DOMAIN NAME VALUATION:
INTERNET TRAFFIC MONETIZATION AND IT PORTFOLIO BUNDLING

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Abstract

Web domain names represent the gateway to Internet connections and access to specific websites. Their value depends on several parameters, as Web traffic or search engines, and is typically calculated with "quick and dirt" algorithms freely available on the Web. The value of a web domain depends on its capacity to attract traffic, i.e. visitors, and to transform them into cash-generating customers.
All domain names are unique and so there is no standard valuation method, especially if they are appraised within an IT bundle of related intangibles. Tentative comparable transactions represent anyway a benchmark for valuation, considering even the hypothesis of licencing the domain name to get a fair royalty.
Domain name appraisal is also a prerequisite for forensic estimates of damages in disputes.
A more detailed appraisal should consider not only the stand-alone value of a domain name, but rather its synergies with collateral intangibles as websites, digital brands, or M-Apps.

Keywords: SEO, algorithm, e-commerce, digital marketing, e-commerce, domain brandability, M-App, social network, dispute resolution

Key messages

- Web domain names are the gateway to websites, often with a branded IP address
- Value depends on the capacity to vehiculate Internet traffic and to monetize it, mainly with web advertising or e-commerce platforms
- Value can be appraised considering domain names as a stand-alone asset or within a synergistic IT portfolio of web intangibles that includes websites, digital brands, and mobile Apps

1. INTRODUCTION

The research question of this paper concerns the evaluation of domain names, considering the impact of internet traffic and the revenue models that transform traffic and visitors into cash profits. Domain names will be considered and appraised either as a stand-alone asset or within a portfolio of web intangibles that includes websites, digital brands, and -Apps.
A domain name is group of alphanumeric symbols that compose a name, followed by an extension defined by the Registration Authority of a specific country or an organization. The domain name is directly associated to a DNS (http://www.dnssec.net/), which is a system that allows to convert a

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domain name (easier to remember) to an IP address.
Domain names are the gateway to websites. A website is a collection of related web pages typically identified with a common domain name and published on at least one web server. All publicly available websites collectively form the world wide web. The valuation of domain names can take place autonomously or jointly. Websites cannot exist without access domains, whereas domain names can be an empty shell, with little if any contents.
According to Pokorná, Večerková (2013), every computer connected to the Internet has its own definite Internet Protocol (IP) address formed of a combination of numbers, today four numbers lying between 0 and 255 and separated by periods, thus from 0.0.0.0 to 255.255.255.255. This creates the possibility of using around four billion possible IP addresses. For practical use in ordinary life or during business activity, the IP address constructed in this way is impractical. It is not possible to expect Internet users to remember these numerical combinations; it is utterly useless for promoting and offering goods and services or for identifying the entrepreneurs who provide them. Therefore, the idea has gradually come about to replace numbers with a different designation that would be closer to users. The Domain Name System (DNS) thus emerged in 1984 – a hierarchically arranged system of names that removed numerical series on technical network addresses. When the network user requests a domain name, his request is transferred from the user's server to the name server, where a technical IP address can be registered, which the domain name replaces. Whereas the domain name with the same TLD can only be assigned once, the option exists of registering the same name, which however contains a differing TLD.
Domain names serve to identify Internet resources, such as computers, networks, and services, with a text-based label that is easier to memorize than the numerical addresses used in the Internet protocols. A domain name may represent entire collections of such resources or individual instances. Individual Internet host computers use domain names as host identifiers, also called host names. The term host name is also used for the leaf labels in the domain name system, usually without further subordinate domain name space. Host names appear as a component in Uniform Resource Locators (URLs) for Internet resources such as web sites (https://en.wikipedia.org/wiki/Domain_name).
Domain names are also used as simple identification labels to indicate ownership or control of a resource. Such examples are the realm identifiers used in the Session Initiation Protocol (SIP), the Domain Keys used to verify DNS domains in e-mail systems, and in many other Uniform Resource Identifiers (URIs).
An important function of domain names is to provide easily recognizable and memorizable names to numerically addressed Internet resources. This abstraction allows any resource to be moved to a different physical location in the address topology of the network, globally or locally in an intranet. Such a move usually requires changing the IP address of a resource and the corresponding translation of this IP address to and from its domain name.
Domain names are used to establish a unique identity. Organizations can choose a domain name that corresponds to their name, helping Internet users to reach them easily.
A generic domain is a name that defines a general category, rather than a specific or personal instance, for example, the name of an industry, rather than a company name. Some examples of generic names are books.com, music.com, and travel.info. Companies have created brands based on generic names, and such generic domain names may be valuable.
Domain names are often simply referred to as domains and domain name registrants are frequently referred to as domain owners, although domain name registration with a registrar does not confer any legal ownership of the domain name, only an exclusive right of use for a particular duration of time. The use of domain names in commerce may subject them to trademark law.
Internet domains are classified by the IANA (Internet Assigned Numbers Authority, www.iana.org) in two distinct types:

1. ccTLD (country code top level domains) that are used by countries for example in Italy .it, in Europe .eu, in France .fr, in Germany .de., etc (see www.icann.org);

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2. gTLDs (generic top-level domains) that are used for commercial organizations, for example .com, .gov and .edu.

There are also the second-level domains, which consist in the part before the top-level internet domain. The number of levels is counted from right to left (for example maps.google.com, google is the second level domain).
Afterwards there are the third level domains composed from the far left (in the previous example the word "maps." is a subdomain). The maximum number of subdomains is 127 and each label can be 63 characters long, the complete domain name cannot exceed 255 characters (www.iana.org/domains/root/db).
Among the third level domains, there are also www2 or www3, used to identify alternative servers that are used to reduce the traffic on the main server.
This paper is organized as follows: "quick and dirt" algorithms for valuation will be shortly examined as an "appetizer" to more professional valuation techniques, depending on specific input parameters. A general framework for the evaluation of intangible assets will then be illustrated, before considering the appraisal issues of a portfolio of web intangibles that links domain names to virtual trademarks, m-Apps or social networks as a source of Internet traffic. It will be shown that the key value driver is represented by the monetization of Internet traffic that passes through domain names which are the gate to websites and their contents. Bankability of domain names and value destroying issues as cybersquatting will also be considers, together with some dispute resolution principles.
The evaluation of domain names has already been investigated in the literature (see Tang *et al.*, 2014; Lindenthal, 2014; Dieterle and Bergmann, 2014; Meystedt, 2015). This paper is however original for two main reasons:

1. it considers evaluation issues within a general appraisal framework of intangibles, going beyond "quick & dirt" algorithms;
2. the appraisal considers domain names and their related websites either as a stand-alone asset or within a synergistic portfolio of web intangibles that includes digital trademarks and Mobile apps.

