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10 Most Wanted

Complex game-based crowdsourcing to enhance collections meta data

Technical Report

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Content

Links	2
Concept	3
The FBI	3
Design	4
Requirements	4
The proposition	4
The solution - Home page	5
The solution - Artefact page	6
The choice of software	8
Drupal 7	8
The choice of website	8
How it works	9
The artefacts	9
Social media	10
The players	11
Technical i - Artefact	12
Technical ii - Content types & theming	15
Technical iii - Server specification	15
Technical iv - Curator/Developer interface	15
Technical v - Modules	16
Primary modules	16
Custom modules	17
Modules full list	18

Links

These the various organisations, websites and social media pages referred to in the text.

The *10 Most Wanted* website: www.10most.org.uk

The *10mostinvolved* Facebook Group: <https://www.facebook.com/groups/1396648167216137/>

The *10 Most Wanted* Twitter page: <https://twitter.com/TenMost>

The *Museum of Design in Plastics* website: www.modip.ac.uk

The FBI's *Ten Most Wanted* website: <http://www.fbi.gov/wanted/topten>

UX consultant *Danny Hope*'s website: <http://dannyhope.co.uk/>

The *ITRG at the University of Brighton*: <http://about.brighton.ac.uk/cem/research/groups/itrg/>

The *Drupal* open source content management system: <https://www.drupal.org/>

Concept

The [10 Most Wanted](#) website is central to a project that explores a game-based approach to crowd-sourcing previously undocumented facts about artefacts in a museum collection.

The website needed to present the artefacts to its audience in an interesting way and to act as a repository for the discussions about them that would be facilitated through social media channels.

It is also required to maintain a record of the achievements of the contributors and to encourage them in their endeavours.

The FBI



We decided to base the website loosely around the FBI's [Ten Most Wanted Fugitives](#) web initiative, where the public are asked for information that will lead to the apprehension of a suspect in return for a reward.

This combined a number of useful concepts:

- It limits the number of artefacts to ten, thus focussing the efforts of the crowd
- It encapsulates the idea of a reward for useful information
- It offers titles like *Field Agent* and *Case Officer* to help the game play scenario
- It comes with useful iconography, such as badges and stars
- It implies there are more than ten, should we need to vary the selection
- It is well understood so saves on explanation

Design

Requirements

We worked with UX consultant [Danny Hope](#) to arrive at a list of requirements.

Information

The website would feature curated objects and members searching for missing information about them. This will involve linking to additional information about the objects: things that have been discovered about it, the members involved in the search, similar objects, etc.

Attraction

We wanted to avoid 'empty restaurant syndrome' and make it clear to new visitors that there was already a community involved in the site. We could do this by featuring social media discussions on the home page and also a map showing where the contributors were based.

Social media

Having decided that the home page would feature social media feeds, we felt these should also be split among the objects under discussion, feeding each strand to its specific object page.

Evidence

We would need the means to thread members' comments as they discuss ways to find missing information and also include a way to display evidence in the comments.

Reward

There should be a way to acknowledge and reward the members who have success at finding missing information. A rating system would be needed, rather like the PGA rankings for golfers or the LTA rankings for tennis players.

Curation

Tools would be needed to enable the curators to manage the artefacts as their status changed from challenge to solution.

Responsive

We wanted to use a responsive page template that would transition cleanly from one platform to another. We decided against making an app *and* website as this would add to the maintenance overhead and seemed unnecessary since Facebook and Twitter apps were already available.

The proposition

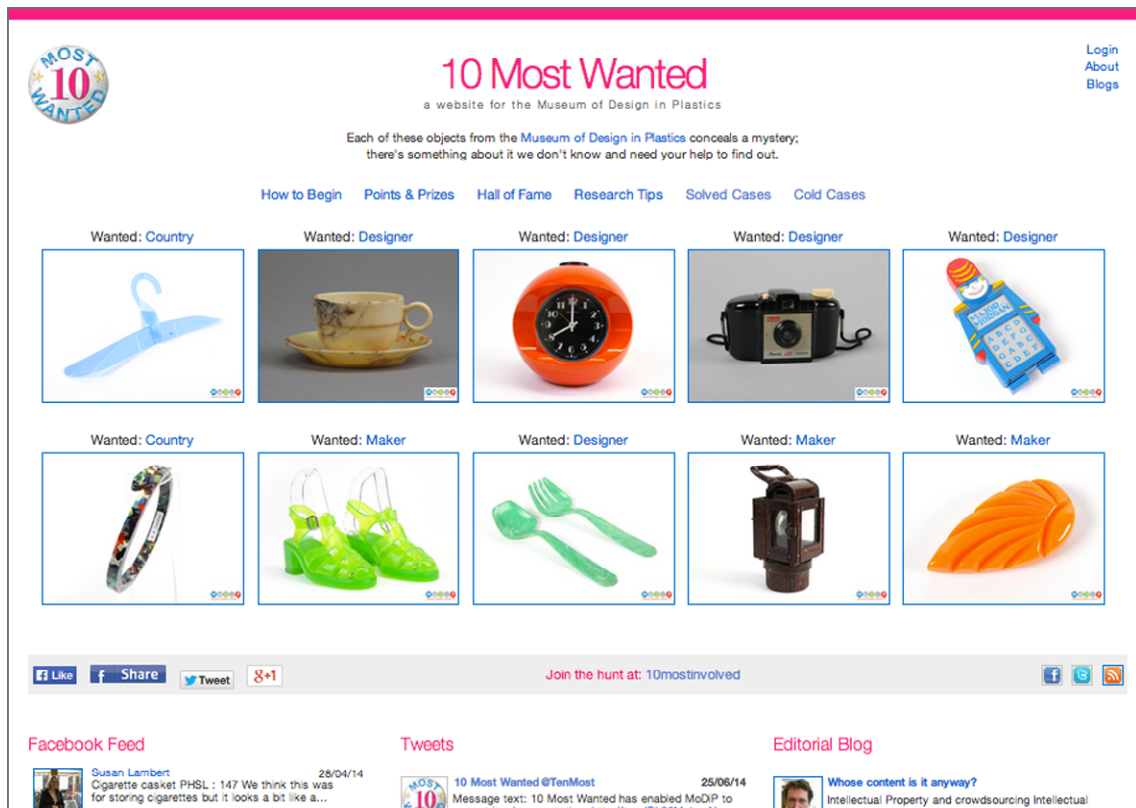
Before anyone is likely to perform a task they need to *understand* the proposition, they need to find it *credible* and they need to see a *structure* that will enable it to happen. If we could convey these qualities then we believed it would make our proposition more compelling.

