Study and comparison of the unique selling propositions (USPs) of free-to-use multinational patent search systems

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ABSTRACT

The article analyses and compares some free-to-use patent search services which are not managed by patent authorities but which may offer unique selling propositions (USPs) beyond the expected, standard, search functions. Those services selected for this study are *Google Patents, Lens, Patent Inspiration, Free Patents Online, SureChEMBL* and *Octimine*. For this comparative study a total set of 66 criteria were analysed for each of the six search services. Furthermore the USPs and perceived advantages and disadvantages were identified. The study concluded that some of these search services are better suited for general prior art searches or patent analysis while others are applicable for patent searches in specific fields like biotechnology or pharmaceuticals.

1. Introduction

When it comes to understanding more about the functionalities and features of patent databases, relatively few comparative studies are available. Many are outdated [1–3] and the more recent studies from Stock [4] and Cerny [5] only compare commercial providers with a single free provider. Also, in the most noteworthy directories of patent search services, namely the PIUG listings and the Intellogist Portal [6,7] we observed that many entries were not up to date and some newer patent search services were not included at all. The latest information is that Intellogist is indefinitely offline [8].

Other studies [1–5] give a direct comparison of features and functionalities but none of them focuses exclusively on free of charge sources. However, as far as free-of-charge services are concerned, List [9] in a WPI editorial of 2008 discusses the development of free databases and two consecutive publications by Rainey [10] and Marley [11] cover *Espacenet, Patentscope* and *Google Patents*. Later, one of us (BJ) co-authored a comparison of the three most important multinational search services offered exclusively by intellectual property offices (*Espacenet, Patentscope* and *DEPATISnet*) [12] and subsequently published a comparison of the

LATIPAT interfaces for Latin American patent information [13]. More recently the Intellectual Property Owners' Association (IPO) has published [14] a free patent search tools bulletin, covering *Espacenet, Google Patents, Patentscope*, and [The] *Lens*.

As several free patent and open access databases and search services from non-patent authorities have emerged over recent years it is of interest to understand more about each database in order to choose the most appropriate for the purpose of the specific patent search intended. Therefore this article aims to give an updated overview of their advantages (perceived strengths), and potential disadvantages (perceived weak points) and a feature comparison of their unique selling propositions.

Unique selling propositions (USP) can be considered as the features of the product that most stand out as different from those of the competition, and are usually features that convey unique benefits to the consumer [15]. We invoke the concept of USPs from the field of Marketing. This is because the aim of this paper is to identify and highlight unique features and functions of the free-to-use patent search services. In business terms these services are competing to attract users. Since all of the analyzed services are freely available via Internet, competition is not based on price or

place, but on the characteristics of the product or service. These characteristics are defined by *inter alia* the feature and function set of each service.

The patent search services showed to have certain common features but individually had their own unique features. These unique features translate into unique selling propositions because they modify users' choices on which search service to choose for daily general patent search work or for specific search situations.

2. Material and methods

The present article focuses on patent search services with the following characteristics:

- independent of patent authorities
- free-to-use (no charge for patent searching)
- own database with multinational patent data (no "meta" patent search engines)[1]

The following six patent search systems were identified that satisfied the above mentioned conditions and thus were selected for this comparison:

- *Google Patents*
- *Lens*
- *Patent Inspiration*
- *Free Patents Online*
- *SureChEMBL*
- *Octimine*

For the comparison of the patent search systems a criteria analysis was developed by the authors for the purpose of this study with a set of 66 points as shown in the following table (Table 1). We have assumed that all the selected search services offer the *sine qua non* search options of keywords, inventor or applicant names, dates and "patent numbers" (priority or application or publication).

Each of the criteria were analysed for the six patent search systems and then compared to each other in order to identify their unique selling propositions and advantages and disadvantages.

An exemplary search (a simple keyword search for patents with "*maslinic acid*" in title/abstract) was done on all search systems in order to systematically compare how the systems display the results (see screenshots of each system). The purpose of the study was to analyse the features of each service and not the results of a specific search, therefore direct comparisons of search results are not reported here.

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[1] Multinational means in this context that the database contains patent data from multiple patent authorities. "Meta" patent search engines have a single interface for accessing multiple (external) databases and do not have an own database.