2. INPUT PARAMETERS FOR VALUATION

The domain name appraisal can have different strategic targets such as:

- willingness to buy or sell domains in the market;
- assessment of the fair royalty rate for licensing;
- determination of a fair value for forensic purposes (litigations and dispute resolution).

Whereas domain names may be sold as a stand-alone asset, especially if they are just copyrighted without any specific content (being their websites empty), websites incorporate the domain name and are so negotiated together with their IP addresses. Intermediation of websites as an asset is however less common, since their contents (e-commerce products and/or services; advertising-driven revenues linked to data, etc.) is typically sold or licensed together with the website (the evaluation of websites is analysed in Ipaguirre, 2016; Rocha, 2012).
The valuation of domain names is complex and is based on several parameters (internal or publicly available from the Web) that derive from the key value drivers described in the following sub-paragraphs.
It should be remembered that the value of a web domain depends on its capacity to attract traffic, i.e. visitors, and to transform them into cash generating customers.
Domain names represent the virtual "shop window" of selling agents that want to promote their products or services. For that reason, domain names are increasingly used and recalled in business cards, packaging labels and addresses, letterheads, etc. Any way that can drive traffic towards a target website is increasingly used. The domain name is just the gateway to the website and so its intrinsic value is just a small, albeit essential, part of the whole web value chain, as represented in par. 6, where a

portfolio of web intangibles is considered.

2.1. Characteristics of sellable domain names

Characteristics of sellable domain name (www.hover.com/blog/find-out-domain-name-value/) include:

1. Good Top-Level Domain

Though there are hundreds domain extensions to end domain name with, most users prefer .com. It's certainly possible to sell a domain name with an alternative TLD, but it is possible to get a much higher amount if it's a .com. In many cases, a regional TLD like .ca or .uk can ask for high figures, but it will be harder to attain because the pool of potential buyers will be significantly smaller.

2. Short Length

Short domains are difficult to find, so the shorter the domain is, the higher its asking price can be.

3. Capacity to Pass the Radio Test

Domain names were invented to make it easier for people to access websites, so it's important that the domain is easily understandable. Does the domain sound good? Will people know how to spell it after hearing it? Is it easy to remember? Any confusion that the domain causes will negatively impact how much others are willing to shell out.

4. Correct Spelling

If you want high figures for the domain, then it needs to be the spelled properly. No one is going to have their sights set on sportsdawkter.com. The same can be said about using 4 instead of four, u instead of you or other spelling variations. That's not to say that you cannot sell alternate spellings at all, just that the asking price will be much, much lower.

5. Meaningful Keywords

In-demand keywords with a good SEO will increase the value of the domain. There must be a balance here, though; more keywords do not equal more money. People would not want hockeybasketballsoccerdoctor.com as much as sportsdoctor.com. The importance of domain name keywords has changed dramatically over time as search engine algorithms have evolved. While there certainly are benefits of having targeted words in the domain, they are not as important as they once were for SEO (https://www.hover.com/blog/how-important-are-keywords-in-a-domain-name/). Domain names can attract interested web surfers by their wording. Google Trends will help determine whether interest in the domain's keywords is rising or declining, as well as compare how it stacks up against similar keywords.
Google AdWords' Keyword Planner tool shows how popular keywords are and how much advertisers are paying for that traffic.
A price index for Internet domain names is analysed in Lindenthal (2014).

2.2. Accounting data

Accounting data can represent a useful informative set for domain and website valuation. According to Sic 32 (interpretation of IAS principles) "*firms may bare internal costs for the development and the functioning of their website, both for internal and for external use*". A website projected for external use may serve for the promotion and advertising of products and services, the supply of e-services and the sale of products and services. A website projected for internal use may serve as an archive information on the firm, details of clients and a store of valuable information. Sic also states that the development phases may be described as follows:

(a) Planning –the definition of objectives and technical features, the evaluation of the various, possible alternatives and the choice of the most suitable.
(b) Definition of application software and infrastructural aspects- includes obtaining a domain, acquiring and developing an operative hardware and software, instalment of developed applications and verification under solicit.
(c) Development of design – refers to the graphical aspect of web pages.
(d) Development of contents – includes creation, purchase, preparation and upload of information (both textual and graphical) on the website before completing it.

Information can be stored in different databases that result and are all accessible in the website, or they are codified directly in web pages. After the website has been developed, the operative phase begins, during which the firm maintains and improves applications, infrastructure, graphic design and contents of the website. When accounting for internal costs for the development and performance of the website for internal or external use, problems consists in determining:

(a) if the website is an internally generated intangible asset that is subject to IAS 38 rules;
(b) the correct accounting rules for these expenses.

IAS 38 (www.ifrs.org/IFRSs/IFRS-technical-summaries/Documents/IAS38-English.pdf) defines criteria for accounting of intangible assets that are not specifically dealt with by other International accounting principles. It is also used for advertising expenses, employee training, plant costs, research and development costs.
All internal costs related to the development and functioning of an entity's website must be accounted for in conformity with IAS 38. The nature of each of these activities (e.g. the training of employees and the maintenance of the website) and the phase of development must be assessed to determine the most appropriate accounting principle.
Traditional financial statements do not provide the relevant information for managers or investors to understand how their resources – many of which are intangible – create value in the future. intellectual capital statements are designed to bridge this gap by providing innovative information about how intangible resources create future value. Published intellectual capital statements are, however rare documents (Mouritsen *et al.,* 2004).

2.3. Web search engine ranking

A web search engine is a software system that is designed to search for information on the web. Promoting a website on search engines is done either through the Search Engine Optimization (SEO; see www.sciplore.org/publications/2010-ASEO--preprint.pdf) or through the Search Engine Marketing (SEM; see http://searchengineland.com/the-state-of-search-engine-marketing-2006-10474).
Search Engine Optimization includes all activities implemented to improve the ranking of a web site on search engines in keyword matching considered more strategic.
Search engine optimization is the process of affecting the visibility of a website or a web page in a web search engine's unpaid results. In general, the earlier (or higher ranked on the search results page), and more frequently a site appears in the search results list, the more visitors it will receive from the search engine's users, and these visitors can be converted into customers.
The Search Engine Marketing refers to a set of web marketing activities carried out to increase the visibility of a website on search engines and manage Pay per Click campaigns (Toscano, 2009).
Among the techniques used to improve ranking on search engines, there is the promotion of a website to get external links and structuring to meet the criteria required by the search engines. Search Engines especially google, creating the "page rank" (http://searchengineland.com/what-is-google-pagerank-a-guide-for-searchers-webmasters-11068), considerate especially:

- The number of known pages;
- The number of pages that contain a link to the site;
- The relevance of the pages that contain the link (Brin and Page, 1998).

