

Google Products for Enhancing Library Services

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Abstract - In this knowledge era, we come across amazing list of new application which ease and enhance the quality of services provided by library and Information Centre. It is said that Knowledge about availability of Knowledge is best Knowledge. Knowledge about Google products plays a vital role in improving the effectiveness of library and its services. The paper presents the overview of Google Inc., about their journey to be in number one position in this web world. It also briefs about Timeline of Google products, services, and acquisitions, Competitive threats to Google and categorisation of Google products. It also explains how these products can be utilised in enhancing library services.

Keywords : Google, Google maps; Google forms, Google timeline, Google Competitors; Google Products.

I. INTRODUCTION

In this network world Google is synonym for search on web. In these 20 years the world web has witnessed rapid growth of Google search along with launching of new products, acquisitions, mergers. The information overload has made the world in which there's too much information everywhere. It is challenge for librarian to search for required information from ocean of information. In order to cope up with technological advancement the librarian needs start working with the modern technologies. In this Google world there is necessity to work with hundreds of Google products and imply them in library and information centers. Now a days digital library users and even well-established scholars rely increasingly on Google, or its new products Google Scholar and Google Book, for information resource discovery and access. Libraries play an important role to keep face with the techno savvy services.

II. GOOGLE OVERVIEW: FROM THE GARAGE TO THE GOOGOLPLEX

Google story started way back at Stanford University at 1995 by Larry Page and Sergey Brin, graduation school students as the assignment. They built a search engine named Backrub which is used to retrieve each and every link on the World Wide Web. They tried to give importance to each and every page within the internet. The name was renamed as Google with a mission "to organise the world's information and make it universally accessible and useful." From last few years we are witnessing how Google has caught the attention of academic community along with Silicon Valley investors. In 1998, Sun Microsystems co-

founder Andy Bechtolsheim invested on the search engine developed by Larry and Sergey for \$100,000 and Google Inc. was officially born with clunky desktop computers, a ping pong table and bright blue carpet in a Garage. The first was started in 1998 with a Google logo in colourful colour. The first doodle was stick figure in the logo for Burning Man Festival in 1998 itself. Company expanded rapidly and moved to its current headquarters (Googleplex) in Mountain View, California very next year with the spirit of doing things differently.

The relentless search for better answers continues to be at the core of everything. Google makes hundreds of products used by billions of people across the globe.

III. TIMELINE OF GOOGLE PRODUCTS, SERVICES, AND ACQUISITIONS

Rapid growth since its incorporation has triggered a chain of products, acquisitions, and partnerships beyond Google's core search engine. Google offers services designed for work and productivity through Google Docs, Sheets and Slides, Gmail/Inbox, scheduling and time management apps like Google Calendar, cloud storage platform like Google Drive, social networking site like orkut and Google+, instant messaging and video chat like Google Allo/Duo, language translation tool, mapping and turn-by-turn navigation tools like Google Maps/Waze, video sharing apps like YouTube, notetaking apps like Google Keep, and photo organizing and editing like Google Photos, Picasa. The company leads the development of the Android mobile operating system, the Google Chrome web browser, and Chrome OS, a lightweight operating system based on the Chrome browser.

With the changing technology and adaptability collaborative technology has emerged leading to products discontinuation, merging of products along with merging and acquisition of companies. The following table shows the timeline of important Google products.

The graph depicts the information about Google products mergers, acquisition, new services, and discontinuations of Google products depending on changing technology.

TABLE I TIMELINE OF GOOGLE PRODUCTS

S.No.	Year	Timeline
1	1995 - 96	Larry Page and Sergey Brin – came up with search engine Backrub
2	1997	Google.com is registered
3	1998	An unincorporated Google Inc receives its first investment: \$100,000 from Sun co-founder Andy Bechtolsheim & sets a workspace in a garage in Silicon Valley. Google files for incorporation in California, granted on September 7 - now celebrated as Google's birthday
4	2000	The first 10 International language versions of Google.com are released & Google becomes the world's largest search engine with the first billion-URL index
5	2004	Gmail was launched; Google goes public: IPO at \$85 a share Partnerships announced with leading libraries and universities to digitally scan millions of books from their collections
6	2005	Google Maps and Google Earth launched, a satellite imagery-based mapping service, followed by Google Talk
7	2006	Google purchased YouTube
8	2007	Gmail was available to general public, Google analytics, Google drive, google docs, sheets, slides were launched
9	2008	First web browser chrome, google site was launched
10	2009	G Suite Launched, Google mars, Google moon
11	2013	Google hangout
12	2014	Google classroom
13	2016	Google Duo
14	2017	Google cloud search, search history was renamed web history

IV. COMPETITIVE THREATS TO GOOGLE

Google often fluctuates between being the most and second most valuable corporations in the world, the other corporation being Apple. Google has travelled from small piece of code to being a business organisation more wealthy and powerful than some independent nations. Google dominates through its strong search function and has moved into online video, artificial intelligence and many more industries. The obvious outcome of such a large corporation entering so many industries is competition. There was a time when Yahoo and Alta Vista dominated the search engine, making them the biggest rival to Google. But they were defeated. Alta Vista doesn't even exist anymore and it looks quite likely Yahoo is about to be broken up. Google won big. But there are still companies trying to be the top dog in search, or in other areas Google operate in.