[2] The documents published by patent authorities are assigned a leading two letter country code, to designate which authority has published a particular document. The country codes cited in this article are (in alphabetical order).

Code	Country	Patent authority
AU	Australia	IP Australia
CA	Canada	Canadian Intellectual Property Office
CN	China	State Intellectual Property Office of the Peoples' Republic of China
DE	Germany	German Patent and Trademark Office
EP	Regional	European Patent Office
JP	Japan	Japan Patent Office
US	United States	United States' Patent and Trademark Office
WO	International	World Intellectual Property Organization WIPO

3. Results

3.1. Google patents

Google Patents (https://patents.google.com) is the patent search platform from Google and one of the most well known free-to-use patent search services. Launched in 2006 with US patent data, it has undergone several updates since then, namely in 2012 with the integration of European patent data, in 2013 with the coverage expansion of other important offices (CA, CN, DE and WO patent documents)[2] and in 2015 and 2016 with a major change in user interface and feature set (Fig. 1).

The following unique selling propositions were identified:

- *Google Patents* includes non patent literature (NPL) indexed in *Google Scholar* and *Google Books.*
- NPL has been machine-classified using the Cooperative Patent Classification (CPC) so a class search will also retrieve NPL
- "Prior Art Finder": The keyword extractor analyses a specific patent and automatically searches older documents with the identified ("extracted") keywords.

The analysis revealed the following advantages of the patent search service:

- Full text search in 16 patent authority collections using English keywords (patents with non-English text have been machine-translated to English and indexed)
- Introducing plain text[3] into the search form runs a keyword extractor which will suggest search terms
- *Google Patents* will try to find relevant classes according to the entered keywords
- The result list can be thematically grouped according to classes.
- Image thumbnails in result list helps to filter faster relevant from non-relevant patents

We considered the following as potential disadvantages:

- No search history
- No possibility to save searches
- Only US patents downloadable as full documents

3.2. Lens

The Lens (https://www.lens.org) was launched in 2000 (formerly "Patent Lens") by CAMBIA, an Australian based global non-profit social enterprise focusing on open science and the Queensland University of Technology. *Lens* is distinguished as being a patent search system created with the mission to offer an integrated, worldwide, open-source and open access resource for patents and non patent literature with a special focus on biological patent information (Fig. 2).

The following unique selling propositions were identified:

- *Lens* has dedicated search features for genetic sequences in patent documents
- Only compared search system with patent family analysis features: World map visualization of countries of the family members, Family timeline visualization and Family priority ranking

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[3] Plain text in this context means a non Boolean search statement, e.g. a whole sentence taken from an scientific article.

Table 1
Criteria set.

Category	Criteria
SEARCH	Boolean search?
	Number of searchable fields?
	Semantic search?
	Citation search?
	Legal information and/or status search?
	Maximum keyword limitation?
	Keyword stemming?
	Chemical structure search?
	If yes … provision of structure drawing/editor?
	If yes … possibility of structure import (if yes, which formats supported)
	If yes … types of compound names accepted (CAS, IUPAC, commercial name, etc.)
STATISTICAL ANALYSIS	Statistical patent analysis available?
CLASSIFICATION	Classification search available?
	CPC support available?
	Classification browser?
CITATION	Citation grouping per invention?
	Separation of applicant and examiner citations?
	Separation of domestic and foreign citations?
CONFIDENTIALITY	HTTPS data encryption?
	Is there a privacy policy?
	Login required? (registered user)
MONITORING	Configurable patent/search alerts?
COVERAGE	Triadic patent authorities covered (EP,US,JP)?
	Number of covered countries/patent authorities?
	Full text search?
FORMAT	Number of searchable countries/patent authorities in full text?
NON PATENT LITERATURE	NPL in patent citations? Example: WO2012017108
	If yes, NPL linked to external databases in patent citations?
	NPL searchable in search interface?
EXPORT	Patent records can be exported?
	If yes … maximum exportable patents records?
	If yes … number of max fields in export?
	If yes … export format?
	If yes … with images?
	If yes … with abstract?
SEARCH INTERFACES	Single form interface?
	Multiple form field search?
	Command line search?
SEARCH HISTORY	Search history?
	Search steps can be combined?
	Search can be saved?
	If yes … saved search locally (cache) or serverside?
LANGUAGE AND TRANSLATION	Search interface available in non-English languages?
	Searching with non-English keywords?
	Patent translation tools available?
	Keyword translation tools available?
RESULT LIST	Configurable fields for result list?
	Possibility to sort the result list?
	Patents can be saved in a dedicated list?
	if yes … possibility to save patents in more than one list?
	if yes … possibility to share the patent list?
	Image thumbnails in result list?
	Family grouping of results?
	Max number of results limitation?
	Results filtering option?
BIBLIOGRAFIC VIEW	Link to Citing Documents?
	Link to Cited Documents?
	Legal Status?
	Image Thumbnails?
	Keyword highlighting?
	Simple family info (patent equivalents)?
	INPADOC family info?
	Full document downloadable?
	Ads or Banners?

