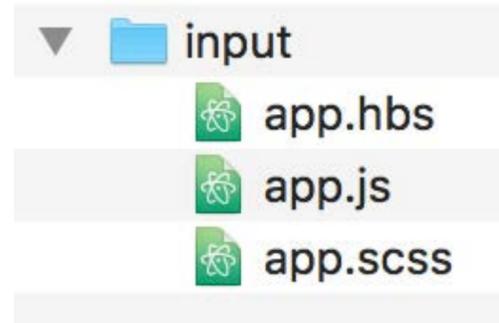
fullScreenButton.addEventListener('click', e => {
    if (isInsideIframe()) {
        window.parent.postMessage({ name: 'window:toggleFullScreen' }, '*');
    } else {
        document.body.className = document.querySelector('.fullscreen')
            ? document.body.className.replace('fullscreen', '')
            : 'fullscreen';
    }
});

if (isNewsApp()) {
    shareButton.action = 'bbcnewsapp://visualjournalism/share';
    window.location = 'bbcnewsapp://visualjournalism/pageloaded';
} else if (isInsideIframe()) {
    window.postMessage('pageLoaded');
} else {
    removeLoadingSpinner();
}

```

HOW DOES IT WORK?

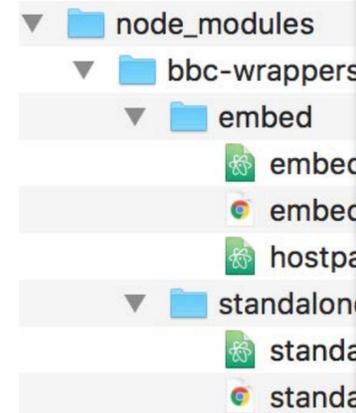
APPLICATION



WEBPACK CONFIG

```
{  
  entry: 'input/app.js',  
  externals: ['wrapper']  
}
```

WRAPPER



CUSTOM CODE

```
const app = compiler...  
wrappers.forEach(wrapper => {  
  copyApplication(app).into(wrapper);  
});
```

Keep your application in one place and your wrappers in another.

What I'm showing you here is a simplified overview of our tooling.

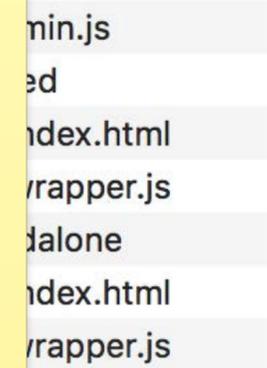
We have our application code; a simple Handlebars, JavaScript and Sass file.

In our Webpack config, we define the entrypoint to our application, and we tell it to skip trying to compile any referenced 'wrapper'.

The wrappers live elsewhere - here as a node module - and we have custom code to compile each wrapper's version.

We only compile the JavaScript once. Provided the platform provides a wrapper that conforms to our interface, it should work out of the box.

FILED OUT



COMPILE ONCE. DEPLOY ANYWHERE

Compile once, Deploy anywhere.

This mantra means our Webpack build is pretty quick, and it encourages us to keep our code as abstract as possible from its environment.

So what does a wrapper look like?

STANDALONE WRAPPER

```
class StandaloneWrapper {  
    markPageAsLoaded() {  
        removeLoadingSpinner();  
    }  
  
    onScroll(callback) {  
        window.addEventListener('scroll', callback);  
    }  
}
```

EMBED WRAPPER: TWO PARTS

```
class EmbedWrapper {  
  
  markPageAsLoaded() {  
    window.postMessage('pageLoaded');  
  }  
  
  onScroll(callback) {  
    window.addEventListener('message', evt => {  
      const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);  
      if (scrollPosCheck) {  
        callback(scrollPosCheck[1]);  
      }  
    });  
  }  
}
```

Embed wrapper (inside iframe)

Host page

```
// wrapper helper - can go inline in host page  
window.addEventListener('scroll', pos => {  
  window.postMessage(`scrollPos:${pos}`);  
});  
  
window.addEventListener('message', msg => {  
  if (msg.data === 'pageLoaded') {  
    removeLoadingSpinner();  
  }  
});
```

STANDALONE WRAPPER

EMBED WRAPPER

```
class StandaloneWrapper {  
  markPageAsLoaded() {  
    removeLoadingSpinner();  
  }  
  onScroll(callback) {  
    window.addEventListener('scroll', callback);  
  }  
}
```

```
// wrapper helper - can go inline in host page  
window.addEventListener('scroll', pos => {  
  window.postMessage(`scrollPos:${pos}`);  
});  
window.addEventListener('message', msg => {  
  if (msg.data === 'pageLoaded') {  
    removeLoadingSpinner();  
  }  
});
```

```
class EmbedWrapper {  
  markPageAsLoaded() {  
    window.postMessage('pageLoaded');  
  }  
  onScroll(callback) {  
    window.addEventListener('message', evt => {  
      const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);  
      if (scrollPosCheck) {  
        callback(scrollPosCheck[1]);  
      }  
    });  
  }  
}
```

STANDALONE WRAPPER

SIDE-NOTE

```
class StandaloneWrapper {  
  
  markPageAsLoaded() {  
    removeLoadingSpinner();  
  }  
  
  onScroll(callback) {  
    window.addEventListener('scroll', callback);  
  }  
  
}
```

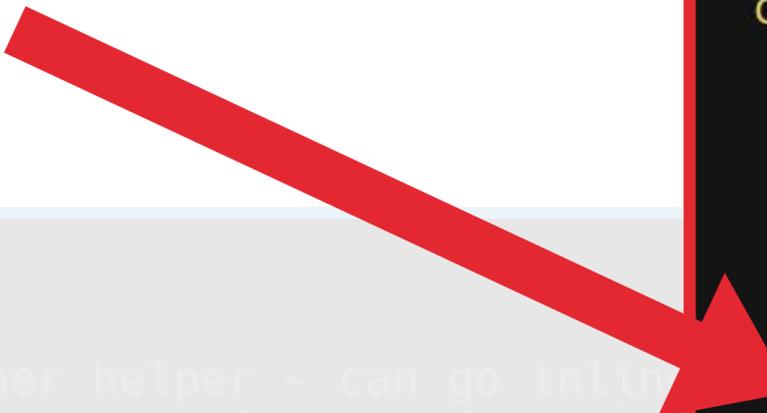
EMBED WRAPPER

```
// wrapper helper - can go inline in host page  
window.addEventListener('scroll', pos => {  
  window.postMessage(`scrollPos:${pos}`);  
});  
  
window.addEventListener('message', msg => {  
  if (msg.data === 'pageLoaded') {  
    removeLoadingSpinner();  
  }  
});
```

```
class EmbedWrapper {  
  
  markPageAsLoaded() {  
    window.postMessage('pageLoaded');  
  }  
  
  onScroll(callback) {  
    window.addEventListener('message', evt => {  
      const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);  
      if (scrollPosCheck) {  
        callback(scrollPosCheck[1]);  
      }  
    });  
  }  
  
}
```

WRAPPER PATTERN IMPLEMENTATION

SIDE-NOTE



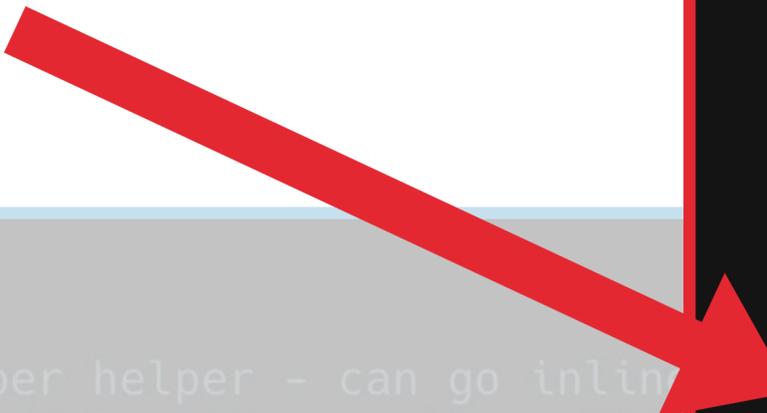
```
class StandaloneWrapper {  
  
  markPageAsLoaded() {  
    removeLoadingSpinner();  
  }  
}
```

```
class EmbedWrapper {  
  
  markPageAsLoaded() {  
    window.postMessage('pageLoaded');  
  }  
  
  onScroll(callback) {  
    window.addEventListener('message', evt => {  
      const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);  
      if (scrollPosCheck) {  
        callback(scrollPosCheck[1]);  
      }  
    });  
  }  
}
```

```
// wrapper helper - can go inline  
window.addEventListener('scroll', () => {  
  window.postMessage(`scrollPos:${window.scrollY}`);  
});  
  
window.addEventListener('message', (evt) => {  
  if (msg.data === 'pageLoaded') {  
    removeLoadingSpinner();  
  }  
});
```

WRAPPER PATTERN IMPLEMENTATION

SIDE-NOTE



```
class StandaloneWrapper {  
  
  markPageAsLoaded() {  
    removeLoadingSpinner();  
  }  
}
```

```
class EmbedWrapper {  
  
  markPageAsLoaded() {  
    window.postMessage('pageLoaded');  
  }  
  
  onScroll(callback) {  
    window.addEventListener('message', evt => {  
      const scrollPosCheck = evt.data.match(/scrollPos:(.+)/);  
      if (scrollPosCheck) {  
        requestAnimationFrame(() => {  
          callback(scrollPosCheck[1]);  
        });  
      }  
    });  
  }  
}
```