Understanding comes from a clear explanation, a simple strap line, a straightforward display of proposition and solution.

Credibility comes from seeing others join in, the community expand and goals being achieved.

Structure is conveyed by organisation, the actions of the curators and the makers of the site.

The solution – Home page



This features the brand, logo and strap-line to identify who owns the site.

It includes a proposition:

Each of these objects from the Museum of Design in Plastics conceals a mystery; there's something about it we don't know and need your help to find out.

It has simple navigation links to the parts of the site a user is most likely to want:

[How to Begin](#), [Points & Prizes](#), [Hall of Fame](#), [Research Tips](#), [Solved Cases](#), [Cold Cases](#).

It displays a grid of images of 10 artefacts each with a call to action, *Wanted: Designer* and the means to join in: [Login](#) and/or [Join the hunt at: 10mostinvolved](#).

Beneath the artefacts is the social media block with links, to join, like, share, tweet and so on.

Further down the page the [Facebook Feed](#) and [Tweets](#) indicate an active community contributing to the site and the list of recent [Editorial Blog](#) posts with author's pictures shows the site is actively maintained by real people.

Towards the bottom of the page the [User Map](#) reinforces the idea of an active community and the [Find us on Facebook](#) block again shows real people are involved.

In the page footer are links to all the sections of the site and credits to our sponsors.

The solution – Artefact page

10 Most Wanted
a website for the Museum of Design in Plastics

Home | **Cup and Saucer** | Who was responsible for the style behind the handle?

Case number - PHSL : 345

A 1930s Bandalasta tea cup with a stacking ridge half way down, a circular handle with a small hook to protect against scalding, and a matching saucer. They are made of ivory coloured compression moulded urea formaldehyde with orange and black marbling. [View more images on the MoDiP site](#)

Designer	Unknown - Wanted
Manufacturer	Streety Manufacturing Company
Manufactured for	Brookes & Adams
Country	UK
Date	1927 - 1932 (circa)
Dimensions	depth 54 mm, width 80 mm, depth 18 mm, diameter 132 mm
Materials	plastic, UF, urea formaldehyde
Method	compression moulded
Colours	cream, orange, black
Inscription	moulded: "BANDALASTA WARE 195 196 BCM/BANDA MADE IN ENGLAND"

Join the hunt at: 10mostinvolved

Facebook Feed

Susan Lambert
Cup and Saucer PHSL : 345 This object is part of a trial to see if giving specific guidance on research methods makes the game a more successful means of obtaining information about the objects
19/06/14

Case notes

Cup and Saucer: PHSL : 345
Submitted by Susan Lambert on Thu, 19/06/2014 - 19:12.

In addition to the banner objects and the main menu, this page features a large artefact image to reassure users that they have landed in the right place.

Below the page title, **Cup and saucer** is the straightforward proposition: *'Who was responsible for the style behind the handle?'*

The description of the artefact begins with the **Case number**, in this example **PHSL345**. This is the same as the artefact accession number used in the MoDiP website database.

This **Case number** has a dual function in this website:

1. The [View more images on the MoDiP website](#) link uses this number as part of the link to the MoDiP website.
2. When they first post the artefact to the Facebook Group page, curators quote its **Case number** because this enables a custom code to identify what each post is about and to pull them in to the correct artefact pages (see page 11 for an example of this).

Below the line comes the artefact metadata, including Designer, Manufacturer, etc., with the missing information highlighted in pink, Designer: **Unknown – Wanted**

Beneath the artefacts is the social media block with links, to join, like, share, tweet and so on.

Below this the page is divided into two columns, on the left is the **Facebook feed** and on the right is **Case notes**.

Facebook feed

As described in the previous pages, the posts on Facebook by the curators and the comments that follow them from users are pulled into the website.

On the *Home page* these are displayed in chronological order, the most recent at the top, the next most recent below that, and so on, regardless of which artefact is being discussed.



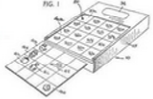

On an individual *Artefact page* this is done differently; the inclusion of the *Case number* in the Facebook post enables a custom script to recognise which particular artefact the post and its comments refer to. It then filters them and pulls them in to the correct page, displaying only those posts and comments that refer to that particular artefact.

Case notes

The curators, who are known as *Case Officers* in the context of the website, read the posts, comments and discoveries made by the users. The salient points in the discussion are copied over to the *Case notes* column.

There are two reasons for doing this:

1. The chain of evidence is in our *10most* domain where it can be preserved for posterity.
2. It is re-written as a series of discoveries, rather than left as a disjointed narrative.