- Inventor names are linked with social web directories (LinkedIn and ORCID)
- *Lens* allows to sort the result list according to patents with most citations received

The analysis revealed the following advantages of this patent search service:

- 20 searchable fields
- major coverage (DOCDB bibliographic data[4] and US, WO, EP and AU in full text)
- 14 different (predefined) patent statistics visualizations
- Interface available in 5 languages
- Saving selected patents in multiple patent lists (customizable with title and description)
- Sharing patent lists via a generated URL
- Writing and saving notes to patent records

We considered the following as potential disadvantages:

- Statistical data cannot be exported for further analysis
- No distinction of applicant and examiner citations

3.3. Patent inspiration

Patent Inspiration (https://app.patentinspiration.com) is a "freemium"[5] patent search and analysis tool launched in 2012 and is owned by the Belgium/Australian based company AULIVE (Fig. 3). Although this service allows for patent search and visualisation, it lends itself to TRIZ-type[6] idea generation.

The following unique selling propositions were identified:

- Option of thumbnail only viewing of result list
- Powerful patent result list filtering/refining

The analysis revealed the following advantages of this patent search service:

- Many free patent analysis visualizations
- Patent analysis data and visualization can be both exported in several formats (Excel, PowerPoint, etc.)
- Integrated CPC browser (also in Espacenet).
- Powerful patent record export features: export to PPT, CSV, WORD, XLS, up to 34 fields can be exported, forward and backward citations, standardized names, claims & description)
- Sorting of all columns in result list possible

We considered the following as potential disadvantages:

- Only 9 search criteria
- No citation search
- No NPL in citations
- No legal status info
- Many features only available in the pay version (saved searches, history, monitoring, etc.)

3.4. Free patents online

Free Patents Online (http://www.freepatentsonline.com) is a

Fig. 1. Google Patents field search interface ("advanced search") with result list (grouped by classification) and patent analysis.

Fig. 2. Lens field search interface ("structured search") with date and jurisdiction filtering.

patent search site launched in 2004 by the US based company Patents Online, LLC which also runs the FPO sister site *SumoBrain*[7]

with nearly identical functionality. The team behind *Free Patents Online* (FPO) is also involved in the development of the commercial
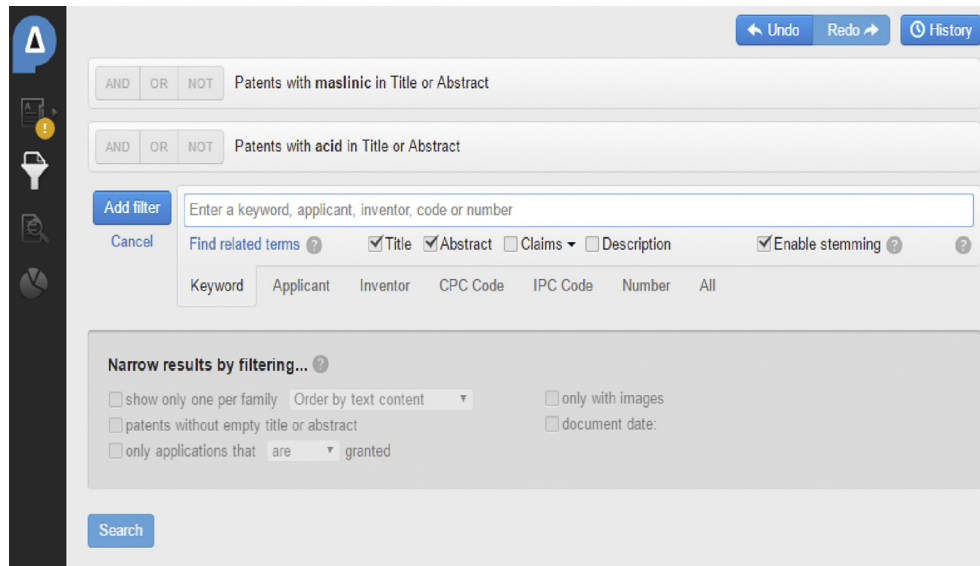
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[7] http://www.sumobrain.com/.