Each method for evaluating websites pays attention to "page rank" of an internet site, but also analyzes many other variables to analyze the reason why a site is top ranked in the search engines. Several internet sites are placed at the top thanks to advertising.
The evaluation also depends on real visit. Visits (or sessions) measure the number of times individuals request a page on the firm's server. The first request counts as a visit. Subsequent requests from the same individual do not count as visits unless they occur after a specified timeout period (usually set at 30 minutes).

2.4. Traffic and Advertising impact on evaluation

Internet traffic is the flow of data across the Web. To the extent that traffic turns out into contacts that can be monetized (through the sale of e-commerce goods or the supply of services or web advertising), it becomes a key parameter for the evaluation of domain names, websites and other web intangibles.
Web traffic information may include the visitors, visitor base, subscribers, subscriber base, and/or web traffic. Web traffic information may also include the number, type, demographics, language, income, attributes of the visitors and/or subscribers; most requested entry and exit pages; top path (way visitors navigate the site); type, number, quality, attributes of the referrers and back links; search engine listings; reach, rank, page views, ranking on a search engine; and/or web traffic logs. Web traffic characteristics may include the average, maximum, minimum, growth rates, trends and ratios of: search engine rankings; search engine listing; keyword saturation; incoming paid traffic; organic paid traffic; page views per visitor; visitor duration; page duration; a page busy time and/or a website's busy time. Web traffic characteristic in some cases may be computed by a third-party web traffic site or software program.
Analyzing online advertising, it is important to consider the method of calculating the cost of the advertising on websites. The main models by which online advertising is paid for and sold are (https://support.google.com/adwords/answer/2472725?hl=en):

- «Cost Per Thousand» (CPT); it is the cost an advertiser pays for one thousand views/impressions of an advertisement. The "cost per thousand advertising impressions" metric (CPM) is calculated by dividing the cost of an advertising placement by the number of impressions (expressed in thousands) that it generates. CPM is useful for comparing the relative efficiency of various advertising opportunities or media and in evaluating the overall costs of advertising campaigns (Farris et al., 2010).
- «Cost Per Click» (CPC), or «Pay Per Click» a specific type of cost-per-action program where advertisers pay for each time a user clicks on an ad or link. An advertiser can use several tracking systems, including "cost per click", "pay per click" or "cost per thousand". The cost per click and pay per click systems require the advertiser to pay the website publisher a negotiated fee each time a user clicks on the advertiser's promotional materials and visits the advertiser's own website (http://b2bdigital.net/2016/04/20/how-account-based-advertising-really-works/).
- «Cost Per Visitor», (CPV), an online advertising model based on where advertisers pay for the delivery of a targeted visitor to the advertiser's website;
- «Cost Per View», (CPV): you pay only when a viewer watches the video, while traditional display ads charge you for impressions;

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- «Cost Per Impression», (CPI): refers to the cost of traditional advertising or internet marketing or email advertising campaigns, where advertisers pay each time an ad is displayed. CPI is the cost or expense incurred for each potential customer who views the advertisement(s), while CPM refers to the cost or expense incurred for every thousand potential customers who view the advertisement.
- «Cost Per Action», (CPA), an online advertising payment model where payment is based solely on qualifying actions such as sales or registrations.
- «Banner advertising». It consists of placing a graphical banner advertisement on a webpage. The role of this banner is to catch the eye of incoming traffic to the page, enticing readers to click the advertisement. This form of monetization is implemented by both affiliate programs and advertising networks. Banners originally just referred to advertisements of 468 x 60 pixels, but the term is now widely used to refer to all sizes of display advertising on the internet (http://adbalance.com/glossary/).

Website monetization is the process of converting existing traffic being sent to a particular website into revenue. The most popular ways of monetizing a website are by implementing pay per click (PPC) and cost per impression (CPI/CPM) advertising. Various ad networks facilitate a webmaster in placing advertisements on pages of the website to benefit from the traffic the site is experiencing.
It is so important to evaluate a website, understand what is its profitability in terms of advertising returns, because this allows to calculate the cash flows related to the number of visitors and their appreciation of the contents of the site. In such cases, care is taken not to overly consider these elements because they do not consider all aspects related to the value of a site, the fame, the brand etc.
The capacity of websites to generate revenues through advertising depends on the calculation method used to track users who view and click on ads.
Alexa's traffic estimates and ranks (https://www.alexa.com/) are based on the browsing behaviour of people in the global data panel (which is a sample of all internet users), considering a rolling 3 months period. Traffic ranks are daily updated.
Sites ranking is based on a combined measure of Unique Visitors and page-views. Unique Visitors are determined by the number of unique "Alexa" users who visit a site on a given day. Page-views are the total number of Alexa-users URL requests for a site.
The site with the highest combination of unique visitors and page-views is ranked #1.
Alexa's Traffic Ranks are for top level domains only, and not for sub-pages or sub-domains, unless Alexa is able to automatically identify them. This underestimates the ranking (and the consequent value) of a website with sub-pages and sub-domains.
Bounce rate is an Internet marketing term used in web traffic analysis, that represents the percentage of visitors who enter the site and then leave ("bounce"), rather than continuing to view other pages within the same site. Bounce rate is a measure of the effectiveness of a website in encouraging visitors to continue with their visit. It is expressed as a percentage and represents the proportion of visits that end on the first page of the website that the visitor sees. Bounce rates can be used to help determine the effectiveness or performance of an entry page at generating the interest of visitors.

2.5. Web Analytics

Web analytics is the measurement, collection, analysis and reporting of web data for purposes of understanding and optimizing web usage (WAA Standards Committee, 2008). Web analytics is not just a process for measuring web traffic but can be used as a tool for business and market research, and to assess and improve the effectiveness of a website.
There are various terms used to describe the science of recording and interpreting website statistics. Web metrics, web analytics, web stats and site stats are examples.