Facebook Feed	Case notes
<p>Susan Lambert Major Morgan AIBDC : 0_2306 This object is part of a trial to see if giving specific guidance on research methods makes the game a more successful means of obtaining information about the objects featured. We know a lot about this classic toy but not who designed it or the plastic from which it was made. We do have a patent number. Ways of researching it include looking for the patent, looking at books or websites about toys, and writing to the manufacturers Playskool or the company it was made for, Hasbro. Do please see what you can find out. Follow the investigation here: http://10most.org.uk/artefact/major-morgan.</p> <p></p> <p>30/05/14</p>	<p>Major Morgan: Case AIBDC : 0_2306 Submitted by Susan Lambert on Fri, 30/05/2014 - 09:52.</p> <p>This object is part of a trial to see if giving specific guidance on research methods makes the game a more successful means of obtaining information about the objects featured.</p> <p>We know a lot about this classic toy but not who designed it or the plastic from which it was made. We do have a patent number. Ways of researching it include looking for the patent, looking at books or websites about toys, and writing to the manufacturers Playskool or the company it was made for, Hasbro. Do please see what you can find out.</p>
<p>Ian Hoidsworth Patent No. 1454349 granted February 15th 1974 to L.J. Greenberg and G.E. Hyman for an educational apparatus incorporating a keyboard and battery operated tone generator. See - http://worldwide.espacenet.com/publicationDetails/biblio?DB=worldwide.espacenet.com&li=3&ND=3&adjacent=true&locale=en_EP&FT=D&date=19761103&CC=GB&NR=1454349A&KC=A</p> <p></p> <p>30/05/14</p>	<p>Patent found 30/05/14</p> <p>Chief Agent Hoidsworth has come up trumps again. He has found Patent No. 1454349 granted February 15th 1974 to L.J. Greenberg and G.E. Hyman for an educational apparatus incorporating a keyboard and battery operated tone generator. See - http://worldwide.espacenet.com/publicationDetails/biblio...</p> <p>Abstract of GB1454349 (A) Translate this text into: <input type="text"/> <input type="button" value="Submit"/> <input type="button" value="Cancel"/> <small>powered by Google Translate</small></p> <p>1454349 Educational apparatus; sound producing instruments; J. GREENBERG and G.E. HYMAN 15 Feb 1974 (21 Feb 1973) 699674 Headings G06 and G09 An educational apparatus comprising a housing 101 incorporating a keyboard (20) Fig. 4 (not shown) and a battery-operated tone generator (20) Fig. 2 (not shown) for producing a desired tone through a loud-speaker 34 in response to the actuation of a corresponding key such as 20a; a series of problem cards each carrying thereon different problems in the form of symbolic representations such as words Fig. 6 (not shown) or arithmetical sums Fig. 8 (not shown); and a plurality of interchangeable key-board cards carrying other symbolic representations such as pictures 47a which are related to but of different kind to the representations on an associated problem card. In use, a keyboard card is positioned on the housing 101 (Fig. 1) so that it overlies the keyboard (20) and the problems on the problem card are then attempted. The arrangement is such that the proper solution of each individual problem by actuation of the key corresponding to the correct answer symbol on the keyboard card, in the sequence shown on the problem card, will result in the production of a series of tones which together make up a well-known melody.</p> <p></p> <p>But where did the idea for Major Morgan come from and we are still wanting to know what plastic it is made out of.</p> <p>Titled: The Electronic Organ 31/05/14</p> <p>Chief Agent Hoidsworth has found an image of Major Morgan's packaging.</p> <p></p>

Above, the **Facebook feed** and **Case notes** for a *Major Morgan* toy, see:

<http://10most.org.uk/artefact/major-morgan>

(For how an *Artefact page* is made, see: *Technical i – Artefact*)

The choice of software

Drupal 7

The website is based on a Drupal 7 open source content management system.

Drupal has the benefits of being free to use and has a huge development community to ensure that it will continue to be supported. It has powerful management capabilities with publishing and workflow tools and can be configured and expanded to meet specific requirements. It is also possible to code custom modules to carry out specific functions within a Drupal website.

Drupal was the logical choice because we were already familiar with it having used it to make websites for other museums, galleries and archives.

Moreover, the website for the [Museum of Design in Plastics](#), the arts partner in this project, was previously made by ourselves using an earlier version of Drupal. This meant that the museum's staff, who would be maintaining the content on the 10 Most Wanted website, were already familiar with the administration interface that Drupal uses, so one less thing to learn.

We prefer to use open source software because proprietary CMS options tend to be expensive and incur ongoing service charges. The large development community is also an attraction, as is being able to 'put something back' into the community should we end up coding some custom functionality.

It is also quite refreshing to be able to explain to clients that using open source means that they are not tied to working only with us in the future. This is often accompanied by a general relaxing of shoulders as they realize we are putting ourselves on the line and that it's in our interests to do a good job and keep them onside.

For more about Drupal see: www.drupal.org

The choice of website

We chose to create 10 Most Wanted as a separate website, rather than make it as a sub-site of the Museum of Design in Plastics' existing website. This way it could have its own URL and thus its own identity and we could avoid a conflict of brands between the two. A stand-alone site would also be easier to re-purpose for use by other museums and contributes to the sense of 10 Most Wanted as being a resource open to all.

Being a separate site also meant that we could crash around inside it and not be too worried about breaking the main Museum of Design in Plastics website.

When it came to organising the interaction between the website and the social media channels, we decided that 10 Most Wanted would be a place for the curators to manage the museum artefacts and the information discovered about them, and that we would rely on existing social media channels to host the conversations between curators and users.

(To read more about the options here see the [Insights section of the Research Report](#))

How it works

The artefacts

The curators of the *Museum of Design in Plastics* choose artefacts from their collection about which there is something unknown and which they think may capture the public's imagination. The missing information is usually the designer or the maker, sometimes the country of origin.

For each of these artefacts they make an [Artefact page](#) on the 10 Most Wanted website.

An *Artefact page* can have a number of different status settings.

Unpublished – It is usually quicker for curators to make a batch of *Artefact pages* and leave those that are not needed as *Unpublished*, ready for when the next case is solved. These pages are stored in the site database for future use, but the public can't see it or link to them anywhere.

Published – if the page is one of the ten most recently published, then it will be featured on the [Home page](#), unless...

Published and Solved – if the *Solved* check box is ticked then the artefact will be removed from the *Home page* and be added to the list on the [Solved cases](#) page and the next published artefact is promoted to the home page to replace it.

or...

Published and Cold case - if the *Cold case* check box is ticked then the artefact will be removed from the *Home page* and be added to the list on the [Cold cases](#) page and the next published artefact is promoted to the home page to replace it.

It happens like this...

Curators make ten *Artefact pages*, each of which is *Published* and all of which feature on the *Home page*. They may make some additional ones for future use and leave them *Unpublished*.

When a case is solved a curator edits that *Artefact page* by ticking the *Solved* check box. When this page is saved, the system removes that artefact from the *Home page* and adds it to the listing on the *Solved cases* page.

The curator next selects an *Artefact page* that was left unpublished in the database, or makes a new one, and sets its status to *Published*.

When the *Home page* is next reloaded, the new artefact will replace the old.

In exactly the same way, by ticking the *Cold case* checkbox, a curator can move an artefact in which little interest has been shown from the *Home page* to the *Cold cases* listing.