```
// wrapper helper - can go inline  
window.addEventListener('scroll', () => {  
  window.postMessage(`scrollPos:${window.scrollY}`);  
});  
  
window.addEventListener('message', evt => {  
  if (msg.data === 'pageLoaded')  
    removeLoadingSpinner();  
});
```

HOW WE SYNDICATE THE RIGHT FLAVOUR OF CONTENT TO EACH PLATFORM

**HOW DOES EACH PLATFORM
GET THE RIGHT VERSION?**

WE PROVIDE JOURNALISTS WITH A NAMESPACED PATH

The image shows a rich text editor interface. At the top left is an 'Add Media' button. On the top right are 'Visual' and 'Text' tabs. Below these is a toolbar with various icons for text formatting (bold, italic, list, link, etc.) and editing (undo, redo, etc.). The main content area contains two paragraphs of placeholder text. A red rectangular box highlights a specific element in the second paragraph: a text box containing the path `/include/visual-journalism/123-quiz` and an 'Include' button with a dropdown arrow.

Add Media

Visual Text

Paragraph **B** *I* ☰ ☷ ☶ ☵ 🔗 ☰ ☷ ☵ 🔗 ☰ ☷ ☵ 🔗

ABC — A ▼ 📄 ✎ Ω ↶ ↷ ↶ ↷ ?

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed nec est nec massa maximus molestie sit amet ac dolor. Proin euismod mollis felis, quis lobortis nibh dignissim eget. Nulla facilisi. Nulla nec auctor eros, eu tempus nisl. Quisque viverra facilisis eros, sed ullamcorper orci sagittis quis. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum laoreet nulla et ornare suscipit. In sit amet odio ligula. Aenean efficitur posuere erat dignissim condimentum. Duis lectus erat, vehicula aliquet cursus eu, eleifend non mi. Mauris vestibulum laoreet pulvinar.

`/include/visual-journalism/123-quiz` Include ▼

Cras non neque ligula. Donec venenatis, nibh in ornare aliquam, dui est commodo mi, non auctor velit diam maximus sem. Integer convallis finibus nunc ac euismod. Proin fringilla auctor lacus, quis rutrum tellus gravida et. Sed vel bibendum eros, eget ornare nisi. Etiam dictum ullamcorper tempor. Integer sit amet purus sit amet arcu pharetra imperdiet. Aliquam porta, dolor a sodales finibus, velit diam consequat est, eget porta dolor enim sit amet diam.

WE PROVIDE JOURNALISTS WITH A NAMESPACE

The image shows a content management system editor interface. At the top left, there is an 'Add Media' button. Below it is a rich text editor toolbar with various icons for text formatting (bold, italic, list, link, etc.) and alignment. The main text area contains placeholder text: 'Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed nec est nec massa maximus morbi...'. Below the text area, there is a red-bordered box containing the path `/include/visual-journalism/123-quiz` and an 'Include' button with a dropdown arrow. A blue arrow points from this path to a file directory structure on the right. The directory structure is also highlighted with a red border and shows a folder named '123-quiz' containing subfolders 'embed' and 'standalone', and files 'app.min.js', 'index.html', and 'wrapper.js' in each.

`/include/visual-journalism/123-quiz` Include ▼

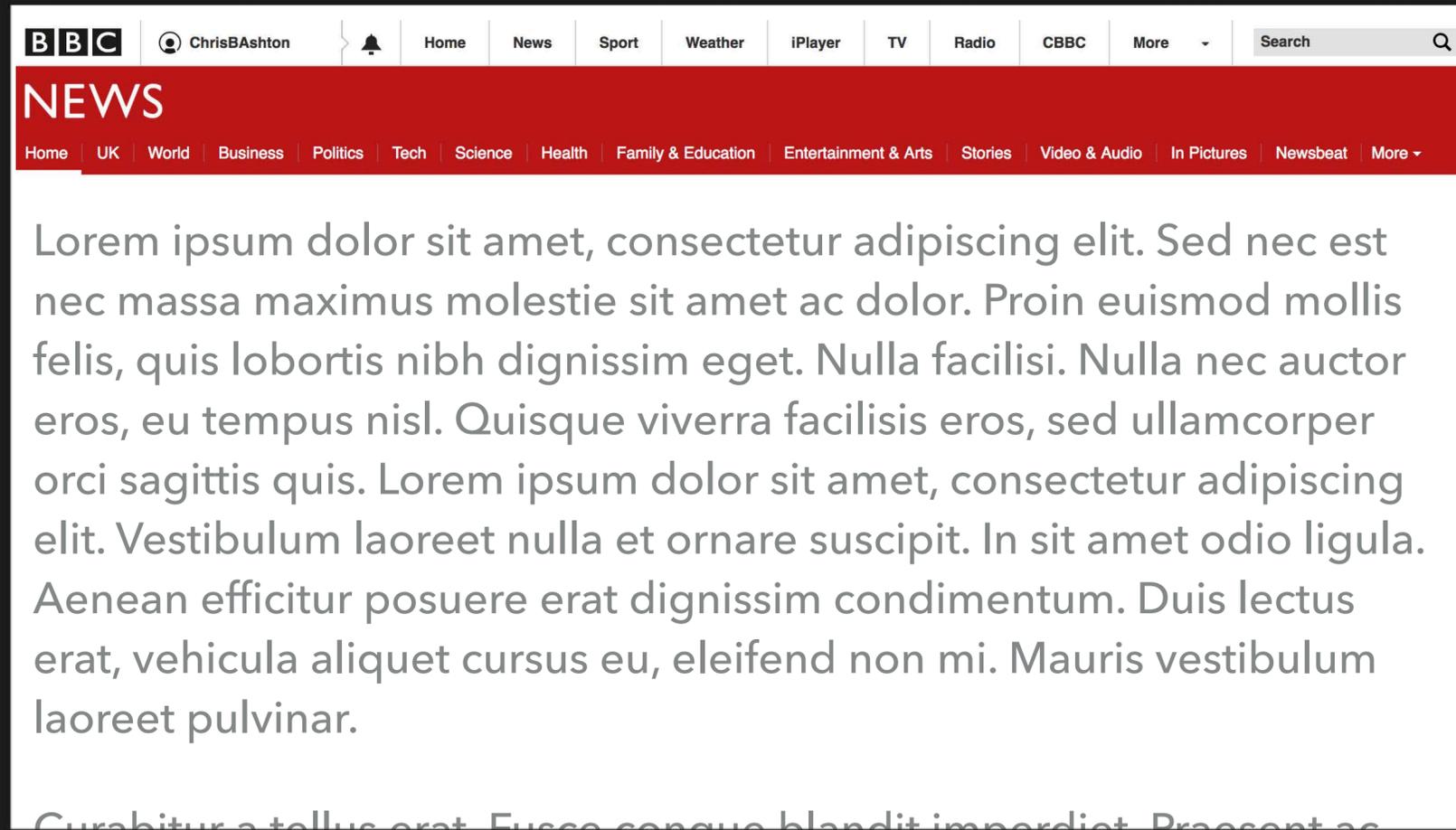
123-quiz

- app.min.js
- embed
 - index.html
 - wrapper.js
- standalone
 - index.html
 - wrapper.js

References a location in S3 bucket on AWS

IT'S UP TO THE PLATFORM TO REQUEST THE VERSION IT NEEDS

This is the BBC article renderer.



IT'S UP TO THE PLATFORM TO REQUEST THE VERSION IT NEEDS

NEWS

[Home](#) [UK](#) [World](#) [Business](#) [Politics](#) [Tech](#) [Science](#) [Health](#) [Family & Education](#) [Entertainment & Arts](#) [Stories](#) [Video & Audio](#) [In Pictures](#) [Newsbeat](#) [More ▾](#)

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed nec est nec massa maximus molestie sit amet ac dolor. Proin euismod mollis felis, quis lobortis nibh dignissim eget. Nulla facilisi. Nulla nec auctor eros, eu tempus nisl. Quisque viverra facilisis eros, sed ullamcorper orci sagittis quis. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum laoreet nulla et ornare suscipit. In sit amet odio ligula. Aenean efficitur posuere erat dignissim condimentum. Duis lectus erat, vehicula aliquet cursus eu, eleifend non mi. Mauris vestibulum laoreet pulvinar.

Curabitur a tellus erat. Fusce congue blandit imperdiet. Praesent ac turpis eleifend, pretium nisi eget, varius tortor. Vestibulum ac ex

This is the BBC article renderer.

It's rendering the text fine as we go.

IT'S UP TO THE PLATFORM TO REQUEST THE VERSION IT NEEDS

nec massa maximus molestie sit amet ac dolor. Proin euismod mollis eros, eu tempus. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum laoreet nulla et ornare suscipit. In sit amet odio ligula. Aenean efficitur posuere erat dignissim condimentum. Duis lectus erat, vehicula aliquet cursus eu, eleifend non mi. Mauris vestibulum laoreet pulvinar.