Fig. 3. Patent Inspiration field search interface ("advanced search").
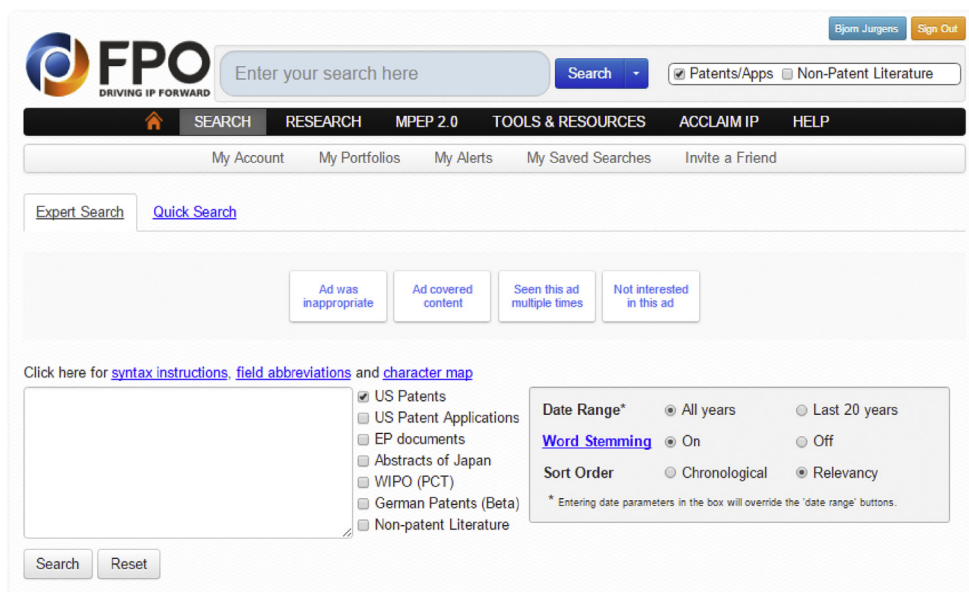

Fig. 4. Free patents online "expert search" interface.

patent search solution *AcclaimIP*[8] which was acquired in 2016 by the multinational IP company Anaqua, Inc. (Fig. 4).

The following unique selling propositions were identified:

- Patent monitoring: offers the possibility to create multiple email alerts based on a saved search
- Legal information search for US records (Case number, Examiner and Attorney name)

The analysis revealed the following advantages of the patent search service:

- 27 searchable fields

- Citation search (domestic US and foreign citations received
- Command line search (USPTO syntax in "Expert Search" mode)
- Saving selected patents in multiple patent lists
- Sharing patent lists via email with URL and allows to configure if the list can be only viewed or also edited

We considered the following as potential disadvantages:

- Banner advertisements on every page
- No statistical analysis (only via their commercial database AcclaimIP)
- No HTTPS data encryption
- No CPC searchable (only the outdated ECLA and US Class are supported besides IPC)
- No worldwide bibliographic coverage (only US, WO, EP, DE, JP)
- No legal status information

- No search history
- No NPL linking to external databases
- No family grouping of results
- Image thumbnails in bibliographic view only for registered users
- No keyword highlighting
- No simple family information

3.5. SureChEMBL

SureChEMBL (https://www.surechembl.org) identifies itself as an Open Data Chemistry Patent database and is maintained since 2013 by the Bioinformatics Institute of the European Molecular Biology Laboratory (EMBL) based at the Wellcome Trust Genome Campus, Hinxton, UK. Although it is a patent database specialized on chemical patent data, we included it in our study since it offers free of cost access to multinational patent data and in addition to the usual search possibilities the following unique selling propositions were identified (Fig. 5):