(For how an *Artefact page* is made, see: [Technical i – Artefact](#))

Social media

As well as making an *Artefact page* on the website, the curators also post each of these artefacts separately to the [10mostinvolved](#) Facebook Group, where our Facebook followers then post their opinions and discoveries as comments. The curators also tweet about the artefacts [@TenMost](#).

The Facebook Group feed and the Twitter stream are then drawn into the website home page and also filtered onto the individual artefact pages.

The curators, who are known as *Case Officers* in the context of the website, then read through these comments and discoveries and summarize the salient points in the *Case Notes* section on the individual *Artefact pages*.

By doing this, the evidence trail information gathered through social media comment is brought into the *10most* domain, under the museum's control and no longer dependent on the longevity of the social media record. It also enables comments to be rewritten as rounded, stand-alone points when removed from the context of the social media narrative stream.

The illustration opposite is of a conversation on our [10mostinvolved](#) Facebook Group.

The full narrative about this iPod runs to 21 comments from 2 different contributors, a curator and an administrator and is typical of the discussion that takes place there.

You can see that the curator has included the Case number AIBDC : 005973 in the original post. This is to enable a script to filter this conversation onto the correct artefact page, something explained on page 6.

Susan Lambert
April 25

iPod 60GB mp3 player
AIBDC : 005973

A classic about which we know so little: can you tell us who designed it, of which plastic it is made, or how it was manufactured?

Like · Comment · Share

✓ Seen by 20

Phil Blume Find it here on the 10 Most Wanted website:
<http://10most.org.uk/artefact/ipod-60gb-mp3-player>

Share iPod 60GB mp3 player | 10most.org.uk
10most.org.uk

Selected because Steve Jobs is trending and we hope that may help us find the answers to some of our questions about this familiar object.

April 25 at 5:54pm · Like · Remove Preview

Susan Lambert Hello Ian - Thank you for your mention of Jonathan Ive - and I am sure he approved the design. It would be so good though to learn of others in the company who do the nitty gritty of design. Do you have views on the particular plastic?
April 25 at 6:06pm · Like

Ian Holdsworth The white plastic part of this iPod case was made by injection moulding. The material it was made out of was recently featured in one of the ten.
May 1 at 8:41pm · Like

Susan Lambert Thank you for that Ian - Could you humour me and tell me which of the 10? Looking at recently featured objects polystyrene looks the most likely but it doesn't sound like polystyrene to me... Susan
May 6 at 12:43pm · Like

Rupert Radcliffe That iPod is a development of the original one. The design team for that one is referenced here:
<http://ipod.about.com/.../understandi.../a/invented-ipod.htm>
May 6 at 5:35pm · Like

Susan Lambert How very clever of you to find that Rupert. Just what we wanted to know. Only question remaining is the material...
May 7 at 2:30pm · Like

Ian Holdsworth Susan, you are right, it is not polystyrene.
May 7 at 3:45pm · Like

Rupert Radcliffe According to several online sources (which may well be wrong) the back is stainless steel and the front is coated aluminium. Apple environmental reports don't go back far enough to check but here's an example of a source: http://www.ehow.com/list_6883842_materials-ipods-made...
May 7 at 3:55pm · Like

Rupert Radcliffe Aha. The back was stainless steel but the front was the same material as the top of an iBook White, which was some form of plastic. But which?
May 7 at 4:05pm · Edited · Like

Susan Lambert Useful stuff Rupert. Thank you. The attitude to plastics is so typical.... Ian, I'm glad to have the negative confirmed but otherwise at a loss. I think you are playing with us....!
May 7 at 5:37pm · Like

Rupert Radcliffe Got it. Polycarbonate, chosen for the iBook White because it allowed the wiff arial greater range. They used the same stuff for the early iPod.
May 7 at 5:58pm · Like

Susan Lambert Fantastic! Thank you Rupert. Once you say it, it would be, of course!
May 7 at 6:40pm · Like

Ian Holdsworth I am told that on this particular iPod the front plastic casing is made from Polymethyl methacrylate (PMMA) otherwise known as Lucite, Perspex or Acrylic.
May 7 at 6:46pm · Like

The players

A newly registered user is referred to on the website as a *Field Agent*.

Each time a *Field Agent* makes a contribution of value they are awarded a point. Once they have accumulated 5 points their status is promoted from *Field Agent* to *Special Agent* and they receive an email with an attached *Certificate of Achievement* and Silver Star from their *Case Officer*.

Once a *Special Agent* has accumulated an additional 10 points they are promoted again, this time to *Chief Agent*, and they receive another *Certificate of Achievement* and Gold Star from their *Case Officer*. They are also awarded privileges on the website and invited to a behind-the-scenes look at the museum collection.

The player rankings are shown on the [Hall of Fame](#) page.

A 'contribution of value' is anything that is deemed to add to the useful knowledge of an artefact or makes a significant step towards discovering something about it.

To adjust a player's score the curator simply adds 1 to the counter on that player's profile page. A script keeps count of the scores and adjusts the ranking positions accordingly, as well as sending the reward certificates when appropriate.



An example of the *Certificate of Achievement*.

Technical i - Artefact

Title

Cup and saucer

This is the Artefact page title.

Introduction

Who was responsible for the style behind the handle?

This is the introductory text that appears below the title.

Number

PHSL : 345

This is the MoDiP accession number and appears in the 10most Artefact page as 'Case number - PHSL : 345'.

Description

A 1930s Bandalasta tea cup with a stacking ridge half way down, a circular handle with a small hook to protect against scalding, and a matching saucer. They are made of ivory coloured compression moulded urea formaldehyde with orange and black marbling.

This describes the artefact and is copied from the MoDiP website.

Link to artefact on Museum website

Title

Cup and Saucer

This is currently not used.

URL

<http://www.modip.ac.uk/artefact/phsl-345>

This turns the words 'View more images on the MoDiP website' into a link to the artefact on the MoDiP website.

Job

Designer

The person of interest, most often Designer, but could also be Artist, Author, Inventor...

Person

Unknown

The name of the person or persons who hold the above Job, if known, else written as 'Unknown'.

Role

Manufacturer

Manufactured for

The role of the organisation of interest, most often Manufacturer but could also be Distributor, Manufactured for...