Curabitur a tellus erat. Fusce congue blandit imperdiet. Praesent ac turpis eleifend, pretium nisi eget, varius tortor. Vestibulum ac ex sapien. Morbi consequat a arcu non mollis. Aenean ut tellus ac massa laoreet feugiat. Sed dictum velit eget elementum egestas.

`/include/visual-journalism/123-quiz`

Include ▼

This is the BBC article renderer.

It's rendering the text fine as we go.

But then we reach that include path.

IT'S UP TO THE PLATFORM TO REQUEST THE VERSION IT NEEDS

nec massa maximus molestie sit amet ac dolor. Proin euismod mollis eros, eu tempus. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum laoreet nulla et ornare suscipit. In sit amet odio ligula. Aenean efficitur posuere erat dignissim condimentum. Duis lectus erat, vehicula aliquet cursus eu, eleifend non mi. Mauris vestibulum laoreet pulvinar.

Curabitur a tellus erat. Fusce congue blandit imperdiet. Praesent ac turpis eleifend, pretium nisi eget, varius tortor. Vestibulum ac ex sapien. Morbi consequat a arcu non mollis. Aenean ut tellus ac massa laoreet feugiat. Sed dictum velit eget elementum egestas.

`/include/visual-journalism/123-quiz`

Include ▼

This is the BBC article renderer.

It's rendering the text fine as we go.

But then we reach that include path.

It knows it needs the embed version.

IT'S UP TO THE PLATFORM TO REQUEST THE VERSION IT NEEDS

nec massa maximus molestie sit amet ac dolor. Proin euismod mollis eros, eu tempus. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum laoreet nulla et ornare suscipit. In sit amet odio ligula. Aenean efficitur posuere erat dignissim condimentum. Duis lectus erat, vehicula aliquet cursus eu, eleifend non mi. Mauris vestibulum laoreet pulvinar.

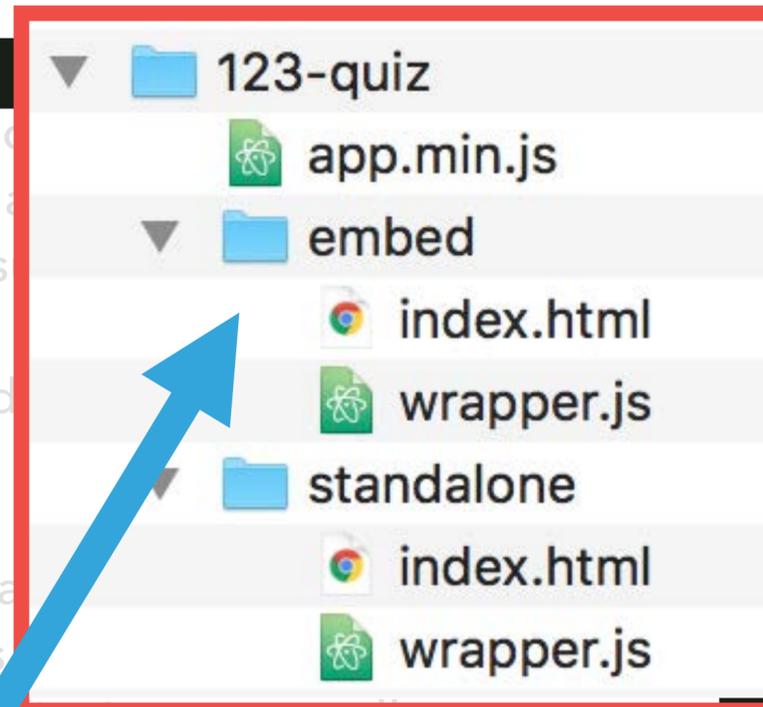
Curabitur a tellus erat. Fusce congue blandit imperdiet. Praesent ac turpis eleifend, pretium nisi eget, varius tortor. Vestibulum ac ex sapien. Morbi consequat a arcu non mollis. Aenean ut tellus ac massa laoreet feugiat. Sed dictum velit eget elementum egestas.

`/include/visual-journalism/123-quiz/embed`

Include ▼

This is the BBC article renderer.
It's rendering the text fine as we go.
But then we reach that include path.
It knows it needs the embed version.
So it appends /embed to the path.

IT'S UP TO THE PLATFORM TO REQUEST THE VERSION IT NEEDS



nec massa maximus molestie sit amet ac
eros, eu tempus. Lorem ipsum dolor sit a
elit. Vestibulum laoreet nulla et ornare s
Aenean efficitur posuere erat dignissim
erat, vehicula aliquet cursus eu, eleifend
laoreet pulvinar.

Curabitur a tellus erat. Fusce congue bla
turpis eleifend, pretium nisi eget, varius
sapien. Morbi consequat a arcu non m
laoreet feugiat. Sed dictum velit ege
elementum egestas.

`/include/visual-journalism/123-quiz/embed`

Include ▾

This is the BBC article renderer.
It's rendering the text fine as we go.
But then we reach that include path.
It knows it needs the embed version.
So it appends /embed to the path.

**And fetches the /embed version
from AWS.**

THE SAME PRINCIPLE APPLIES FOR EVERY PLATFORM

The same `app.min.js` is used everywhere. All that changes is the **HTML** entrypoint.

`/include/visual-journalism/123-quiz/embed`

Include ▼



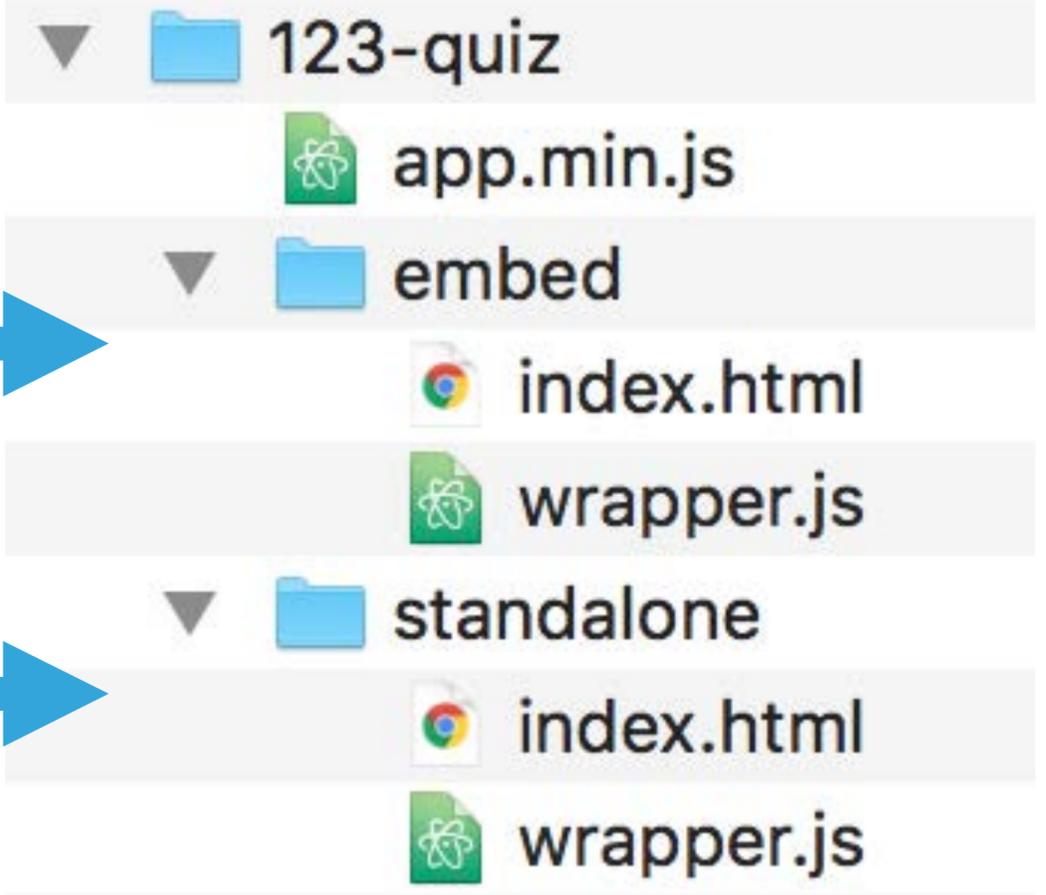
`/include/visual-journalism/123-quiz/standalone`

Include ▼



`/include/visual-journalism/123-quiz/news-app`

Include ▼



WE'RE BASICALLY A PIZZA PLACE

- ▶ It's up to the consumer which 'flavour' of content it wants
- ▶ They all have largely the same ingredients, but are all spruced up in slightly different ways

SINGLE SAUCE SOURCE OF TRUTH



MULTIPLE 'FLAVOURS' OF OUTPUT



LIST OF WRAPPERS

- ▶ Embed
- ▶ Standalone
- ▶ News App
- ▶ AMP
- ▶ Syndicated
- ▶ Core
- ▶ Envelope
- ▶ Facebook Instant Articles
- ▶ Apple News (coming soon!)

[start explaining each wrapper and what it is. At some point, give up]

“ah I’m gonna have to explain this with pizzas.”

LIST OF WRAPPERS

- ▶ Embed
- ▶ Standalone
- ▶ News App
- ▶ AMP
- ▶ Syndicated
- ▶ Core
- ▶ Envelope
- ▶ Facebook Instant Articles
- ▶ Apple News (coming soon!)

CORRESPONDING PIZZA



- ▶ Calzone
- ▶ Chicago-style deep pan with sausage
- ▶ Hawaiian
- ▶ Microwavable mini pepperoni bites
- ▶ Dough balls
- ▶ Uncooked dough
- ▶ Domino's Delivery
- ▶ Garlic bread
- ▶ An empty box

Calzone because it wraps itself in a protective layer.

Deep pan means you really can stand it on its own. It's got a sturdy foundation.

News App is Hawaiian because it's a bit weird and nobody quite understands how it works.

AMP is FAST.

Dough balls are the easiest things to share.

Core experience is very minimal - just HTML, no styling.

Envelope could contain anything, so think of it as a mystery pizza in a box.

FIA is basically garlic bread because it's the same size every time (fixed height iframe)

Apple News - not yet!

SO... IS PIZZA GOOD FOR EVERY MEAL? NO!



THE WRAPPER INTRODUCES PROBLEMS OF ITS OWN

- ▶ Not every platform supports every feature we need
- ▶ Do you see any problems with this code?

