Content Aggregation
2007 Overview
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Content aggregation applications have extended well beyond search engines. It is now common to put information from various sources and present it in a personalized format, mash-ups, and personalized banner ads, for example. Location-based services are just in their infancy but are already providing value add and are the basis for significant revenue models.

From a publisher standpoint\(^1\) this study gives a high-level overview of the content aggregation industry and reveals that under the premise of “patent activity” is a barometer of business activity. Patent activity is converted into business intelligence through patent analytics - a powerful tool that leverages graphics to clarify the complex relationships within patent portfolios. These graphics are generated by applying algorithms and statistical analyses on patent bibliographic\(^2\) data. By analyzing the resulting trends, one can use the study as a form of competitive intelligence to gain insight on relevant or emerging competitor activity such as research and development focus, direction of technology, diversification, collaboration and marketing strategies. Ultimately, analytics serves as an invaluable reference for companies wishing to effectively align their R&D and business strategies as well as assess the market place to support buy-or-build decisions, M&A opportunities or even licensing. This study looks to provide essential but intuitive comparative analysis that can be used by Intellectual Property (IP) professionals and business managers alike.

It is noted that there are several ways to breakdown the content aggregation sector. One approach is to segment it into two primary categories - Personalization and Information Aggregation. As part of the analysis, the patent publications appearing in this report were manually reviewed and further sorted into the following categories and appear throughout the following charts and tables in this report:

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\(^1\) The focus of this search relates specifically to commercial publishers, i.e., content provided by media companies, as opposed to content provided by individuals/communities.

\(^2\) Patent bibliographic data, to name a few, includes priority, filing, and grant dates, citation activity, and technology classification.
: Aggregation – Applications
This category includes patent publications related to (applications of) aggregation technologies that collect, combine and deliver content (personalized news, information, video, updates, brochures, summary reports, etc) collected from disparate data sources, in accordance with user preferences. It also contains patents relating to regular updates on the aggregated content and alerting the user about changes in the source. The information can be customized based on the building data.

: Personalization - System Driven
This includes patent publications related to technologies that provide modified content or online services (e.g. search services, web forums), personalized based on a user’s profile that is built and maintained by tracking his behavior and preferences. The category also includes technology related to providing personalized relevance rankings of search results based on automatically built user profile from past behavior/preferences. This technology is also used to aid an online user by providing suggestions or dynamically customized website content.

: Personalization - User Driven
This includes technology that enables a user to (manually) customize online content and services by providing personal information, e.g. creation of a customized home page enabling integrated search facilities on various user-specified databases. The category also includes technology used in providing e-learning services that provide customized content based on user specified preferences.

: Personalization - Targeted Advertisement
The category includes technology related to automatic selection of display advertisements relevant to a user’s preferences, location, shopping behavior, etc. It also includes patent publications related to introduction of relevant marketing information in a video or data stream, specific to a particular user or user group.

: Personalization - Profiling and other Enabling Technologies
This category includes enabling technologies for personalization services. Such technologies include automatic profiling of a user by tracking his behavior, building and clustering behavior models, and building relations between user groups.
: Localization - Applications and Geo-location technologies
This category includes patent publications describing technologies for determination of user’s geographic location (using address determination or geo-location services). This may involve use of the location specific information to the user by providing location-specific services (marketing information, language translations, etc).

: Aggregation - Enabling Technologies
This category comprises of the support technologies that enable content aggregation from disparate sources e.g. inter-conversion of document or content formats or protocols.

Scope of competitive assessment
CPA Patent Analytics uses a unique combination of proprietary software, patent and business databases to evaluate Intellectual Property Rights (IPR) as both legal and business assets. Global patent activity relating to content aggregation was examined based on patents and patent applications that were published from 1st January 1996 to 17th September 2007. Several searches were conducted using key words, assignee names, and International Patent Classifications (IPCs) and covered patent publications filed within the US, European Patent Convention (EP), Patent Cooperation Treaty (WO), Japan (JP), Germany (DE) and the 70+ jurisdictions covered by INPADOC, an international patent collection database. All patent search results were reviewed manually for relevance, and patents determined to be out of the scope of study were eliminated from the data set. For US published applications where the inventors were originally listed as the owners, these publications were run through the USPTO assignment database to update corporate ownership where applicable. Applicant data was also normalized to take into account those patent applications where mergers and ownership of the IP are held by different, but related entities.
Authors’ Synopsis

Reviewing both the big picture elements presented in the report, as well as the underlying data, several trends are apparent, most notably:

(1) Patenting is up (post the tech bubble) in virtually every sub-category of technology related to content aggregation.

(2) The US — historically a leader in both technology and content — is still is out in front, but the rest of the world is starting to make important inroads in technology innovation. Foreign markets are also clearly the growth engines of the future, and the growth in ex-US patent protection reflects this emerging understanding.