V. GOOGLE PRODUCTS

Google Inc. provides many webbased services in search, advertising, developing categories. It can be classified as

A. Web-based products

1. Search tools : Google Search

Google Search is the main core product by Google which receives more than 3 billion queries per day and provides its service in 189 regional level domains.

Characteristics of Google search

1. It uses Hummingbird algorithm for query analysis. This helps to search related searches with respect to search term. Link analysis is done by Pagerank link analysis algorithm. Google search uses Snapshot mechanism for indexing word documents, portable documents.
2. Google Search includes Boolean logical operators, wildcards, and more, to help users refine their searches. Google search supports multiple language interfaces.
3. Google came with new idea that an online author can have topical authority within Google Search Results by providing Google author ranking.
4. Google's advanced search provides experimental Search options for testing new interfaces while searching with Google, including Timeline views and keyboard shortcuts.
5. Google Alerts provides email notification service, which sends alerts based on chosen search terms, whenever there are new results. Alerts include web results, Groups results news, and video.
6. Google Books is a search interface for the full text of printed books. Google scans and stores in its digital database. The content that is displayed depends on the arrangement with the publishers, ranging from bibliographic details extracts to entire books.
7. Google Custom Search allows the user to create his own customized search experience for his/her own website.

8. Google Groups helps user to create like minded groups on web and allow email discussion service and Usenet archive. Users can join a group, make a group, publish posts, track their favourite topics, write a set of group web pages updatable by members and share group files.
 9. Google Hotel Finder, Google Flight Search, Google Image search, Language Tools where it allows users to translate text or web pages from one language to another, and another that allows searching in web pages located in a specific country or written in a specific language. Google News an automated news aggregator and compiler provide aggregated news for more than 20 languages.
 10. Google Patent Search , an interface for millions of patents, each result with its own page, including drawings, claims and citations.
 11. Google Recipe View – lets you narrow your search results to show only recipes, and helps you choose the right recipe amongst the search results by showing clearly marked ratings, ingredients and pictures.
 12. Google Scholar search interface for the scholarly literature across an array of publishing formats and scholarly fields. The index includes virtually all peer-reviewed journals available online.
 13. Google Shopping is a price engine that searches online stores, including auctions, for products.
 14. Google Suggest is an auto-completion interface guide in search results while typing to give popular searches.
 15. Google Video partnerships include agreements with CBS, NHL and the NBA. It also searches videos posted on YouTube, Metacafe, Daily Motion, and other popular video hosting sites.
 16. Web History is web page tracking platform which records Google searches, web pages, images, videos, music and other data. It also includes bookmarks, search trends and item recommendations.
 17. Knowledge Graph one more salient feature in which a knowledge base used to enhance search results with semantic information gathered from several sources. Knowledge graphs holds more than 70 billion facts.
3. **Google 3D Warehouse** an innovative online service which hosts 3D models of existing objects, locations (including buildings) and vehicles created in Google SketchUp
 4. **G Suite** is a service for businesses, enterprise, and education providing independently customizable versions of several Google products under a custom domain name. Features included are Gmail, Google Hangouts, Google Calendar, Google Docs, Google Sheets, Google Forms, Google Slides, Google Sites, Google Contacts, and Google Groups.
 5. **Blogger/Weblog** is weblog publishing tool by Google where users can create custom, hosted blogs with features such as photo publishing, comments, group blogs, blogger profiles and mobile-based posting with little technical knowledge.
 6. **Google Bookmarks** is a free online bookmark storage service, available to Google Account holders.
 7. **Google Business Solutions** is collection of services offered by Google specifically directed at webmasters and businesses.
 8. **Google Calendar** is free online calendar, includes Gmail integration, calendar sharing, and a "quick add" function that allows inserting events using natural language input.
 9. **Google Charts** is an interactive web-based chart image generation from user-supplied JavaScript.
 10. **Google Docs** includes document, spreadsheet, drawing, survey, and presentation application, with document collaboration and publishing capabilities
 11. **Google Drive** is an online backup service and storage space. This service is connected with Google Docs.
 12. **Google Hangouts** is an instant messaging and video chat platform by unified replacement for Google Talk, Google+ Messenger, and Hangouts, the video chat system present within Google+.
 13. **Google Sites** is web page-creation platform tool both for personal and corporate use.
 14. **Google Classroom** is an content management system for schools that aids in distribution and grading of assignments and providing in-class communication
 15. **Google Cloud Search** is a smart search engine that allows G Suite business customer users to search across G Suite products, including Google Drive, Gmail, Sites, Google Calendar, Docs, Contacts and more.