- Powerful chemical structure search interface
- Integrated chemical structure editor ("Marvin JS")
- Chemical structure import accepts 19 file/text formats like MDL, SMARTS, SMILES
- Allows export of chemical structures of selected patent records

The analysis revealed the following advantages of this patent search service:

- Chemical database with DOCDB worldwide bibliographic patent coverage and full text of EP, WO and US records
- 18 searchable fields
- Backward citation search (cited documents)

We considered the following as potential disadvantages:

- No statistical analysis & visualization
- No legal status information
- No citation grouping per invention
- No bibliographic patent record export
- No search history and saved searches
- No patent lists
- Result list cannot be sorted (publication date default)

3.6. Octimine

Octimine (https://app.octimine.com) is a new patent search and analysis platform launched in 2016 by the German based start-up company Octimine Technologies. Similar to Patent Inspiration it is a freemium platform with a mandatory user registration and where different paid models with increasing feature sets are offered to the user (Fig. 6).

Regarding the analyzed free-of cost version the following unique selling propositions were detected:

- *Octimine* offers a different patent search approach where relevance calculation is based on semantic analysis with algorithms that calculate an index that refers to the level of similarity that exists between the entered patent number or text with regard to the patents that appear in the result list.
- A compare & highlight feature which compares the similarities between patent documents where the texts are displayed side by side, with the same words being highlighted
- Patent analysis graphics to visualize technology lifecycles and patent risks
- Citation node map visualization

The analysis revealed the following advantages of the patent

Fig. 5. SureChEMBL start page with search interface and chemical structure editor.

Fig. 6. Octimine search interface (expanded with filter options).

search service:

- Offers 8 predefined statistical patent analysis
- Various statistics visualizations (Bar, Line and Pie Chart, Bubble map & Heat Map)
- Export patent list in various formats
- Automatic PDF report generation with statistics visualizations and up to 1000 bibliographic records
- 1–4 star rating of patent records

We considered the following as potential disadvantages:

- Only free text or patent number searching possible
- Classification search only possible in combination with number or semantic search
- No CPC support (only IPC)
- No worldwide coverage (only EP, US, WO)
- No legal status information

4. Conclusion

Having analysed all six search systems we found unique selling propositions in each of them which we summarize in the following table (Table 2).

Table 2
Unique selling propositions of the compared search systems.

Patent Search System	Direct URL	Unique Selling Propositions
Google Patents	https://patents.google.com/	• Includes NPL indexed in Google Scholar and Google Books. Furthermore these documents have been machine-classified using the CPC to make them retrievable with classification searches. • Patents with only non-English text have been machine-translated to English and indexed, so one can search patent publications using only English keywords. • Keyword extractor that analyses a specific patent and automatically searches older documents with the identified ("extracted") keywords
Lens	https://www.lens.org/lens/structured-search	• Search for genetic sequences in patent documents • 3 patent family features: World map visualization of countries of the family members, Family timeline visualization and Family priority ranking • Tags can be assigned to the patent lists (e.g. for a thematic tagging) • Sorting result list by number of patents cited and family size • Lens lets you check how many patents cited a specific NPL
Patent Inspiration	https://app.patentinspiration.com	• Patent analysis data and visualization can be both exported in several formats (Excel, Powerpoint, etc.) • only search service (besides Espacenet) which offers integrated CPC class browser • Powerful patent record export features: export to PPT, CSV, WORD, XLS, up to 34 fields can be exported, forward and backward citations, standardized names, claims & description) • Thumbnail viewing option of result list • Citation count per family grouping • Idea generation
FPO	http://www.freepatentsonline.com/search.html	• Patent monitoring: offers the possibility to create multiple email alerts based on a saved search • Legal information search for US records (Case number, Examiner and Attorney name)
SureChEMBL	https://www.surechembl.org/search/	• Powerful chemical structure search interface • Integrated chemical structure editor ("Marvin JS") • Chemical structure import accepts 19 file/text formats like MDL, SMARTS, SMILES • Option to export chemistry information from records (structures)
Octimine	https://app.octimine.com/	• Semantic Search (the user can copy an arbitrary English text into the search box and search by meaning or interpretation of terms) • Citation node map visualization • Compare & highlight feature compares the similarities between patent documents (Texts are displayed side by side, with the same words being highlighted)

We liked *Google Patents* with its improved interface and new analysis features, but especially because it includes all indexed literature of Google scholar and Google books and furthermore makes it searchable via CPC (machine auto classification of NPL). This makes this search system especially suitable for prior art searches when also non-patent literature has to be considered.