(3) Important Intellectual Property (in this specific case, patents) is not being monopolized and controlled by just a few big technology and media companies. More than two-thirds of the patent applications are coming in the ‘other’ category, with many valuable patents being held by companies other than the top patentees and patent holders. Traditional media companies are meanwhile currently thin in their direct patent holdings for technologies related to content aggregation.

(4) At the same time, the technology platform / distribution market leaders for their part at least have increased the volume of their patent applications faster than the marketplace as a whole. This will provide them meaningful leverage to continue to play a key role in the aggregation of content, helping protect their continued share of advertising and subscription revenues going forward.

(5) Content aggregation technologies (and the related patents in specific) are relatively young compared to other areas of technology. This implies an almost certain rise in the use of patents and patented technology for competitive differentiation and strategic leverage over time.

The implications we believe are this: small to mid-sized companies looking to play in digital media of all kinds should certainly continue to look to protect their real innovations to enable value both in upside and downside scenarios. The larger media companies need to start thinking about accumulating counter-balancing IP-asset leverage that would help them in their negotiations with their large technology distribution partners. And large technology players need to cast off any NIH (not-invented-here) bias and accumulate important rights to increasingly valuable 3rd-party-developed IP while it is still relatively affordable to do so. Large technology players also need to cast off any NIH (not-invented-here) bias and accumulate important rights to increasingly valuable 3rd-party-developed IP - while it is still relatively affordable to do so.

In the following pages, each chart and table tells an aspect of this story and while this report contains only a selected few, greater insights can be found by studying the details at the granular level. For more information about this study, please contact Computer Patent Annuities.
In one comparative chart, the above displays patenting activity as measured by published patent publications in the US and other international territories. The data presents application filing dates to highlight activity in the content aggregation sector on a year-by-year basis. Filing activity beyond 2005 is omitted due to the 18-month lag in publications\(^3\). All valid published patent applications are segmented by publications countries/regions.

Geographic filing and patenting activity indicate areas of protection for innovation which may represent actual or anticipated marketplaces for products. Larger numbers of publication countries can represent higher levels of globalization and international sales.

We can see a peak in patent application filings in 2001, corresponding to the “bubble”. However, activity has remained healthy and appears to be trending upward as we would expect.

\(^3\) The 18-month publication lag is significant in that pending applications are not in the public domain until published and most jurisdictions do not publish applications until 18 months from the earliest filed date.
Patent Grants Over Time

The above chart displays patenting activity in the US and other international territories in one comparative chart. The data is presented to highlight activity in the content aggregation sector on a year-by-year basis. All valid patent grants are segmented by publication countries/regions.

Note that 2007 is only a partial year so, like patent applications, the recent trend in patent grants appears to be upward after a decline in 2002.
The patent creation and protection by geography chart illustrates the relationship between priority and publication countries within content aggregation innovation. Priority countries can provide an indication of core R&D activity, in-house legal services, and suggest the location of key inventors. Publication countries point to where patent protection and key commercial opportunities may exist. It is recognized that competitors within an industry will strive to have strong patent coverage in current and future markets and will place strategic patents where content aggregators are active. Typically, there is fewer priority data on the basis that one priority claim often leads to many national filings. WO data represents those patent applications that are filed directly with the International Bureau (IB) of WIPO.

This data is likely to be skewed towards the US, at least on the publication side, because of the more favourable legal structure with respect to the subject matter.
The top patenting assignee chart identifies companies with major IP rights and how those rights evolve over time. It follows that these companies are likely to have large R&D budgets in this sector and are likely to be large players over time.
 Emerging Players  

The emerging players chart represents the “most emerging” companies. Further, the table on the following page lists the specifics of each assignee appearing in this chart. The methodology used to create this chart is based on a combination of linear regression, moving average, and a year-over-year delta. The chart shows the number of publications based on the patent filing date and is actually a one-year moving average. The light purple line is the industry average. Companies having a slope that is larger than the industry average are deemed to be emerging because their cumulative patent filings are growing faster than the industry average. No surprise that Google and Yahoo score well here.
Emerging Players Table