```
wrapper.onScroll(scrollPos => {  
  if (scrollPos > chartThreshold) {  
    Chart.animate();  
  }  
});
```

Platforms like AMP don't pass scroll events to the iframe, so there is no way of

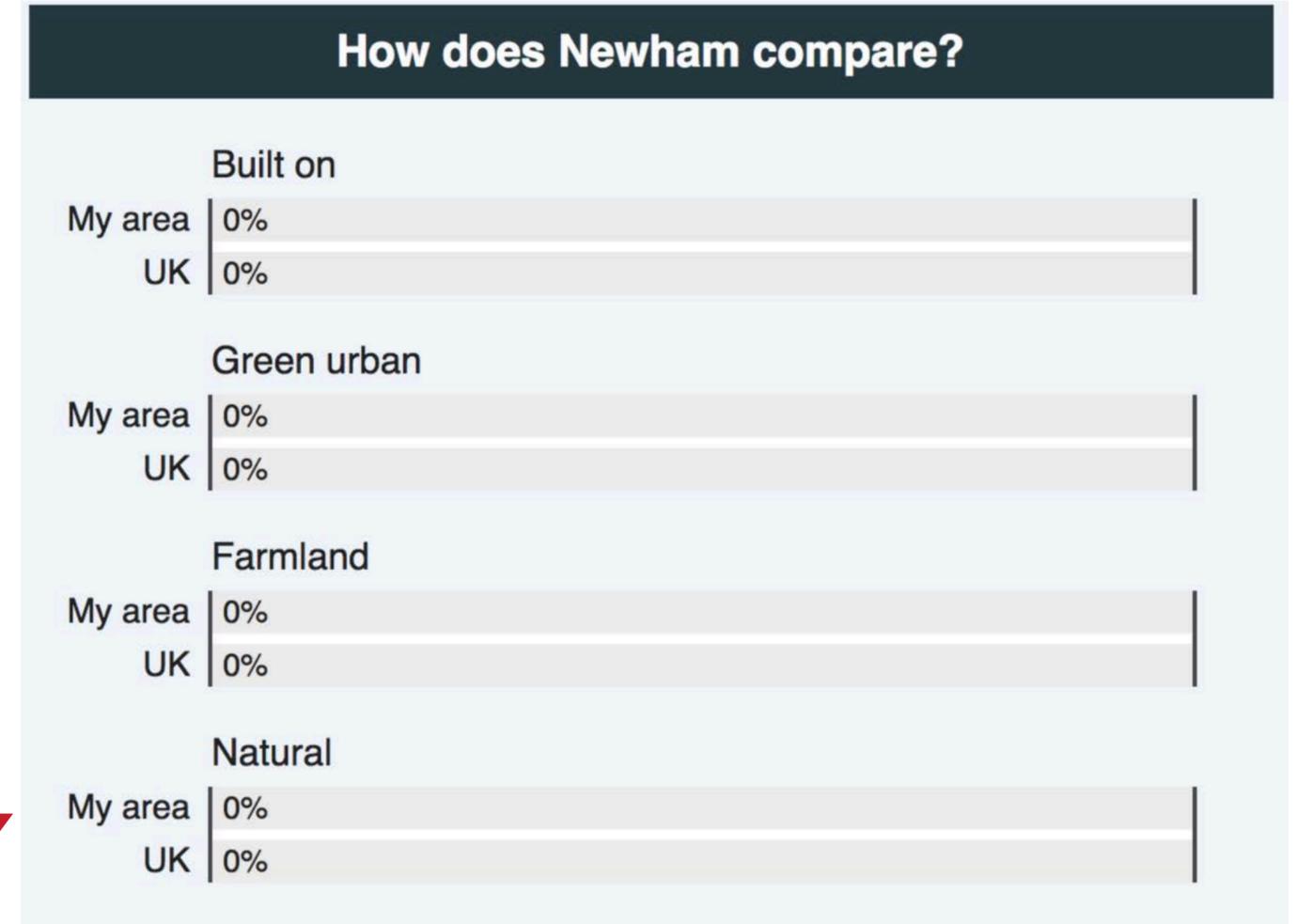
- figuring out where our content is in the document
- responding to the user scroll, and
- triggering a scroll ourselves.

What do you think would happen here?

THE WRAPPER INTRODUCES PROBLEMS OF ITS OWN

- ▶ This is what we have in the page by default
- ▶ Then we scroll...

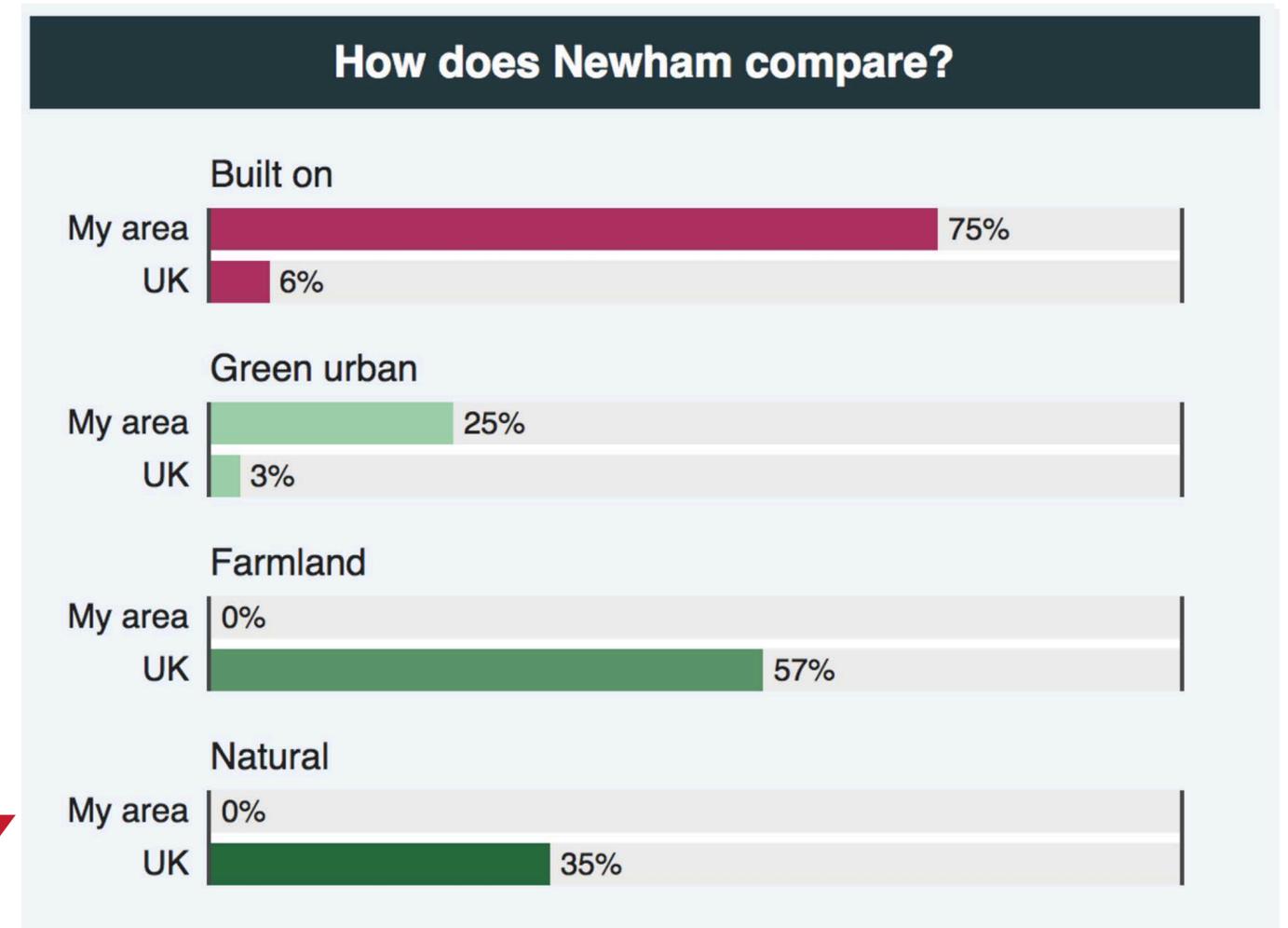
```
wrapper.onScroll(scrollPos => {  
  if (scrollPos > chartThreshold) {  
    Chart.animate();  
  }  
});
```



THE WRAPPER INTRODUCES PROBLEMS OF ITS OWN

- ▶ This is what we have in the page by default
- ▶ Then we scroll...
- ▶ And the bars come into view

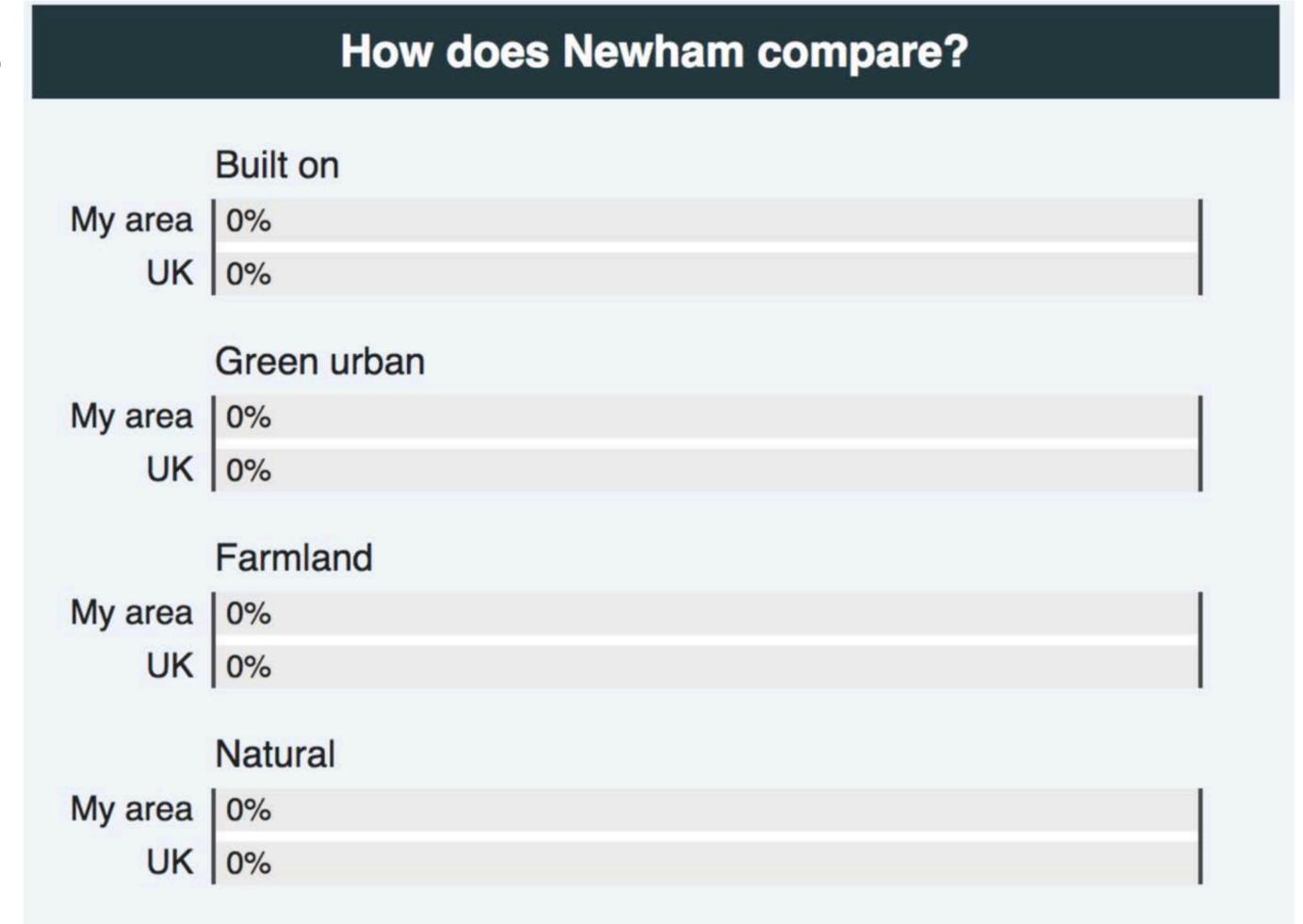
```
wrapper.onScroll(scrollPos => {  
  if (scrollPos > chartThreshold) {  
    Chart.animate();  
  }  
});
```



THE WRAPPER INTRODUCES PROBLEMS OF ITS OWN

- ▶ But what if we can't detect scroll?
- ▶ **This is all we'd see** all the time! >

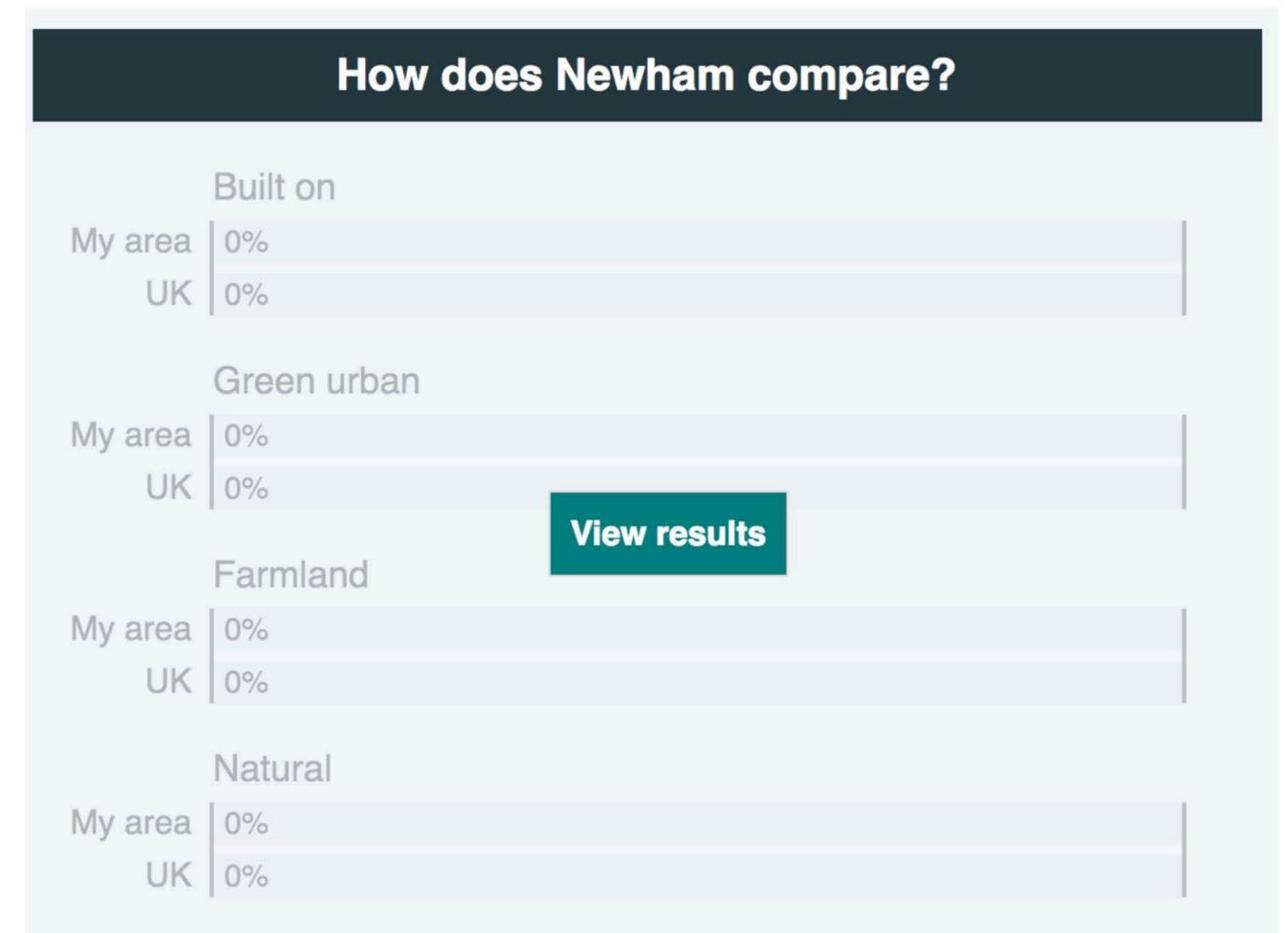
```
wrapper.onScroll(scrollPos => {  
  if (scrollPos > chartThreshold) {  
    Chart.animate();  
  }  
});
```



SO, WE HAVE TO DESIGN – AND CODE – DEFENSIVELY

Option 1 – progressive enhancement