The screenshot shows the '10 Most Wanted' website interface for the 'Cup and Saucer' artefact. The page layout includes a header with navigation links, a title section, an introduction section, a number section, a description section, and several form fields for additional information. The 'Job' section lists 'Designer' and 'Person' lists 'Unknown'. The 'Role' section lists 'Manufacturer'. The 'Organisation' section lists 'Streetly Manufacturing Company' and 'Brookes & Adams'. The 'Country' is 'UK' and the 'Date' is '1927 - 1932 (circa)'. The 'Material' section lists 'plastic', 'UF', and 'urea formaldehyde'. The 'Method' section lists 'compression moulded'. The 'Dimensions' section lists 'depth 54 mm, width 80 mm, depth 18 mm, diameter 132 mm'. The 'Colour' section lists 'cream', 'orange', and 'black'.

Organisation

Streetly Manufacturing Company

Brookes & Adams

The name of the organisation who hold the above Roles, if known, else written as 'Unknown'.

Country

UK

The country of origin of the artefact, if known, else written as 'Unknown'.

Date

1927 - 1932 (circa)

The date the artefact was made, if known, else written as 'Unknown'. Can be written variously as a single date, 1960; or a range, 1955-1965; or an approximation, c.1960, or 1960 (circa), or in some other way.

Material

plastic

UF

Urea formaldehyde

The material the artefact is made from including the short-form (PS, UF), if known, else written as 'Unknown'.

Method

Compression moulded

How the artefact was made, if known, else written as 'Unknown'.

Dimensions

depth 54 mm, width 80 mm, depth 18 mm, diameter 132 mm

The dimensions of the artefact. This is used as text only, so the may be written variously as mm, cm, ft, or in some other way.

Colour

cream, orange, black

The colours of the artefact.

Inscription

moulded: "BANDALASTA WARE 195 196 BCM/BANDA MADE IN ENGLAND"

An inscription on the artefact, copied from the MoDiP website.


Wanted

Designer

This spelling should match precisely that of the 'unknown' data and will be styled in pink: 'Unknown – Wanted'.

Inscription
moulded: "BANDALASTA WARE 195 196 BCM/BANDA MADE IN ENGLAND"

Wanted
+ Designer
+
(Add another item)

Image *
 p345_1a.jpg (168.23 KB) (Remove)


Thumbnail
 p345_1b.jpg (39.78 KB) (Remove)

Image rights statement

Home page caption
Title URL *
Designer http://www.10most.org.uk/artefact/cup-and-saucer
The link title is limited to 128 characters maximum.

☐ Solved
Check this box once the case has been solved

☐ Cold Case
Click this check box to mark this artefact as a cold case

Solved Cases list, case summary

body p

Switch to plain text editor

Text format (Filtered HTML) [More information about text formats](#)

- Web page addresses and e-mail addresses turn into links automatically.
- Allowed HTML tags: <a> <code> <dl> <dd>
- Lines and paragraphs break automatically.

Location

CAPTCHA: no challenge enabled

URL path settings
Automatic alias

Revision information
No revision

Custom Breadcrumbs

Comment settings
Open

Authoring information
By on
2014-06-03 14:05:22 +0100

Publishing options
Published

☒ Generate automatic URL alias
Uncheck this to create a custom alias below. [Configure URL alias patterns.](#)

URL alias
artefactcup-and-saucer
Optionally specify an alternative URL by which this content can be accessed. For example, type "about" when writing an about page. Use a relative path and don't add a trailing slash or the URL alias won't work.

Save Preview Delete

Image

This should be made 700px wide x 525px high, then uploaded.

This image appears on the artefact page.

Thumbnail

This should be made 220px wide x 165px high, then uploaded.

This image appears on the home page and elsewhere.

Image rights statement

Images on this site are for non-commercial, educational use only. MoDiP has done its utmost to obtain clearance from all IPR holders before adding images to this catalogue, if you believe that any image has been used without permission please contact us on modip@aub.ac.uk.

Used for the earlier Artefact pages but then discontinued. If used, this statement is displayed across the full width of the page below the image and metadata.

Home page caption**Title**

Designer

This appears on the home page, in the style: 'Wanted: Designer'

URL

<http://www.10most.org.uk/artefact/cup-and-saucer>

This turns the word 'Designer' and its thumbnail image into links to the artefact page.

[The following change the status of an artefact and, hence, where it is displayed in the website.]

Solved checkbox

Check this box once the case has been solved.

This removes the artefact from the home page and adds it to the 'Solved cases' list.

It also places a CASE CLOSED image overlay to the main and thumbnail images.

[The same image overlay can be added to the end of the 'Case notes' manually.]

A solved case also requires an entry the 'Solved Cases list, case summary', below.

Cold Case checkbox

Check this box to mark this artefact as a cold case.

This removes the artefact from the home page and adds it to the 'Solved cases' list.

Solved Cases list, case summary

Required when a case is solved, this appears alongside the artefact thumbnail image in the 'Solved cases' list and briefly explains how it was solved.

Technical ii – Content types & theming

A useful feature in Drupal is the ability to create custom content types. The Artefact content type extends a normal node by attaching fields to it. These are largely based on the Artefact type for the parent MoDiP collection with additions, such as the *solved* and *cold case* booleans, and the *wanted* text field used to highlight what is wanted on the *Artefact page*.

Once defined, that content type can be themed explicitly, in this case using `node--artefact.tpl.php`. At the top is a formatted representation of the artefact content type, under this are two columns: the one on the left the Facebook post relevant to the artefact, achieved by searching the `10most_fbpost` for a post containing the *Case number*, then retrieve that and all subsequent comments in full. The column on the right is Drupal's own built-in Comment and used by curators to record Case notes.

The Solved and Cold cases are views of the artefact content type controlled by the booleans described above. As with content types it's possible to have a template for a view & this was used to automatically apply the case closed transparency on the artefact images.

Technical iii – Server specification

The 10 Most Wanted website shares the same platform as the parent MoDiP website and is configured as follows:

Hardware:	Rack mounted Dell Poweredge 1950
Operating System:	Ubuntu 12.04 LTS (Precise Pangolin)
Hypervisor:	Xen 4.1.3 (preserve-AD)
Virtual Machine:	1cpu, 2G RAM, 20GB LVM Disk, 2GB LVM swap
VM Operating System:	Ubuntu 12.04 LTS (Precise Pangolin)
Webserver Software:	Apache/2.2.22 (Ubuntu) and PHP 5.3.10-1ubuntu3.13 with Suhosin-Patch
CMS Software:	Drupal 7.29

Technical iv – Curator/Developer interface

The site employs a customized Fusion sub theme, chosen because the Drupal 7 version provides a responsive layout and it is used on the parent MoDiP website so the curators are familiar with its look and feel.