Figure 6

<table>
<thead>
<tr>
<th></th>
<th>Google</th>
<th>Yahoo!</th>
<th>Motorola</th>
</tr>
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<tr>
<td>Publications</td>
<td>50</td>
<td>30</td>
<td>49</td>
</tr>
<tr>
<td>Families</td>
<td>14</td>
<td>09</td>
<td>07</td>
</tr>
<tr>
<td>Aggregation - Applications</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Localization - Applications/Geolocation Tech</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Personalization - System Driven</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Personalization - Targeted Advertisement</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Personalization - User Driven</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Aggregation - Enabling Tech</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Personalization - Profiling/Other Enabling Tech</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Further to the emerging players depicted in the previous chart (Fig. 5), this tables displays the actual number of patent publications and families assigned to each emerging player, and the technology categories in which they are active.
The above chart presents patent activity based upon the content aggregation categories used within this report. User driven and system driven personalization seem to be areas of large growth, while localization and profiling seem to have peaked.
Charting the top patent applicants by category provides an insight into competitive pressures within the content aggregation industry, based on individual categories. Counts are based on the number of patent families.
The range of expiration dates of global patent families addresses the longevity of each content aggregation category, by charting the percentage of patents within the analyzed patent dataset due to expire within 5 years or less, between 6-10 years and more than 11 years. This data is based upon patent publications from 1st January 1996 to the present day. Given this analysis goes back only ten years, there are obviously fewer patents showing expiration within five or less years. This is showing content aggregation to be a relatively young industry, just beginning to mature. Relatively speaking, Personalization and Targeted Advertising are maturing while localization has the greatest patent term overall.
In this citation analysis, each patent is allocated a category-specific symbol and the position of that symbol on the y-axis is the frequency in which that particular patent (publication date on x-axis) was cited by a third-party. The content aggregation industry citation average is denoted by the line appearing around 30 on the graph. The significance of this chart is that the line appearing around 175 on the y-axis is the 3rd standard deviation from the average and is used to help identify potentially innovative patents falling above that line. The rationale is that any patents appearing above the third standard deviation could be indicative of either pacing/first-mover technology.
Patent citation analysis is the only quantitative and reliable method that can be used to analyze the transfer of knowledge between companies. Patents weighted by forward citations provide a much better measure of patent value than actual patent counts. Citations may equally contribute to a company's market value, such that an increase of 1 cite per patent is estimated to equal an increase of 3% market value. This analysis serves as a useful benchmark in identifying potential licensees and licensors, in addition to potential infringements. Citation analysis can be used to identify competitors who were previously unknown or considered to be a competitor in a technology sector. Additionally, patent citations can be used to highlight the transfer of knowledge from cited (referenced) to citing patents.

Figure 11

<table>
<thead>
<tr>
<th>Pinpoint, Inc.</th>
<th>Number of Patents Above 3 Standard Deviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pinpoint, Inc.</td>
<td>5</td>
</tr>
<tr>
<td>Intel Corp</td>
<td>3</td>
</tr>
<tr>
<td>Be Free, Inc; Freedom of Information, Inc; Value Click, Inc</td>
<td>2</td>
</tr>
<tr>
<td>Actv Corp; Earth Web, Inc; Open Tv Corp</td>
<td>1</td>
</tr>
<tr>
<td>At&amp; T Corp</td>
<td>1</td>
</tr>
<tr>
<td>Bear Stearns Corporate Lending, Inc</td>
<td>1</td>
</tr>
<tr>
<td>Discovery Communications; Saidna Patent Service Co</td>
<td>1</td>
</tr>
<tr>
<td>IBM</td>
<td>1</td>
</tr>
<tr>
<td>Logan, James</td>
<td>1</td>
</tr>
<tr>
<td>Netratings, Inc; The Thinking Media Corp</td>
<td>1</td>
</tr>
<tr>
<td>Open Market, Inc; Soverain Software LLC</td>
<td>1</td>
</tr>
<tr>
<td>Pointcast, Inc</td>
<td>1</td>
</tr>
<tr>
<td>Trimble Navigation, Ltd</td>
<td>1</td>
</tr>
<tr>
<td>Xerox Corp</td>
<td>1</td>
</tr>
</tbody>
</table>

This table lists those corporations and the respective number of patents which were the most frequently cited (those that rise above the 3rd standard deviation line) as shown in Figure 10.

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Based on statistical analysis carried out by the University of California and NBER
About CPA

Patents Analytics

CPA has managed IP for over 35 years, with over 40,000 clients and performing over 1 million renewals annually. In 2004, CPA launched Patent Analytics as a service to attorney, corporate, financial service, consultancy and academic clients, providing a comprehensive overview of patent publications using multiple databases, commercial domain knowledge, the latest analysis tools and IP expertise. CPA’s patent intelligence reports provide the best of class and broad overview of technology areas and competitive pressures. For more information about this study, or CPA’s Patent Analytical services in general, please contact:

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About Nixon Peabody

Nixon Peabody LLP is one of the largest multipractice law firms in the United States, with offices in sixteen cities and approximately seven hundred attorneys collaborating across twenty-five major practice areas, including intellectual property. The firm’s size, diversity, and state-of-the-art information systems enable us to offer a comprehensive, integrated range of legal services to individuals and organizations of all sizes in local, state, national, and international matters.

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