```
wrapper.onScroll(scrollPos => {  
  if (scrollPos > chartThreshold) {  
    Chart.removeManualViewButton();  
    Chart.animate();  
  }  
});
```

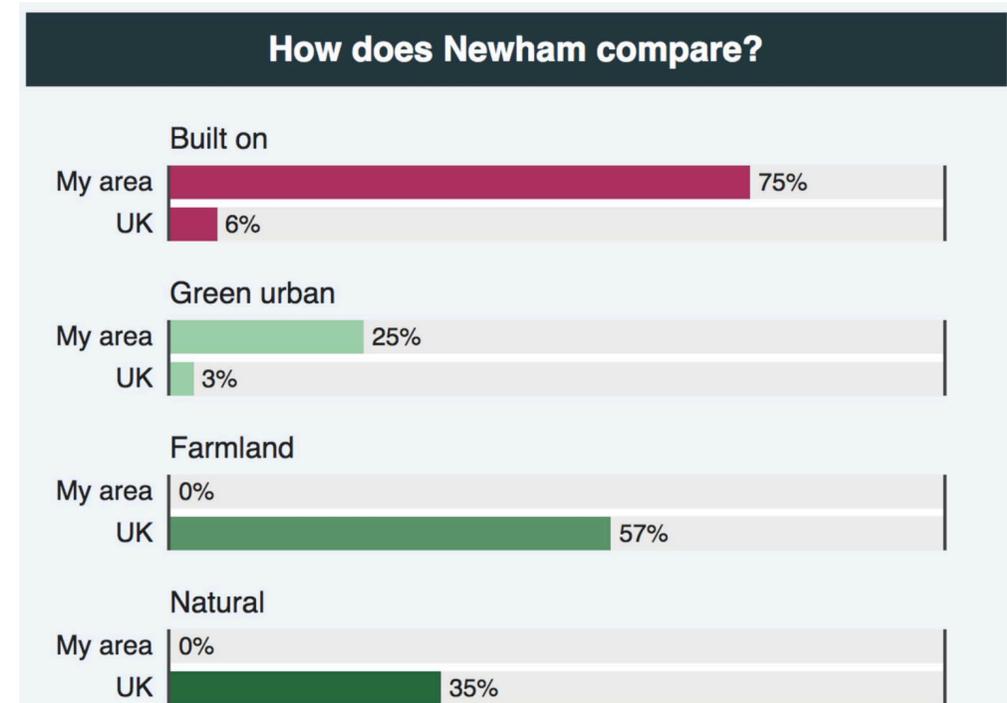
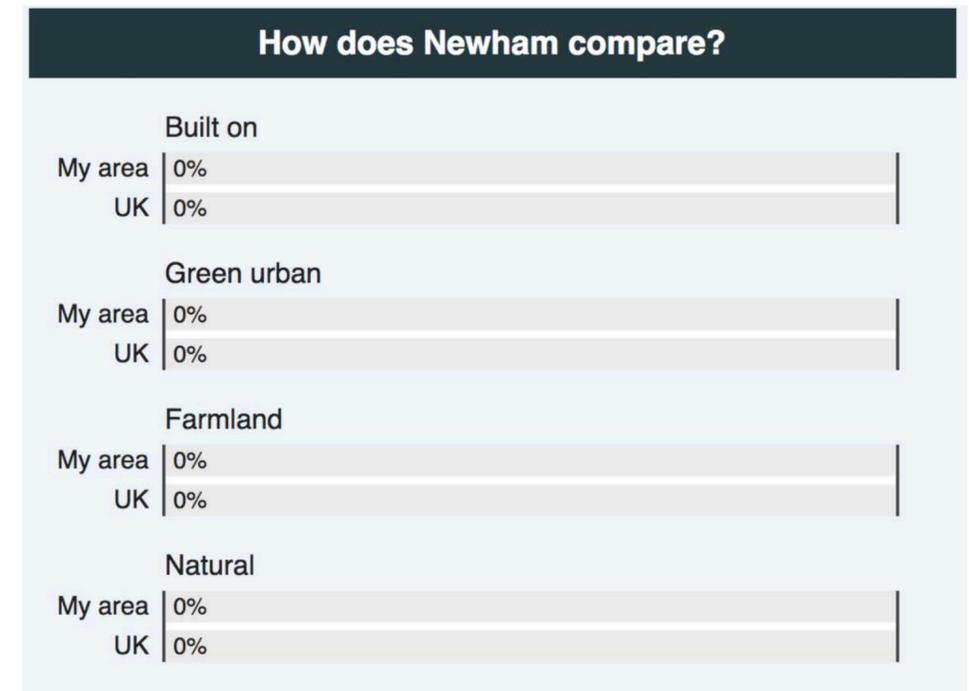
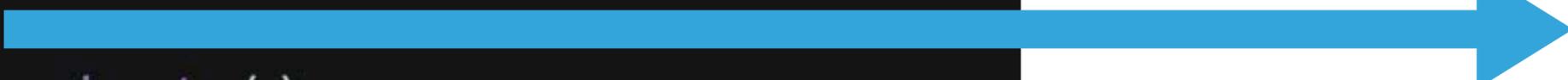
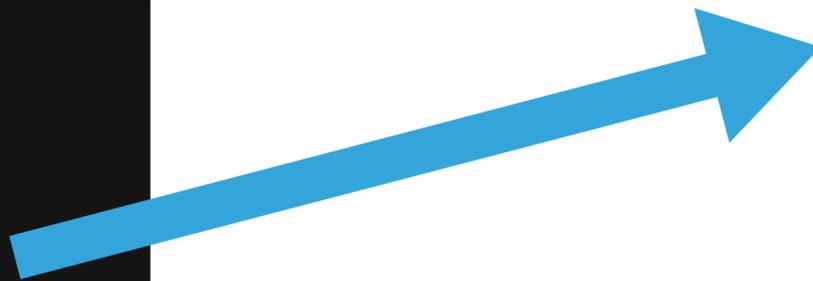


SO, WE HAVE TO DESIGN - AND CODE - DEFENSIVELY

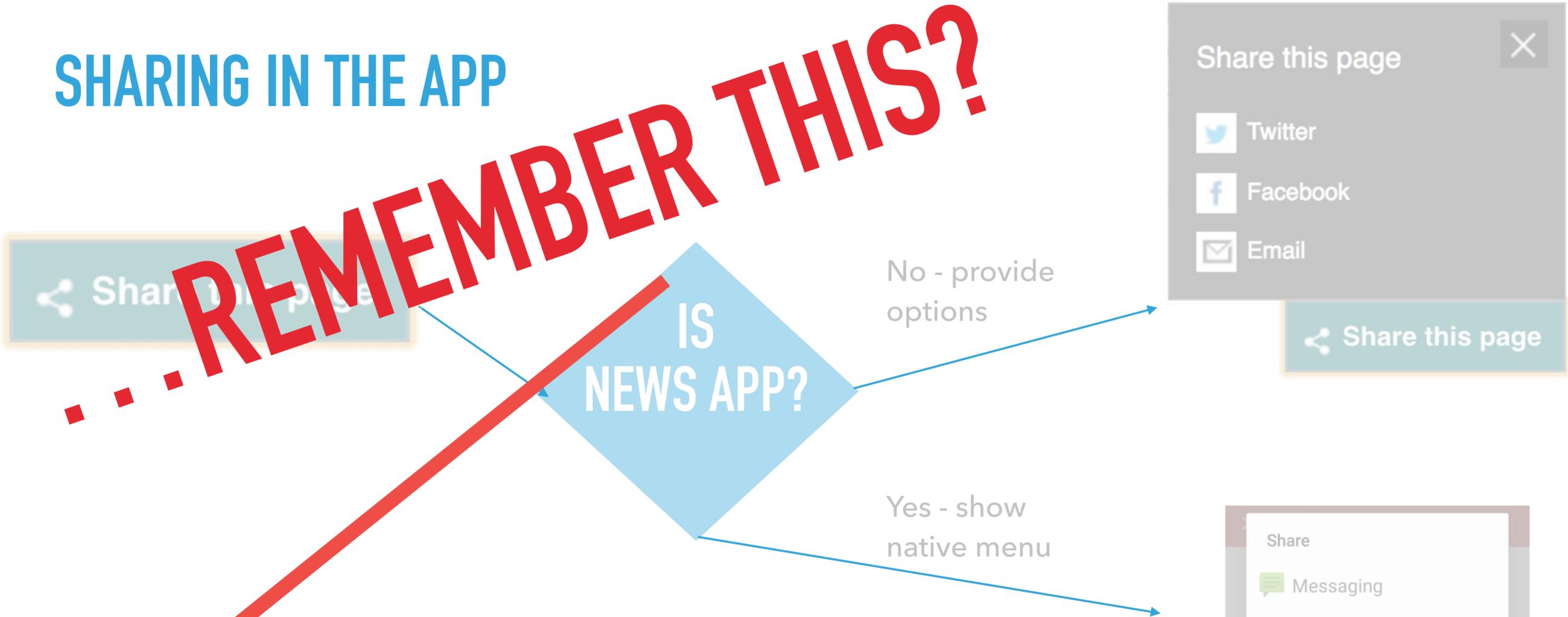
Option 2 - fork the logic