Data analytics have been extracted using for example Google Analytics. Google Analytics is a freemium web service offered by Google, that tracks and reports website traffic. Google launched the service in November 2005, after acquiring Urchin. Google Analytics is currently the most widely used web analytics internet service.
Dark traffic (http://www.wolfgangdigital.com/blog/dark-traffic-find/) is effective traffic that Google Analytics either cannot attribute or incorrectly attributes. It comes in many different shapes and forms, like in-App searches, image searches, or carrying out secure searches. These kinds of search activities do not share information with Google Analytics that does not actually know how to attribute them.

2.6. Ranking parameters

The strategic value of a particularly attractive domain can lead to a price particularly high and well above its hypothetical intrinsic value (e.g.: pizza.com http://news.bbc.co.uk/2/hi/7331042.stm). To analyze the value of a site in a "normal" situation using different parameters, based on customizations and variations of the general approaches described above.
To get an assessment, specialized websites make “quick & dirty” (see par. 3.) real-time estimation, which can be used as a basis for guidance basis for more detailed evaluations.
The most known sites are: sitevaluecheck.com, stimasito.com, valuemyweb.com, urlappraisal.net, valoredominio.com, valuate.com.
These ratings are indicative instruments to make comparisons with comparable sites as number of visits or market niche.
The parameters can be considered from the following sources:

- DMOZ is the largest, most comprehensive human-edited directory of the Web. It is constructed and maintained by a passionate, global community of volunteer editors. It was historically known as the Open Directory Project;
- Alexa ranking; Alexa Internet, Inc. is a subsidiary company of Amazon.com which provides commercial web traffic data;
- Google ranking;
- Quantcast (www.quantcast.com), specializes in audience measurement and real-time advertising;
- Compete (www.compete.com), provides daily estimates of share of consumer attention garnered by the top Internet sites and the velocity of change of this attention;

There are also various methods of website valuation that have been patented by Google. For example, the method of "valuation web site" of Glassman and Arvelo (www.google.com/patents/US8214272) allows automatically to evaluate an entire website, basing on a series of variables. This process keeps into account the information and the features that can be observed on a website, such as operative elements, contents, feeds, marketing elements and the website’s classification. Operating elements include information on process and functioning of the internet website. They include, for example, the programming code of the website, the software used, or the web applications. The information also keeps into account negative aspects of the website, problems in programming, bugs, malfunctioning, viruses, troyans, and spyware. Another important detail is the type of server uses: dedicated, shared, rented, owned by a website. Time for reply, download and upload speed and reputation of services are other key elements, along with the average, minimum and maximum number of visitors, trends, growth rate, presence in search engines, number of pageviews, number of registered users and other parameters.
Another application is “*Domain appraisal algorithm*”, an algorithm for the evaluation of the website, analyzing the domain name semantic. This method enables to give a value to the domain based on the etymology of the domain name. This method may involve various phases, including the user

inserting the domain name in an interface; the system then analyses and searches for similar key words using a semantic research (www.google.com/patents/US20110208800).
The process is composed by several steps:

1. Precision evaluation: distinct keywords, length, dictionary search;
2. Popularity evaluation: search engine result metrics, word searches;
3. Presence evaluation: domain age, web site ranking by service;
4. Pattern evaluation: premium characters noun/verb, vowel/consonant;
5. *Pay per click* (PPC) evaluation: maximum pay-per-click, number of ads returned.

2.7. Domain auctions

According to Meystedt (2015), several factors are considered when auction specialists estimate the value of a domain name. Some of these factors include:

1. Traffic.
2. Advertising costs.
3. The age of the domain name.
4. The extension (.com, .org etc.).
5. The length (brevity) of the name.
6. Comparable sales.
7. Advertiser competition in the category.
8. Industry growth.
9. Overall marketability.

2.8. Other evaluation parameters

To achieve a more complete evaluation of a website, you can consider additional parameters and elements. You can first make questions about the current revenue of the site, about the value of the industry sector to refer (it's a risky sector or a steady one? Large companies are focusing on this market niche?) and about the keywords on this site.
Internet domains have an intrinsic value, proved by the fact that exist real auction websites. One of the most important is www.sedo.com.
Domain name is not worth by itself, if it not associated with any known product or any service.

3. DOMAIN NAME VALUATION WITH "QUICK AND DIRT" ALGORITHMS

Many websites provide free of charge "quick and dirt" evaluations of web domain names, based on standardized algorithms. Examples can be found in:

- https://www.freevaluator.com/appraise/expert-domain-appraisals
- http://thedigitalelevator.com/domain-name-value/

Some free appraisal sites include:

- http://www.urlappraisal.net/
- https://www.freevaluator.com/
- https://www.estibot.com/
- https://www.register.it/domains/appraisal.html?lang=en

According to Meystedt (2015), domain valuation tools use a mixture of criteria to determine value including:

1. The search volume of a particular keyword in Google or other search engines;
2. The pay per click rate that advertisers are paying for the particular keyword in Google;
3. The length of the domain name;
4. The extension of the domain name (.com, .net etc);
5. The age of the domain name;
6. Past sales of the name in question;
7. Comparable sales of other domains in the same category.

The 3Cs appraisal model from GreatDomains.com was the first to describe factors for domain appraisal. By means of a matrix, the criteria of characters (number of characters), commerce (commercial potential) and .com (value relevance of the TLD) determine the value of a domain (Dieterle, Bergman, 2014).
Appraisals like these are determined automatically based on SEO-related factors like keywords, the number of searches, Alexa rank, monthly searches and cost per click (https://www.hover.com/blog/find-out-domain-name-value/).
According to http://worthmysite.net/page/about/, Key Performance Indicators (KPIs) for the evaluation of web domains and websites are based on:

- website traffic estimator, estimated daily unique view (which is maybe the most important factor). Estimated daily unique visitors count is trying to be estimated with several sources like Alexa, Compete, Google Ad Planner etc ... Unique user count is a common way of measuring the popularity of a website and is often used by potential advertisers or investors.
- appraisal daily pageview;
- estimated daily advertisement income (which will help to indicate the logical price of the domain). Daily Advertisement Revenue calculation is based on Adsense income. Today most of the webmasters use Google Adsense. Our estimation is trying to emulate for a better adsense usage if this website uses 3 adsense ads on all pages. It is not easy to calculate for different keywords because adsense can show an Ad not related only the page content, adsense can choose a specific ad for visitor.
- Alexa rank. Alexa is one of the most common website tracker. It measures sites traffic and compares all other websites traffic. It helps webmasters and advertisers to see the true marketing potential of website. Unfortunately it does not give always correct values because of manipulations. But it is still the most trustable tracker. And without Alexa rank values it is hard to estimate a domain worth.
- domain Google Page-Rank. Google Page-Rank is one of the most determining factor for a website quality today. And getting a high Page-Rank value is not an easy task. It requires lots of quality work. So Google pagerank value is an important factor for site price worth calculation. PageRank affects the number of pages of a website that get indexed by Google. So basically if you want more visitors with getting more pages indexed you have to increase PageRank.
- search engines: google,yahoo and bing index status. The more pages that search engines index, the better. Search engines access websites to crawl site content and index some of the pages to their databases. They may not index all the pages, mostly index pages with quality and unique content. So Indexing is one of the hardest factors for big websites, so search engine visibility is very important calculating the website value. If you have lots of pages indexed means that the website has a lot possibility visited by more visitors.
- domain age (which is an important ranking factor for search engines). Domain age is an important SEO factor for search engines rankings because search engines use it for calculation