Lens, in our opinion, turned out to be one of the most complete free-to-use databases of the comparison (in terms of features). As an USP we appreciated the patent family analysis (world map visualization of countries of the family members, family timeline visualization and family priority ranking) and the dedicated search features for genetic sequences in patents. This makes this search system especially interesting for users of the biotechnology sector.

PatentInspiration, in its free of cost modality, impressed us with powerful patent result list filtering/refining functions and the integrated patent analysis features with various predefined visualizations which makes it easy to use for users which are inexperienced with patent statistics. Notwithstanding the search and visualisation capabilities, PatentInspiration is unique in being intended for technical problem solving.

With *Free Patents Online*, we liked the email alert features of a saved search which makes it suitable for users interested in patent monitoring of the covered patent authorities (US, EP, WO and DE) and the provision of specific search criteria for US patents (e.g. legal information or domestic citation data).

SureChEMBL, is in our opinion the most interesting free of cost search service for users in the chemistry/pharmaceutical sector since it is the only database in this study which offers dedicated search features for chemical structures in patent documents.

Finally *Octimine,* is in our opinion the most unorthodox of the compared search platforms since it is the only one which offers a different search approach by using semantic analysis of search strings and calculating the similarity that exists between an entered patent with regard to others. This, in our opinion, makes it especially useful for prior art/novelty searches and as a complementary tool to the traditional (field based) databases since it might retrieve documents which would not appear with a conventional keyword or classification search.

Disclaimer

The opinions expressed in this article are those of the authors and not necessarily those of their employers.

References

[1] D. Smith, A comparison of some patent databases, World Patent Inf. 1988 10 (1) (1988) 11—16.
[2] N. Lambert, Patents on the Internet versus patents online: a snapshot in time, J. Chem. Inf. Comput. Sci. 39 (1999) 448—452.
[3] P. Schwander, An evaluation of patent searching resources: comparing the professional and free on-line databases, World Patent Inf. 2000 22 (3) (2000) 147—165.
[4] M. Stock, W.G. Stock, Intellectual property information: a comparative analysis of main information providers, J. Am. Soc. Inf. Sci. Technol. 57 (2006) 1794—1803.
[5] J. Cerny, Open access intellectual property systems: a comparison to commercial solutions in competitive intelligence, J. Syst. Integrat. 7 (3) (2016) 16.
[6] The Intellogist Blog. URL: https://intellogist.wordpress.com (Accessed 26 April 2017).
[7] Patent Information Users Group, Inc., Wiki: Patent Databases. URL: http://wiki.piug.org/display/PIUG/Patent+Databases (Accessed 26 April 2017).
[8] Kirstin Whitman https://wiki.piug.org/pages/viewpage.action?pageId=54165676 (Accessed 29 June 2017).
[9] J. List, Free patent databases come of age, World Patent Inf. 30 (3) (2008) 185—186.
[10] M.M. Rainey, Free sources for patent searching: a review, Bus. Inf. Rev. 31 (4) (2014) 216—225.
[11] M. Marley, Full-text patent searching on free websites: tools, tips and tricks, Bus. Inf. Rev. 31 (4) (2014) 226—236.
[12] Intellectual Property Owners Association, Free Patent Search Tools, 2017. http://www.ipo.org/wp-content/uploads/2017/03/Free-Search-Tools-Bulletin_-20170301.pdf. (Accessed 26 June 2017).
[13] B. Jürgens, V. Herrero-Solana, Espacenet, patentscope and depatisnet: a comparison approach, World Patent Inf. 42 (2015) 4—12.
[14] B. Jürgens, V. Herrero-Solana, Patents from Latin America and Spain with Latipat: country coverage and ability to search for emerging topics like Nanotechnology, World Patent Inf. 46 (2016) 1—8.
[15] https://en.wikipedia.org/wiki/Unique_selling_proposition (Accessed 26th April 2017).

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