```
if (wrapper.supports.scrolling) {  
  wrapper.onScroll(scrollPos => {  
    if (scrollPos > chartThreshold) {  
      Chart.animate();  
    }  
  });  
}  
else {  
  Chart.animate();  
}
```

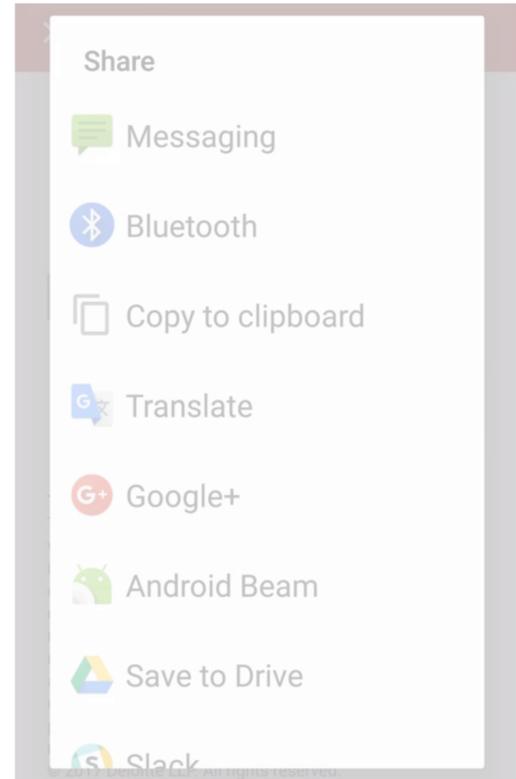


SHARING IN THE APP



REMEMBER THIS?