Several of the modules were chosen for a similar reason, these include the CKEditor WYSIWYG HTML editor originally selected for it's ease of use, IMCE which allows you to upload and manage files on the server based on it's full integration with CKEditor, and Administration menu with its associated toolbar for it's familiarity. Drupal 7 provides a similar administration menu/toolbar in the core, but this wasn't available for Drupal 6.

Technical v – Modules

Primary modules

The primary Drupal modules used in addition the core:

CAPTCHA - along with the reCAPTCHA plugin helped to prevent robots from signing up for accounts. Note: Initially, accounts had to be approved by an administrator, but after complaints about delays in approving them and the fact that the spammers couldn't achieve what they wanted, the settings were changed so that no approval was required and the spam accounts were bulk-deleted later.

CKEditor - a WYSIWYG HTML editor, chosen for its ease of use.

Custom breadcrumbs - to give fine control over the breadcrumb trail used for cold and solved cases.

Drupal for Facebook - for facebook API to provide 'Like' buttons.

Location, Gmap and Gmap Location - together these extend the core user functionality, enabling an authenticated user to drop a pin on their location. This method was chosen since it allows users to decide where they drop their pin, either to prevent overlaps with other users or to generalize their location. The map on the home page is a view of the active users displayed in **Gmap** format.

Google Analytics - to provide some before and after event statistics.

IMCE - this allows uploading of images to the server, used by **CKEditor**

Location - to provide geographical location information links in with the **GMap** module.

Mail System and **MIME Mail** - to send out automated messages and certificates.

OneAll Social Login - to provide the capability to log into the site using a social media account. It was selected since it integrated with the largest number of social media and was simple to configure.

Pathauto - provides aliases for content types making the URLs more readable & gives a selector which can be used to determine where blocks should appear.

Terms of use - adds terms of use to registration form and is very simple to use.

Twitter - connects to and displays the 10 Most Wanted twitter feed in a block provided by the module.

A number of glue modules are necessary due to dependencies, these include:

Chaos tool suite - which is a set of API's required by various other modules like **Views**, **Custom breadcrumbs** & **Twitter**.

Libraries - a framework needed to contain things like facebook SDK and twitter API code.

Token - required by **Pathauto**.

One last module is **Views**; a powerful tool for ordering data in lists and blocks that Drupal would be fairly unusable without it. Indeed as of Drupal 8 Views will become core functionality.

[\(For a full list of the modules used see p18.\)](#)

Custom modules

There comes a point when you can't find a contributed module that will do what you require and need to write your own. This was expected for the bespoke rewards system and Hall of Fame, rather surprisingly, however, we were unable to find a module that simply reads a Facebook feed.

FB Feed Module

Initially this module used the Facebook API to read posts and comments directly from Facebook. It became obvious that this approach took far too long to load a page containing a Facebook feed. The only way to rectify this was by caching a local copy of the relevant feed data.

This required creating two new database tables `10most_fbpost` and `10most_fbcomment`, writing a cron hook that periodically fetches the feed from Facebook and modifying the front end to read from the local database rather than directly from the Facebook API. The cron job reads the whole feed, updates existing posts and comments and inserts any new ones into the database tables.

The Facebook feed on the home page is a block generated by this module and contains the most recent submissions, precisely how many posts and comments appear there can be set via the modules configuration page along with a trim length in characters. The configuration page is also where the feed ID, App ID and App secret for the Facebook API are set.

Ranking Module

The ranking module provides the *Hall of Fame* page, extends the core user functionality and handles the automated mailing and generates personalised certificates.

The ranks Field Agent, Special Agent and Chief Agent are normal Drupal roles. One of the rewards for promotion was to be able to comment and/or blog. The simplest way to do this would be to utilise Drupal roles and set permissions accordingly.

The way to get promoted is to be mentioned in dispatches by one of the curatorial staff. This is achieved by extending the core Drupal user and adding a field mentions counter and a hook that sends an automated e-mail if necessary when save is clicked.

The Field permissions module is used to hide the mentions button from all except the administrators.

The ranking module configuration page allows the setting of the number of mentions required to become a Special agent & Chief agent. The configuration page also allows setting the text for up to 7 e-mails, and the number of mentions required before the message is sent.

The certificates generated when a player gets promoted are linked to the 3rd and 7th e-mails respectively. The certificate is generated using a blank template and ImageMagik's convert utility to personalise it with the user's name, then it is attached to the e-mail using the MIME Mail module.

The Hall of Fame page consists of a two-column output with the players on the left ordered by the number of mentions highest at the top and a visual representation of their rank in badges & stars, the column on the right being the HQ staff. These are currently hard coded in the module itself. The layout is achieved using a template file embedded in the module.

Modules full list

This is a full list of the modules used in the 10most.org.uk website.