2. Advertising services

AdMob, Google AdSense, Google display Planner, Google AdWords, Adwords Express , Google Certification Program , DoubleClick, Google Ad Grants, Google Think Insights are some advertising management and advertisement serving technology for business purposes.

3. Communication and Publishing Tools

1. **Google Cultural Institute** helps to explore collections from around the world. Google Art Projects, cultural collections and stories are presented in innovative way.
2. **Google Keep** is a note-taking service similar to Evernote

B. Development Tools

1. **Security tools** covers developer tools such as Google App Engine, Google Developers , Google's site for developers , Dart , Go (programming language), OpenSocial , Google PageSpeed Tools, Google Swiffy Google Web Toolkit , Google Search Console , Translator Toolkit, Security tools, reCAPTCHA are specially designed for web developers.
2. **Map-related products** are Google Maps, Google Street View, Google Street View Inside Trusted,

Google My Maps , Google Maps Gallery, Google Mars, Google Sky, Google Transit etc.

3. **Statistical products** include Google Analytics, Google Consumer Surveys, Google Correlate, Freebase, Google Fusion Tables, Google Ngram Viewer, Google Public Data Explorer, TensorFlow, Trendalyzer, Google Trends, Zeitgeist, Google Activity Report

C. Operating systems include Android, Chrome OS, Android Wear, Android Auto, Google Glass OS etc.

D. Desktop applications Google provides many products for desktops including Google Chrome, Google Earth, Google Toolbar, Android Studio, Google Web Designer, Google Drive – Client software

E. Mobile applications Most of the Google products are designed for mobile web applications and mobile standalone applications

VI. SELECTED GOOGLE PRODUCTS FOR LEARNING INSTITUTIONS AND ENHANCING LIBRARY SERVICES

Easy use and financial factors might compel the learning institutions to use Google apps and try for the benefits for building a more collaborative teaching and learning environment. These benefits potentially include peer review of academic work and the ability to observe and participate in the creation of scholarly material. Today's learners are generally comfortable sharing content and collectively generating knowledge. The Google Apps helps in communication and file storage provides a set of tools and an infrastructure to make this happen. By leveraging student interest in and use of such tools, institutions might be able to encourage more experimentation with collaborative learning. Google Apps also facilitates sharing of information such as syllabi, and it offers an easy way to publish work. Google Apps allows learner to forget about the tools and focus on creative ways to use technology in their disciplines.

TABLE 2 GOOGLE AND LIBRARY SERVICES

Google App	Usage in Library and Information Centres
Get Answers for queries	
 Search	<p>Google Search is boon to layman in this technological world. Google search provides instant answers on the web and on over phone.</p> <p>Libraries can provide customized Google search within library website. Instant queries can be handled using Google search. Google helps to keep track of important days/ special days so as to mark them in calendar of events of library.</p>
 Maps	<p>Maps helps in GPS navigation, traffic alerts, traffic directions. The library can register for its location on Google Map so that novice user can easily find the direction. Navigation is eased using google maps</p>
 Translate	<p>Google translate helps to Speak, scan, type or draw to translate in over 100 languages. Many libraries provide translation services in local and international languages by hiring experienced language translators. Google translate is a single interface which provide translation service in more than 100 languages without spending much money and time.</p>
 Chrome	<p>Google chrome is a web browser which appeals to many users with faster, safer and easier sophisticated technology.</p>
Watch, listen and play	
 YouTube YouTube appeals user to Discover, watch and share their favourite videos and music.	<p>Libraries can use YouTube as promotional tool. Small videos on library orientation, book talks, promoting reading habits can be uploaded in YouTube and can make reflect them in library webpage. World's largest medical library, The National Library of Medicine has its own YouTube channel where it posts videos of database training, exhibitions, public service announcements, lectures and more. One can browse through keyword search or subscribe to the channel to receive regular updates on particular channel.</p>
 Play Music	<p>Google play music provides access to millions of songs on demand and are usually ad-free. This app can have relevance in music libraries.</p>
 Chromecast	<p>App aids in streaming movies and music from phone to TV. It can be aid for media libraries.</p>