```
if (isNewsApp()) {  
    shareButton.action = 'bbcnewsapp://visualjournalism/share';  
}
```



SHARING IN THE APP

...IT HASN'T
CHANGED MUCH

Share this page

IS
NEWS APP?

No - provide
options

Yes - show
native menu

Share this page

Twitter

Facebook

Email

Share this page

Share

Messaging

Bluetooth

Copy to clipboard

Translate

Google+

Android Beam

Save to Drive

Slack

```
if (wrapper.meta().wrapper === 'news-app') {  
  shareButton.action = 'bbcnewsapp://visualjournalism/share';  
}
```

THE WRAPPER PATTERN; SUMMARISED:

**1) THE WRAPPER PATTERN
KEEPS CODE READABLE,
CONSISTENT & ITERATIVELY
IMPROVABLE.**

**2) IT ACHIEVES ITS GOAL: TO
MAKE MULTI-PLATFORM
PUBLICATION POSSIBLE.**

**3) IT'S A SCALABLE SOLUTION
THAT CAN COPE WITH MORE
PLATFORMS; JUST KEEP
ADDING WRAPPERS!**

**4) BUT – IT REQUIRES A
PARADIGM SHIFT IN THE WAY
WE THINK. ABSTRACTION
TAKES DISCIPLINE.**

**5) STRIVE FOR ABSTRACTION,
BUT ACCEPT THAT SOME
CONDITIONALS CANNOT BE
AVOIDED.**

**5) DEFENSIVE DESIGN IS
CRUCIAL. WE DON'T KNOW
THE PLATFORMS OF THE
FUTURE.**

THE INCREASING FRAGMENTATION OF THE WEB

WHAT'S THE FUTURE OF THE WEB FOR PUBLISHERS?

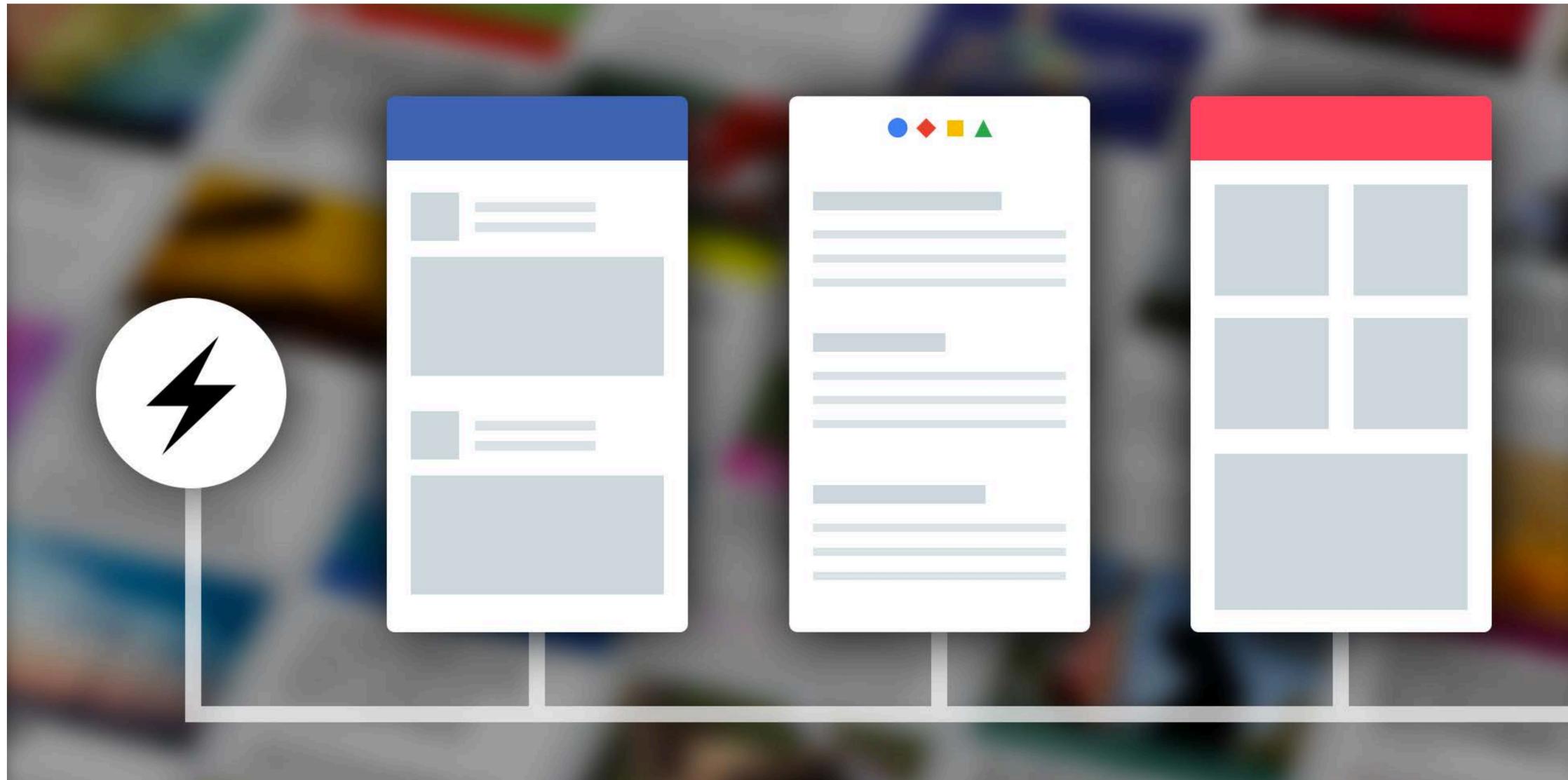
IF I KNEW THE ANSWER, I'D PROBABLY LOOK A BIT LIKE THIS



This is only my own theory and musings, which are subject to change!

I don't have a crystal ball, but if I had to guess at the future of the web, it would go a little like this...

IN A WORLD WHERE EVERY MAJOR TECH COMPANY ADOPTS ITS OWN STANDARD...



THE INCREASING FRAGMENTATION OF THE WEB

...WITH AN EVER-INCREASING RANGE OF HARDWARE AND INPUTS...



...ON AN INCREASING ARRAY OF HABITUAL HOMESPACES...



Credit: Cliff Dumas

THE INCREASING FRAGMENTATION OF THE WEB

SOMETHING'S GOT TO GIVE

A URI IS NO LONGER A URI

- ▶ Unique Resource Identifier?
- ▶ <https://www.bbc.co.uk/news/health-44107940>
- ▶ <https://www.bbc.co.uk/news/amp/health-44107940>
- ▶ <https://www.google.co.uk/amp/s/www.bbc.co.uk/news/amp/health-44107940>

A URI IS NO LONGER A URI

- ▶ Unique Resource Identifier?