Name	Version	Description
Administration menu	7.x-3.0-rc4	Provides a dropdown menu to most administrative tasks and other common destinations (to users with the proper permissions). Requires: System (enabled) Required by: Administration menu Toolbar style (enabled)
Administration menu Toolbar style	7.x-3.0-rc4	A better Toolbar. Requires: Administration menu (enabled), System (enabled)
Advanced help	7.x-1.1	Allow advanced help and documentation. Required by: Chaos Tools (CTools) Plugin Example (disabled), Advanced help example (disabled)
Block	7.28	Controls the visual building blocks a page is constructed with. Blocks are boxes of content rendered into an area, or region, of a web page. Required by: Block Example (disabled), Dashboard (enabled)
Blog	7.28	Enables multi-user blogs.
Bulk Export	7.x-1.4	Performs bulk exporting of data objects known about by Chaos tools. Requires: Chaos tools (enabled)
CAPTCHA	7.x-1.0	Base CAPTCHA module for adding challenges to arbitrary forms. Required by: Image CAPTCHA (disabled), reCAPTCHA (enabled)
Chaos tools	7.x-1.4	A library of helpful tools by Merlin of Chaos. Required by: Bulk Export (enabled), Custom rulesets (disabled), Chaos Tools (CTools) AJAX Example (disabled), Custom content panes (disabled), Page manager (disabled), Chaos Tools (CTools) Plugin Example (disabled), Custom breadcrumbs for panels (disabled), Views (enabled), Custom breadcrumbs for views (enabled), FB Views (disabled), Views UI (enabled), Stylizer (disabled), Term Depth access (disabled), Twitter (enabled), Twitter actions (disabled), Twitter Post (disabled), Twitter Signin (disabled), Views content panes (disabled)
CKEditor	7.x-1.14	Enables CKEditor (WYSIWYG HTML editor) for use instead of plain text fields.
Comment	7.28	Allows users to comment on and discuss published content. Requires: Text (enabled), Field (enabled), Field SQL storage (enabled) Required by: Forum (disabled), Tracker (disabled)
Contact	7.28	Enables the use of both personal and site-wide contact forms.
Custom breadcrumbs	7.x-2.0-alpha3	Allows administrators to define custom breadcrumb trails for node types. Required by: Custom breadcrumbs identifiers (disabled), Custom breadcrumbs for panels (disabled), Custom breadcrumbs for paths (enabled), Custom breadcrumbs for taxonomy (enabled), Custom breadcrumbs for views (enabled), Custom breadcrumbs API (disabled)
Custom breadcrumbs for paths	7.x-2.0-alpha3	Provides custom breadcrumbs for specific paths. Requires: Custom breadcrumbs (enabled)

Custom breadcrumbs for taxonomy	7.x-2.0-alpha3	Enables taxonomy based breadcrumbs and allows for node associations with taxonomy terms. Requires: Custom breadcrumbs (enabled), Taxonomy (enabled), Options (enabled), Field (enabled), Field SQL storage (enabled)
Custom breadcrumbs for views	7.x-2.0-alpha3	Provides custom breadcrumbs for views pages. Requires: Custom breadcrumbs (enabled), Views (enabled), Chaos tools (enabled)
Dashboard	7.28	Provides a dashboard page in the administrative interface for organizing administrative tasks and tracking information within your site. Requires: Block (enabled)
Database logging	7.28	Logs and records system events to the database.
Facebook API	7.x-3.4	(fb.module) Initializes facebook's PHP and Javascript client libraries. Enables FBML Like buttons and other social plugins. (See <i>modules/fb/README.txt</i> .) Required by: Facebook Apps (disabled), FB Canvas Pages (disabled), Facebook Connect (disabled), FB Development tools (enabled), FB Example Customizations (disabled), FB Forms (disabled), FB Friend Features (disabled), Open Graph and Timeline (disabled), FB Invite Friends (disabled), FB Extended Permissions (disabled), FB Registration (disabled), FB Rules Integration (disabled), FB Streams (disabled), FB Tabs (disabled), FB Testing Helpers (disabled), FB User Management (disabled), FB User Tracking (disabled), FB Views (disabled)
FB feed	7.x-1.0	Provides a local database & file cache of a Facebook feed & a block that displays the cached data
Field	7.28	Field API to add fields to entities like nodes and users. Requires: Field SQL storage (enabled), Field (enabled) Required by: Drupal, Field SQL storage (enabled), Field (enabled), Text (enabled), Comment (enabled), Options (enabled), Taxonomy (enabled), Custom breadcrumbs for taxonomy (enabled), Entity Example (disabled), Field UI (enabled), File (enabled), Forum (disabled), GMap Taxonomy Markers (disabled), Image (enabled), Image Example (disabled), List (enabled), Location Taxonomy (disabled), Node example (disabled), Number (enabled), Tracker (disabled), XML sitemap taxonomy (disabled)
Field Permissions	7.x-1.0-beta2	Set field-level permissions to create, update or view fields.
Field SQL storage	7.28	Stores field data in an SQL database. Requires: Field (enabled), Field SQL storage (enabled) Required by: Drupal, Field SQL storage (enabled), Field (enabled), Text (enabled), Comment (enabled), Options (enabled), Taxonomy (enabled), Custom breadcrumbs for taxonomy (enabled), Entity Example (disabled), Field UI (enabled), File (enabled), Forum (disabled), GMap Taxonomy Markers (disabled), Image (enabled), Image Example (disabled), List (enabled), Location Taxonomy (disabled), Node example (disabled), Number (enabled), Tracker (disabled), XML sitemap taxonomy (disabled)
Field UI	7.28	User interface for the Field API. Requires: Field (enabled), Field SQL storage (enabled)
File	7.28	Defines a file field type. Requires: Field (enabled), Field SQL storage (enabled) Required by: Image (enabled), Image Example (disabled), Node example (disabled)
Filter	7.28	Filters content in preparation for display. Required by: Drupal, Mail System (enabled), Mime Mail (enabled), Mime Mail Action (disabled), Mime Mail CSS Compressor (disabled)