Stay in touch – Communication Tools	
 Gmail Email by Google.	Separate Library Gmail account can be used for sending and receiving emails for communication. Correspondence with the vendors can be established by using Gmail. Book reminders can be sent through the mail. Photos, Videos, other official documents with digital signature can be communicated through gmail.
 Google Allo	Instant smart messaging app that helps to make like minded readers group so that SDI and CAS services can be provided. This app provides google assistant for smart messaging. The app is secures messages by providing end to end encryption.
 Google Duo	It is one to one video calling app designed with simple interface with high quality video and audio calling facilities. It can be used foe tele and video conferencing sessions.
 Google+	Google plus is an interest based social networking site where the user can add students, build communities, can share their views using photos, music, videos, animations and text documents. Google + can be used as promoting tool.
Organise Stuff – Beautify library on Web	
 Google Photos	Google photos can be great stuff to organise photos of library activities, programs.
 Contacts	Contacts help to organise users contact information.
 Calendar Organise your schedule and share events.	Google calendar organises libraries day to day activities. It is a collaboration tool where one can share your meetings with others and the fact that it syncs up all popular mobile platforms which in turn eases access. Google calendar can be used to organise calendar of events of libraries where special and important days can be added. The librarian can inform the student about schedule of library week, book exhibitions to be conducted through google calendar.
 Keep	Keep app helps librarian to save the thoughts as notes, lists and voice memos. Keep helps in organising and keeping track of day to day library transactions, reminders, meeting schedules, voice notes etc.
Work smarter Online	
 Docs	Google docs are boon in portability era. The documents created are editable and shareable from wherever by just logging through Google account.
 sheets	Google sheets can be used to easily carry spreadsheets on cloud which can be edited anywhere. Mathematical operations can be easily applied to the data within the spreadsheet.
 Slides	Portable stories with presentations can be created easily anywhere and can be carried everywhere by remembering just Google account mail id and password.
 Drive	A safe place for all of library files. Google drive provides 15GB free storage where one can deposit all the documents, spreadsheets, photos, scanned copies of documents on cloud and provides easy access. The Google drive can be linked with web pages, Google forms etc. Library professionals can deposit the syllabus copies, curriculum, notices, old question papers
Google Books	Google books helps librarian to go through rare titles, desired books required by the users on non availability of physical books. Review option is book helps to know the quality, context of the book. It is very useful for techno-savvy librarians. This is one of the biggest projects that Google has ever undertaken and involves scanning as many books as Google can get their hands on and making them indexable in their search engines.
Google Forms	Google forms help to do a survey on various library issues such as collect feedback on library

	activities and services, receive book suggestions etc.
Google class room	A content Management module can help the users to attend scheduled information literacy programmes.
 Google for Education	Google makes to engage students anytime and anywhere. Google for education is dedicated to lifelong learners which is designed free, online training for the classroom that helps educators do what they do best, even better. Google for Education focuses on creating the best educational experience for over 70 million students and teachers in more than 180 countries.
Google Sites	Allows to create libraries webpages easily and quickly without the knowledge of programming.
Google Scholar	A gateway for scholarly literature. Abstracting and Indexing services can be provided for users on request.
Google News	Google news works on aggregation algorithm which combines news from various news channels websites and aggregates many traditional media on daily basis. Helps in providing Current Awareness Service.

In this IT enabled competitive word libraries are the entry points for traditional as well as digital world. There is ample of opportunities for librarians to enhance their service quality by applying technological implications. Necessarily Google provides more than 100 products which can be implied in library activities. The following table provides list of Google apps along with the application of same on libraries.

VII. CONCLUSION

With the aim of organising the world's information, and make it universally accessible and useful Google is providing various services and products. Alexa, a company that monitors commercial web traffic, lists Google.com as the most visited website in the world. Several other Google services also figure in the top 100 most visited websites, including YouTube and Blogger. Google has been the second most valuable brand in the world for 4 consecutive years. So these powerful products/services by Google can be used in Libraries for the benefit of users. Libraries can attract users in the virtual world by using google apps for providing ready reference services to the users.

REFERENCES

- [1] Working at Google retrieved from <https://www.google.co.in/about/> on 25th June 2017.
- [2] Google products retrieved from <https://www.google.co.in/about/products/> on 25th June 2017.
- [3] J. Schmidt, Promoting library services in a Google world. Library management, Vol. 28 (6/7), pp.337-346, 2007.
- [4] Competitive threats to Google, and what they mean for you , retrieved from <http://searchengineland.com/competitive-threats-google-means-249772> on 24th June 2017
- [5] J. Battelle, "The search: How Google and its rivals rewrote the rules of business and transformed our culture," Nicholas Brealey Publishing, 2011.
- [6] D.R. Herrick, Google this!: using Google apps for collaboration and productivity. In Proceedings of the 37th annual ACM SIGUCCS fall conference: communication and collaboration (pp. 55-64). ACM., 2009.
- [7] L. Oishi, "Working Together: Google Apps Goes to School. Technology & Learning," Vol.27, No.9, pp.46, 2007.
- [8] http://www.ala.org/acrl/sites/ala.org.acrl/files/content/conferences/confsandpreconfs/2013/papers/Connaway_Google.pdf