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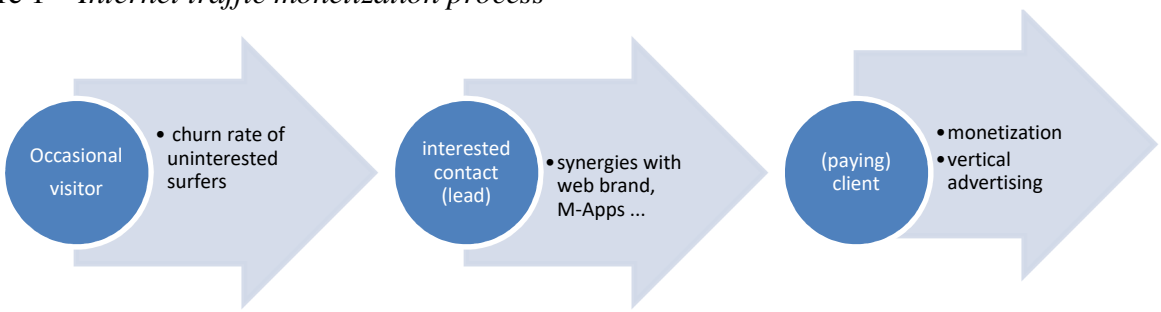
trust and authority. Another thing is that spammers register and drop domains quickly, so spamming sites usually have newly registered domain names. But indexing of the site is more important from domain age.

- social media visibility, share count of the website on social media shows that it has quality content (facebook, twitter, google+),
- backlink count (backlinks mean that links count that point to the website from other websites and it is like a popularity rating for the website. google,yahoo,bing,alexa and total external backlink count. Low but quality backlinks are better than high but poor quality backlinks. So this value has a lower impact in our site price calculation algorithm. Backlinks are very related with Google Page-Rank so we believe that Page-Rank value is more important from backlink count).

These are the main key value drivers that matter for the appraisal. Search volume is related to Internet traffic that represents the flow of data across the Web. The monetization process is the following:

Figure 1 – *Internet traffic monetization process*



Domain names are only a part of this monetization process. Paying clients that use the website for their purchases (e-Commerce, etc.) or generate advertising revenue models do so not only because they are attracted by the domain name but also – mostly – because they are looking for a (branded) product or service. The domain is just the IT gateway to a larger environment (the website and its contents).

3.2. Market approach

Valuation multiples are widely used for comparative appraisal of company assets (for an evaluation of Internet companies with multiples, see Ho *et al.*, 2011).
A widespread valuation method for domain name evaluation is the use of earnings multiples (see for instance flippa.com), such as P/E multiples as well as EV/EBITDA and EV/Sales (revenues).
Enterprise-Value-to-Sales is a valuation measure that compares the enterprise value of a company to its sales, giving investors an idea of how much it costs to buy the company's sales. Generally, the lower the EV/sales, the more attractive or undervalued the company is believed to be.
Enterprise value (EV), or firm value is an economic measure reflecting the market value of a business. It is a sum of claims by creditors (secured and unsecured) and shareholders (preferred and common).
Sales represent the upper part of the profit & loss account (income statement) and are widely used in valuation metrics, especially for scalable businesses (such as domain names and IT related activities) where the cost component is not particularly relevant.
In the internet business world, investors have increasingly gravitated around the multiple-based methodology because of its simplicity and robustness in the face of scant financial or comparable data.
Sales (revenues) have pros and cons in business evaluations: while they are hardly subjective, they may be unable to express the economic marginality (i.e. revenues net of costs) that is embedded in parameters such as EBIT or EBITDA, which are typically used in appraisals. Being domain names a

scalable business where variable costs are minimized, gross sales are typically used, irrespectively of marginality. This method is so widely utilized in this industry.
According to this method, a domain name may be evaluated through the following formula:

Domain name value = P * M

Where:

- P = parameter (i.e. revenues …);
- M = multiple.

The revenue multiple helps in determining a ratio of the value of the business to the revenue it generates (Sharma and Prashar 2013).
Revenues multiples for domain names evaluation strictly depend on several factors, as for example:

- related intangibles to the domain name (websites, app, trademark …);
- the complexity of the hardware architecture and software structure;
- annual incomes;
- the rarity of the domains names;
- number of directly generated sessions;
- site ranking (Alexa, etc.);
- website contents;
- social network correlations;
- number of page views / users;
- traffic growth over the years;
- website popularity;
- Opportunities / potentialities / scalability.

Considering the present case, in addition to these aspects, there are further factors to be considered in the estimation, particularly concerning:

- the singularity of the context;
- the affective value;
- Geographical scalability.

According to flippa.com (see also for instance http://wpcurve.com/what-is-my-website-worth/) other approaches to determining the value of a site include:

- Comparable Sales. A comparable is found by searching for related sites in the niche that are as close to the site's age, traffic and revenue as possible. The closer the numbers are for a comparable site, the higher relevance the site has in the evaluation;
- Traffic Value Appraisal Method, specifically for sites that have yet to be monetized but have traffic, which is determined by researching the top key phrase or phrases that drive most of traffic to a domain name. Then find the Cost-Per-Click value of the keywords;
- Reverse Engineering Cost, with a formula that calculates the price to build a site from scratch to match the site being sold.

5. PREMIUM DOMAIN NAMES

A premium (memorable) domain name is a trophy asset that is already owned by a person or registry. Its cost can be significantly more than a typical domain purchase due to its perceived higher value.