- ▶ <https://www.bbc.co.uk/news/health-44107940>
- ▶ <https://www.bbc.co.uk/news/amp/health-44107940>
- ▶ <https://www.google.co.uk/amp/s/www.bbc.co.uk/news/amp/health-44107940>
- ▶ **And that's just AMP. Consider native apps, Facebook Instant Articles, Apple News...**

THE WEB IS BECOMING LESS OPEN

- ▶ News stories now curated by your friends, and whatever looks algorithmically “engaging” to social media companies.
- ▶ Current technological solutions lock users into their platforms.
- ▶ Not every company has the resources to invest in all of these platforms.
- ▶ More and more platforms threaten to fragment the web even further. (Voice assistants, VR, AR, etc)

THE INCREASING FRAGMENTATION OF THE WEB

BUT IT'S NOT THE APOCALYPSE YET.

BUT IT'S NOT THE APOCALYPSE YET.

- ▶ Virtual Reality will allow some incredibly immersive, one-off pieces of journalism... but won't ever be mainstream.



BUT IT'S NOT THE APOCALYPSE YET.

- ▶ Virtual Reality will allow some incredibly immersive, one-off pieces of journalism... but won't ever be mainstream.



**UNVIABLE
PLATFORM**



BUT IT'S NOT THE APOCALYPSE YET.

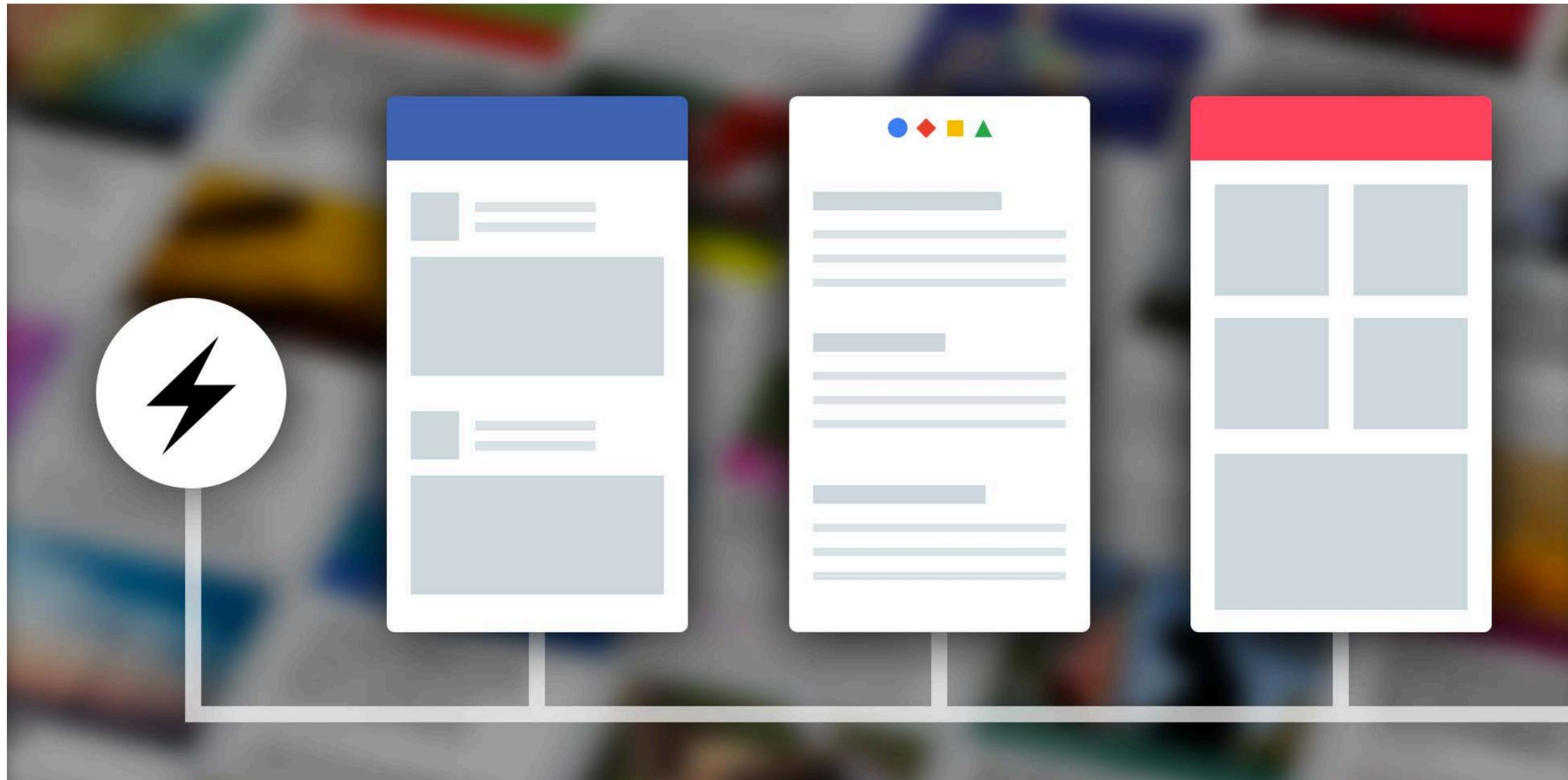
- ▶ Voice assistants will get smarter, but people won't want to listen to stories beyond mere headlines.



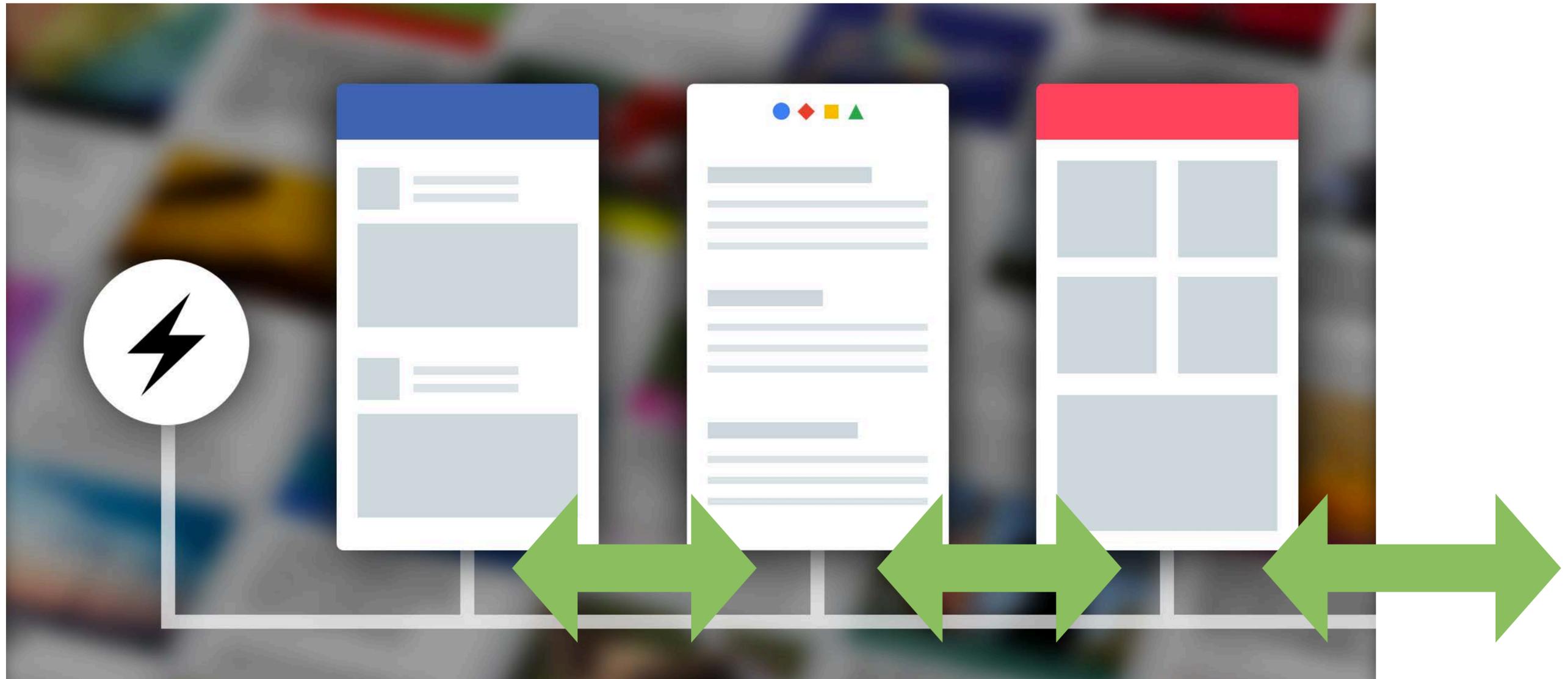
**UNVIABLE
PLATFORM**



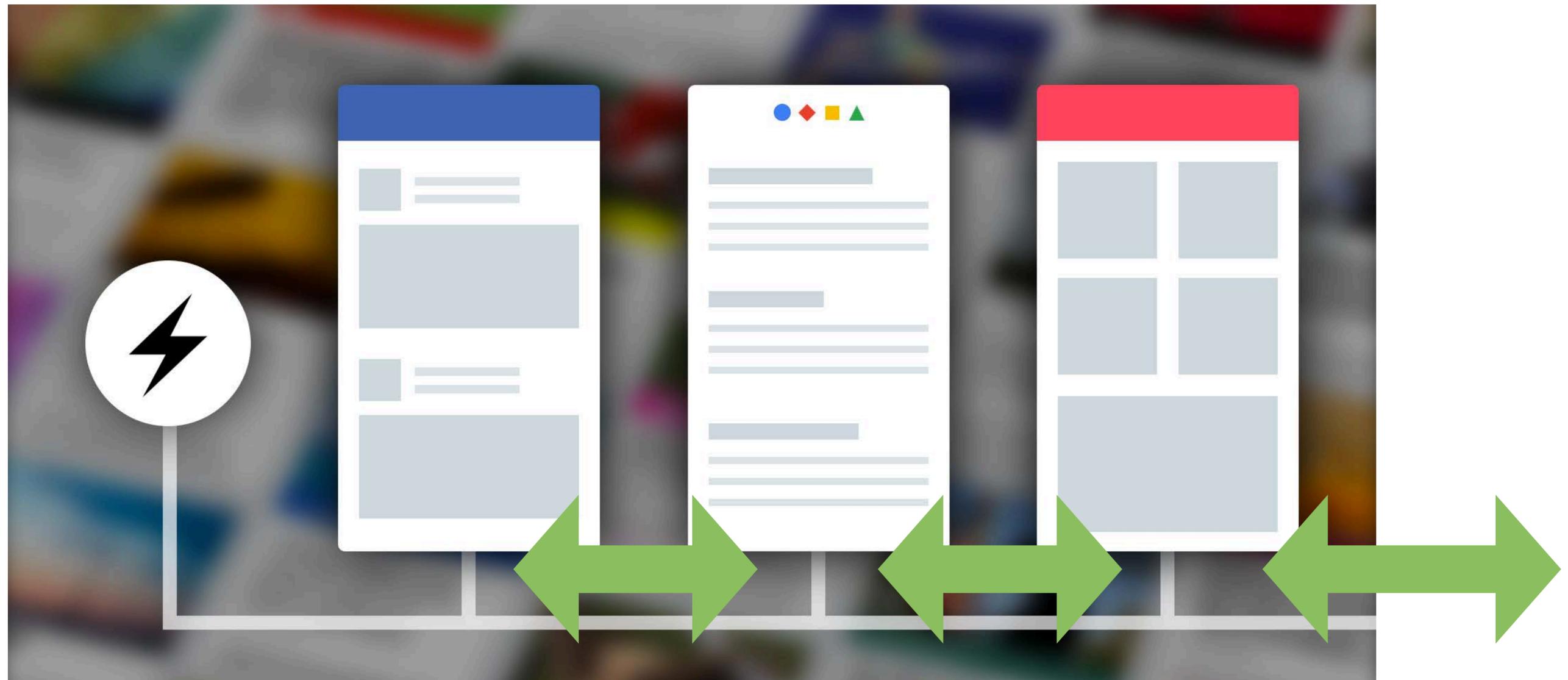
AND THE SOFTWARE PLATFORMS?



THEY'LL CONVERGE ON A TRANSFERABLE STANDARD.



...BY WHICH I MEAN, THE WEB.



STANDARDS WILL CONTINUE TO EVOLVE

- ▶ It's all still HTML, CSS and JavaScript.
- ▶ New markups and APIs will provide the 'hooks' platforms need.



```
<script src="./fancy-application.js" is-essential="false"></script>
```

- ▶ Variable experiences become the norm (no more 'pixel-perfect').
- ▶ A platform becomes nothing less mundane than simply being "another thing to test".

Follow me on Twitter: [@ChrisBAshton](https://twitter.com/ChrisBAshton)

Read this talk on Smashing Magazine: <https://bit.ly/2G9grqP>

THANKS FOR LISTENING