Filter permissions	7.x-1.0	Provides role and module filters to simplify the user permissions page.
GMap	7.x-2.9	Views plugins to show Google Maps from entities. Required by: GMap Location (enabled), GMap Macro Builder (enabled), Gmap Style Bubbles (disabled), GMap Taxonomy Markers (disabled), Location + Gmap 'Find Address' button (disabled)
GMap Location	7.x-2.9	Display location.module information on Google Maps Requires: GMap (enabled), Location (enabled)
GMap Macro Builder	7.x-2.9	UI for building GMap macros. Requires: GMap (enabled)
Google Analytics	7.x-1.4	Allows your site to be tracked by Google Analytics by adding a Javascript tracking code to every page.
Help	7.28	Manages the display of online help.
Image	7.28	Provides image manipulation tools. Requires: File (enabled), Field (enabled), Field SQL storage (enabled) Required by: Drupal (Field type(s) in use - see Field list), Image Example (disabled), Node example (disabled)
IMCE	7.x-1.8	An image/file uploader and browser supporting personal directories and user quota.
Libraries	7.x-2.2	Allows version-dependent and shared usage of external libraries. Requires: System (enabled) Required by: Responsive layouts for IE 6-8 (disabled), Gmap Style Bubbles (disabled)
Link	7.x-1.2	Defines simple link field types. Required by: Drupal (Field type(s) in use - see Field list)
List	7.28	Defines list field types. Use with Options to create selection lists. Requires: Field (enabled), Field SQL storage (enabled), Options (enabled) Required by: Drupal (Field type(s) in use - see Field list)
Location	7.x-3.2	The location module allows you to associate a geographic location with content and users. Users can do proximity searches by postal code. This is useful for organizing communities that have a geographic presence. Required by: GMap Location (enabled), Node Locations (enabled), Location Add Another (disabled), Location CCK (disabled), Location Email (disabled), Location Entity (disabled), Location Fax (disabled), Location Generate (disabled), Location + Gmap 'Find Address' button (disabled), Location Phone (disabled), Location Search (disabled), Location Taxonomy (disabled), User Locations (enabled)
Mail System	7.x-2.34	Provides a user interface for per-module and site-wide mail_system selection. Requires: Filter (enabled) Required by: Mime Mail (enabled), Mime Mail Action (disabled), Mime Mail CSS Compressor (disabled)
Menu	7.28	Allows administrators to customize the site navigation menu. Required by: Devel node access (enabled), Menu Per Role (enabled), Site map (enabled), XML sitemap menu (disabled)
Menu Per Role	7.x-1.x-dev	Allows restricting access to menu items per role.

		Requires: Menu (enabled)
Mime Mail	7.x-1.0-beta3	Send MIME-encoded emails with embedded images and attachments. Requires: Mail System (enabled), Filter (enabled), System (enabled) Required by: Mime Mail Action (disabled), Mime Mail CSS Compressor (disabled)
Module filter	7.x-1.8	Filter the modules list.
Node	7.28	Allows content to be submitted to the site and displayed on pages. Required by: Drupal
Node Locations	7.x-3.2	Associate locations with nodes. Requires: Location (enabled) Required by: Location Add Another (disabled)
Number	7.28	Defines numeric field types. Requires: Field (enabled), Field SQL storage (enabled) Required by: Drupal (Field type(s) in use - see Field list)
OAuth	7.x-3.2	Provides OAuth functionality Required by: OAuth Provider UI (disabled), Twitter (enabled), Twitter actions (disabled), Twitter Post (disabled), Twitter Signin (disabled)
OneAll Social Login	7.x-1.6	Allows your users to register and login with social networks like Twitter, Facebook, Paypal, LinkedIn, LiveJournal, OpenID, VKontakte, Google and Yahoo Requires: OneAll Social Login Core (enabled)
OneAll Social Login Core	7.x-1.6	Contains the core functions used by the OneAll Social Login Module. Required by: OneAll Social Login (enabled), OneAll Social Login Widget (enabled)
OneAll Social Login Widget	7.x-1.6	Displays the buttons of the Social Networks that your users may use to connect to your website. Requires: OneAll Social Login Core (enabled)
Options	7.28	Defines selection, check box and radio button widgets for text and numeric fields. Requires: Field (enabled), Field SQL storage (enabled) Required by: Taxonomy (enabled), Custom breadcrumbs for taxonomy (enabled), Forum (disabled), GMap Taxonomy Markers (disabled), List (enabled), Location Taxonomy (disabled), XML sitemap taxonomy (disabled)
Path	7.28	Allows users to rename URLs. Required by: Pathauto (enabled)
Pathauto	7.x-1.2	Provides a mechanism for modules to automatically generate aliases for the content they manage. Requires: Path (enabled), Token (enabled)
PHP filter	7.28	Allows embedded PHP code/snippets to be evaluated.
Ranking	7.x-1.0	Displays the the players names avatars, ranks & awards also the HQ staff names, avatars & rank.
RDF	7.28	Enriches your content with metadata to let other applications (e.g. search engines, aggregators) better understand its relationships and attributes.

reCAPTCHA	7.x-1.11	Uses the reCAPTCHA web service to improve the CAPTCHA system. Requires: CAPTCHA (enabled)
Search	7.28	Enables site-wide keyword searching. Required by: Location Search (disabled)
Site map	7.x-1.2	Display a site map. Requires: Menu (enabled)
System	7.28	Handles general site configuration for administrators. Required by: Drupal, Administration menu (enabled), Administration menu Toolbar style (enabled), Libraries (enabled), Responsive layouts for IE 6-8 (disabled), Gmap Style Bubbles (disabled), Mime Mail (enabled), Mime Mail Action (disabled), Mime Mail CSS Compressor (disabled)
Terms of Use	7.x-1.2	Adds terms of Use to the registration page.
Text	7.28	Defines simple text field types. Requires: Field (enabled), Field SQL storage (enabled) Required by: Drupal (Field type(s) in use - see Field list), Comment (enabled), Forum (disabled), Tracker (disabled)
Token	7.x-1.5	Provides a user interface for the Token API and some missing core tokens. Required by: Pathauto (enabled), Token example (disabled)
Twitter	7.x-5.8	Adds integration with the Twitter microblogging service. Requires: OAuth (enabled), Views (enabled), Chaos tools (enabled) Required by: Twitter actions (disabled), Twitter Post (disabled), Twitter Signin (disabled)
Update manager	7.28	Checks for available updates, and can securely install or update modules and themes via a web interface.
User	7.28	Manages the user registration and login system. Required by: Drupal
User Locations	7.x-3.2	Associate locations with users. Requires: Location (enabled)
Views	7.x-3.7	Create customized lists and queries from your database. Requires: Chaos tools (enabled) Required by: Custom breadcrumbs for views (enabled), FB Views (disabled), Views UI (enabled), Twitter (enabled), Twitter actions (disabled), Twitter Post (disabled), Twitter Signin (disabled), Views content panes (disabled)
Views UI	7.x-3.7	Administrative interface to views. Without this module, you cannot create or edit your views. Requires: Views (enabled), Chaos tools (enabled)
XML sitemap	7.x-2.0	Creates an XML sitemap conforming to the sitemaps.org protocol. Required by: XML sitemap custom (disabled), XML sitemap engines (disabled), XML sitemap internationalization (disabled), XML sitemap menu (disabled), XML sitemap node (disabled), XML sitemap taxonomy (disabled), XML sitemap user (disabled)