The higher price will apply to the initial acquisition of the domain, but it will renew at the regular renewal price for whichever domain extension it uses.
A domain becomes premium when it is considered more valuable than the average domain. Domains are considered premium for many reasons including length, keywords and brandability (www.hover.com/blog/premium-domain-names).
According to Meystedt (2015), a category-defining domain name can offer significant advantages for companies operating on the Internet, such as:

- Instant trust and credibility in the eyes of prospective consumers.
- Authority status in an industry.
- The ability to rank higher on search engines with proper development.
- The ability to use existing type-in traffic to generate additional sales.
- A moat against the entry of other potential entrants/competitors into a marketplace.
- The ability to advertise a single URL and convey exactly what business a company operates.

A premium domain helps customers remember a company whenever they are ready to do business. Naming is about recall. A short, concise name is simple to recall and type for customers. There are only 676 combinations of two- letter dot. com domain name s. There are 17,576 combinations of three-letter dot.com domains. Based on the supply shortage, two-letter dot.com domains command prices starting around in the lower six figures and can sell for well into the seven figures. Since the availability of three letter dot.com domains are greater, these assets star at around $10,000 and can sell in the six-figure range, depending on the letters in the domain name.
Premium domains typically name a word or term that is searched often in Google. The volume of searches can be found by using different domain tools available on the Internet. If a word or phrase is searched often in Google, there will be more advertisers competing for the eyeballs related to these searches. The exact matching domain name for these highly searched phrases will have value.
If a domain name has many visitors, business can turn these people into profitable leads and sales. Several premium domain names have a high traffic count and this increases the potential value of the asset.

6. A GENERAL FRAMEWORK FOR EVALUATING INTANGIBLE ASSETS

The evaluation of domain names can be inspired by the general principles that drive the estimate of intangible assets, with adjustments that consider their peculiar nature. The analogical reference to the main evaluation criteria for intangibles is worthy not only on a stand-alone basis, when domain names are appraised individually, but especially when a portfolio of web intangibles is evaluated.
Intangibles may be valued with many complementary methods (cost-based; income-based or market-based), whose practical implications go well beyond plain appraisals, concerning also proper accounting or ability to promptly serve debt. This paragraph is taken, with some adjustments, from Moro Visconti (2015).
It should be preliminarily noted that domain names may hardly be appraised considering a cost approach; even if cumulated costs are an interesting parameter in valuation, the key value drivers are mostly unrelated to sunk investments, as they primarily depend on market value (selling price of similar domains) or on economic / financial parameters that express the capacity to generate income and cash flows.
Intangible assets, such as patents or trademarks (Salinas and Ambler, 2009), are particularly difficult to evaluate (Oestreicher, 2011; Moro Visconti, 2012), due to their intrinsic "immaterial" nature and many different - complementary – quantitative and qualitative evaluation methods (Lagrost *et al.*, 2010; Andriessen, 2004) are traditionally used within the business community; valuation issues are even more complicated for non-tradable or not deposited non-routine intangibles, such as know-how (Moro Visconti, 2013), trade-secrets and unpatented R&D (Ballester *et al.,* 2003), goodwill, etc.,

characterized by limited if any marketability, higher and pervasive information asymmetries and less defined legal boundaries, especially within increasingly specific businesses.
Intangible assets may anyway hardly be estimated on a single basis, being mostly transacted within intangible package deals. These difficulties in market evaluation are even more evident considering that, from an accounting perspective, according to IAS 38 there is no active market for intangibles, typically undetected, and it is consequently difficult to assess their fair value.
The main financial / market methods used for intangibles' fair pricing, with an appropriate rating and ranking, selectively applicable to intangible assets, are the following:

1. *cost-based methods*, with an estimate of the "what-if" costs to reproduce or replace intangibles from scratch; this method ignores both maintenance and the opportunity cost of time (reproducing an intangible may take years, whereas its missed use is due to generate a lack of income) and is not very useful for income generating assets, such as performing patents or trademarks; cost to cost comparisons are difficult to imagine, especially if they are to be protracted over years; even if intangibles strongly depend on long cumulated costs, their perspective value may hardly be inferred from past expenses and is also highly volatile and instable and cost differs from the value. To the extent that costs cannot typically be capitalized, their accounting track record may (partially) be detected from past income statement recordings.
2. *income methods*, based on the estimate of past and future economic benefits, assessing the ability of the intangible to produce licensing income (royalties, which etymologically derive from "sovereign rents") or sale of the intangible; they may include:
   - capitalization of historic profits deriving from the exploitation of the intangible;
   - Discounted Cash Flow (DCF), to estimate Net Present Value (NPV), duly incorporating risk adder factors in the discount rate, such as technology venture capital risk;
   - gross profit differential methods; they look at the difference in sales price between an "intangible backed" product (branded, patented, with embedded know-how …) versus a generic one; the profit differential is then forecast and discounted;
   - excess or premium profit methods; like the gross profit, it is determined by capitalising the additional profits generated by the business over and above those generated by similar businesses, which do not have access to the intangible asset. Excess profits can be calculated by reference to a margin differential;
   - relief from royalty method: based on the assumption that the owner of the intangible is "relieved" from paying a royalty to obtain its use, the process considers the hypothetic "what if" royalty that a potential user would be willing to pay, and discounts its projection; a comparable market range of "reasonable" royalties may derive from careful arm's length benchmarking.
3. *market-based methods*, evaluating an intangible asset by comparing it with sales of comparable / similar assets (considering their nature; using functional analysis …). Information asymmetries often conceal the real (mostly secret) nature of the allegedly comparable transaction. A market based variety may refer to the evaluation of the incremental equity, with indicators of the business surplus, given for example by the Tobin Q, the ratio between the market value and replacement value of the same asset; a market value exceeding the replacement value may be a numerical consequence of valuable intangibles.

A synthesis of economic (based on accrual accounting of revenues and costs) and financial flows, is represented by their (only) common parameter – EBITDA - as it is shown in figure 2.

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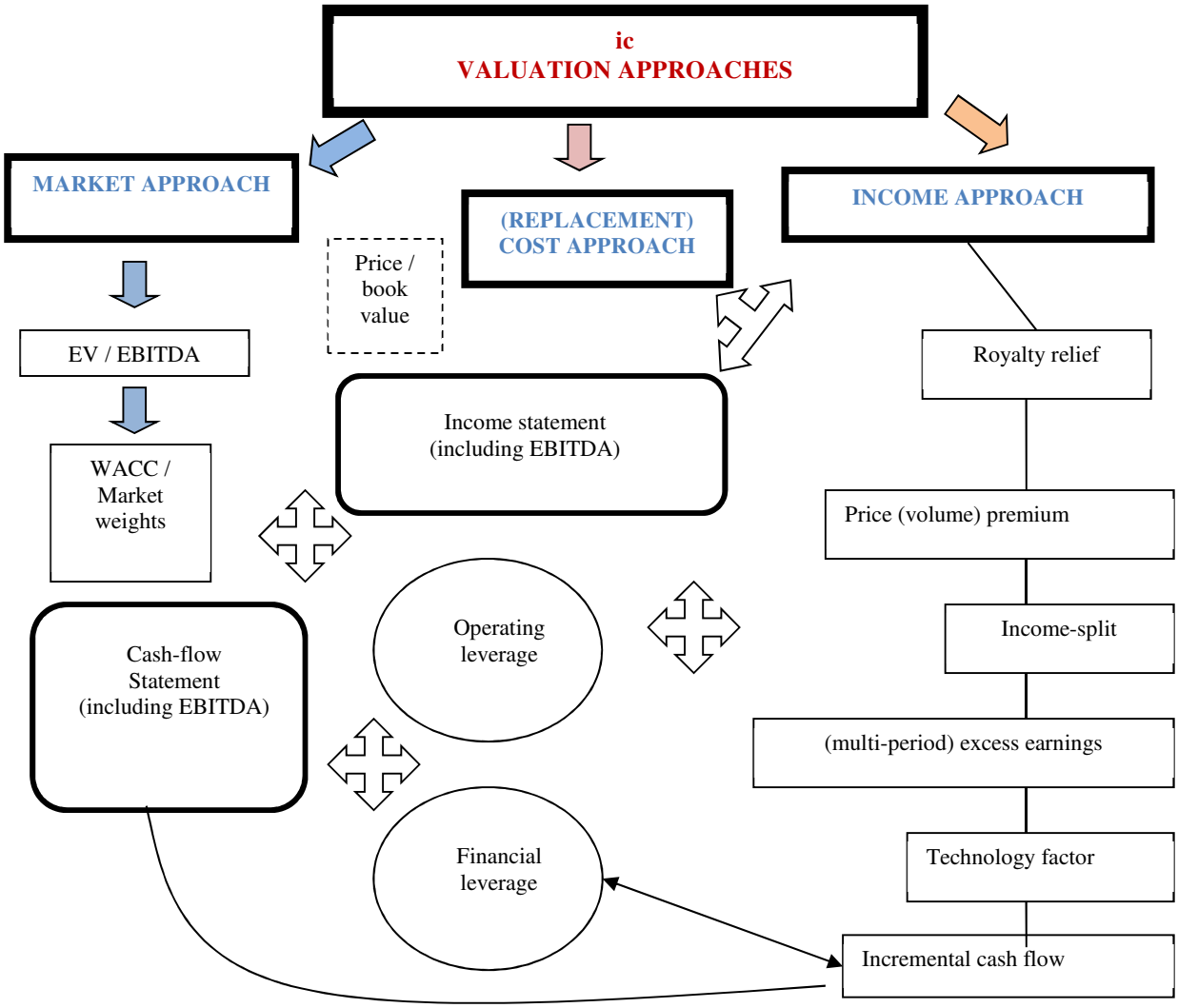
Figure 2 – *Intangibles Valuation methodologies*



6.1. EBITDA multipliers

Market valuations may use as preferential methods either DCF or directly an EBITDA multiplier, inspired by (intrinsically uneasy) intellectual capital comparisons. DCF theoretically stands out as the optimal method, being inspired by the golden rule according to which "cash is king".
DCF is ubiquitous in financial valuation and constitutes the cornerstone of contemporary valuation theory (Singh, 2013). The robustness of the model as well as its compatibility with the conventional two-dimensional risk-return structure of investment appraisal makes it suited to a multitude of asset/liability valuations. Accounting standards across the globe recognize the efficacy of this model and advocate its use, wherever practicable. FAS 141 of the United States and IAS 39 that relate to the accounting of intangible assets, also recommend the use of DCF methodology for imputing a value to such assets.
Market evaluations also frequently use a standardized EBITDA multiplied over time (from 2/3 up to 15 or more times/years, in exceptional cases such as patented killer application or "superstar" brands) and this (apparently) simple multiplication brings to an Enterprise Value (EV), attributable to debt-holders and, residually, to equity-holders. This approach is consistent with the accounting nature of EBITDA, which is calculated before debt servicing.

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EV / EBITDA multipliers may be connected to price / book value or Tobin q parameters, which reflect the differential value of intangibles under a hypothetical cost reproduction hypothesis, so representing a precious bridge between otherwise disconnected market and cost appraisal methods.
As a rough calculation, the EV multiple serves as a proxy for how long it would take for a complete acquisition of the entire company (including its debt) to earn enough to pay off its costs (assuming no change in EBITDA and a constant added value contribution from the intellectual capital portfolio).
Temporal mismatches between the numerator and the denominator may bias the ratio and should accordingly be minimized.
Equity and debt value may be jointly inferred from an EBITDA multiplier, which estimates EV, and, after deduction of market value of debt, residual market value of equity.
The stream of (hopefully) growing and not ephemeral Operating Cash Flows - CFo - (marginally attributable to the intangible strategic contribution to the overall value) incorporates growth factors, whereas the weighted average cost of capital (WACC) discounting denominator embodies market risk elements, as recognised by debt and equity underwriters. Moreover, cash flows are a cornerstone of debt service, as it will be shown later. Qualitative issues, such as consistency, durability, depth of coverage, etc., concerning intangibles, may strategically impact on future EBITDA, cash flows and consequent value. WACC may also be affected by the asset substitution problem and inherent wealth transfer from debt- to equity- holders (or vice-versa), as it will be shown in the next paragraphs.
What matters, should the valuation consider only intangible marginal contribution to the overall company's value, is just described by differential/incremental CFo or EBITDA, made possible by intellectual capital strategic contribution, which is, however, often uneasy to isolate. Residual incremental value, not attributable to specific intangible components is allocated within the goodwill cauldron.
EBITDA is also indirectly reflected in (at least some) income valuation methods, for example, those concerning royalty relief differentials or marginal economic surpluses made possible by intellectual capital exploitation, and so it constitutes a significant and precious connection between market and economic methods.
The (replacement) cost approach is apparently not so easily linked to EBITDA, even if the projection of reconstruction costs of the intellectual capital portfolio considers operating economic costs that are a core, albeit not exclusive, part of EBITDA. Revenues are missing in the replacement cost method whereas key costs described for example by depreciation are not present in the EBITDA.
Being the cost method deeply linked to accrual accounting, it may suffer from somewhat misleading historical cost convention procedures, which traditionally underestimate intellectual capital accounting and their potential contribution to value creation. Accrual accounting represents an obstacle for the appraisal of the intellectual capital contribution to CFo creation, even if the links pivoting around EBITDA may soften these inconveniences (Boujelben & Fedhila, 2011, p. 481).
EBITDA is commonly used as a (misleading) proxy for CFo, representing a kind of price to cash flow multiple, unaffected by leverage and depreciation policies. This proxy is often misleading, since CF_O is derived from EBITDA, considering also Capital Expenditure (Capex) and Net Working Capital variations; while fixed asset investments and their cashless depreciation may hardly be affected by intellectual capital, typically not capitalized, accounts payable included in NWC often reflect operating debt connected to costs (for R&D, advertising …) associated with intellectual capital.

6.2. Discounted Cash Flows

A discounted cash flow (DCF) is a valuation method used to estimate the attractiveness of an investment opportunity. DCF analysis uses future free cash flow projections and discounts them to arrive at a present value estimate, which is used to evaluate the potential for investment. If the value arrived at through DCF analysis is higher than the current cost of the investment, the opportunity may be a good one.
DCF is calculated as:

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \ldots + \frac{CF_n}{(1+r)^n}$$

CF = Cash Flow

r = discount rate (WACC)

Coherently with IAS 38 prescriptions, DCF is the key parameter for both accounting and appraisal estimates, so representing the unifying common denominator of cost, income or market based methods, which regularly need to find out their cash part. Cash is also directly linked to debt service capacity, so connecting intangible value creation and its book or market appraisal with its financial coverage, once more remembering that "cash is king".

6.3. SWOT Analysis

Structured planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats (SWOT) involved in a project, to consider if the objective is attainable and, if so, how, may also useful used for economic evaluation (see Ghazinoory et al., 2011; Helms and Nixon, 2010).
SWOT analysis may be used in any decision-making situation when a desired end-state (objective) is defined.
SWOT analysis aims to identify the key internal and external factors seen as important to achieving an objective. SWOT analysis groups key pieces of information into two main categories:

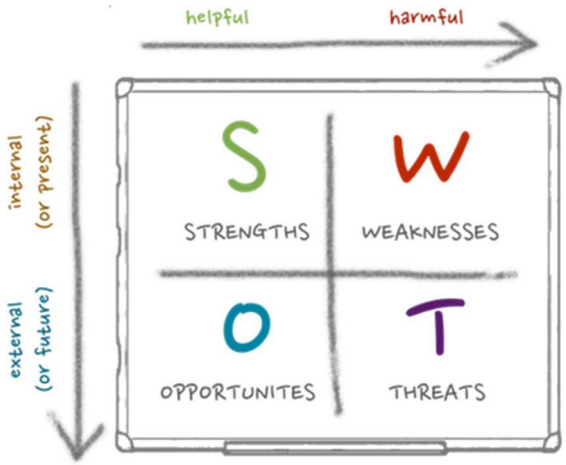
1. Internal factors: the internal strengths and weaknesses;
2. External factors: the opportunities and threats presented by the external environment.

The degree to which the internal environment matches with the external environment is expressed by the concept of strategic fit:

- Strengths: characteristics of the business or project that give it an advantage over others;
- Weaknesses: characteristics that place the business or project at a disadvantage relative to others;
- Opportunities: elements that the business or project could exploit to its advantage;
- Threats: elements in the environment that could cause trouble for the business or project.

An example of SWOT analysis matrix is shown in Figure 3.

Figure 3 – *SWOT analysis matrix*



A general SWOT matrix for domain name evaluation may be the following (see http://www.intech-nic.com/blog/how-to-perform-a-swot-analysis-for-your-website):

STRENGHTS	WEAKNESSES
• Customer-centric design and messaging • Effective calls to action • Useful and relevant content • Intuitive navigation and search • Quick and easy checkout process • Responsive design with full mobile support	• Outdated or ineffective design • Ineffective or concealed calls to action • Content that is not customer-centric • Confusing structure and navigation • Cumbersome and lengthy checkout process • Lack of mobile support
OPPORTUNITIES	**THREATS**
• New technologies to improve user experience • Emerging new and untapped markets • New niches and market segments • New design trends to better convey messages • More effective marketing tactics • Positive changes in social factors	• Competitors copying features or ideas • Emergence of new competitors • Changing customer needs • New laws or regulations • SPAM & unsolicited advertising • Upgraded browser software • Fraudulent activity

The SWOT analysis, based on available information, shows if there is a premium positioning within a general domain name ranking.

7. THE EVALUATION OF STAND-ALONE DOMAIN NAMES

Wu *et al.,* 2009 show that traditional estimation methods, such as discounted cash flow method etc., ignore some crucial non-financial factors that influence the domain value, for instance creativity. The model is based on semantic theory and content analysis and the model combines the traditional method with the modification process forming a two-stage model.

Once the appropriate valuation method is selected, its general principles are to be applied to the specific domain. The first parameters to be considered are the domain name, the amount of monthly gross income earned in foreign currency, expenditure on advertising and hosting; the number of months has produced a steady gain like the current one; the kind of website (static, dynamic, e-commerce, flash, web portal, blog, …), the number of unique visitors (number of distinct individuals requesting pages from the website during a given period, regardless of how often they visit), the number of views per month (number of times a page is viewed), the number of registered members, the volume and uniqueness of the content.

To figure out the domain's value, valuators ultimately need to understand who the potential buyers are. What industry are they in? Is a website important for their business? How relevant is the domain? A domain is only as valuable as someone is willing to pay for it, so knowing what related domains are priced at, how sought after the domain is, and how much to reasonably expect a buyer to pay will help you arrive at the right number (https://www.hover.com/blog/find-out-domain-name-value/).

One way to get an idea of current valuations of web properties is to use a multiple of Trailing Twelve Month (TTM) revenues that the site has generated. According to http://www.stuntdubl.com/2006/02/20/website-valuation, mainstream web properties are selling at the following median multiples (see also, www.ventureplan.com/web.valuations.html):

eCommerce sites: 3 x TTM

Content sites: 6 x TTM

(12 x (Net Income Average)) + 12 x (Unique Visitor Average x Unique Visitor value)) x 1plus the content value = High Value for Website

(9 x (Net Income Average)) + 9 x (Unique Visitor Average x Unique Visitor value)) x 1plus the content value = Low Value for Website *Unique visitor value = 1/2 the value of the top fifteen bid placements on Overture for relevant keyword (www.buysellwebsite.com).

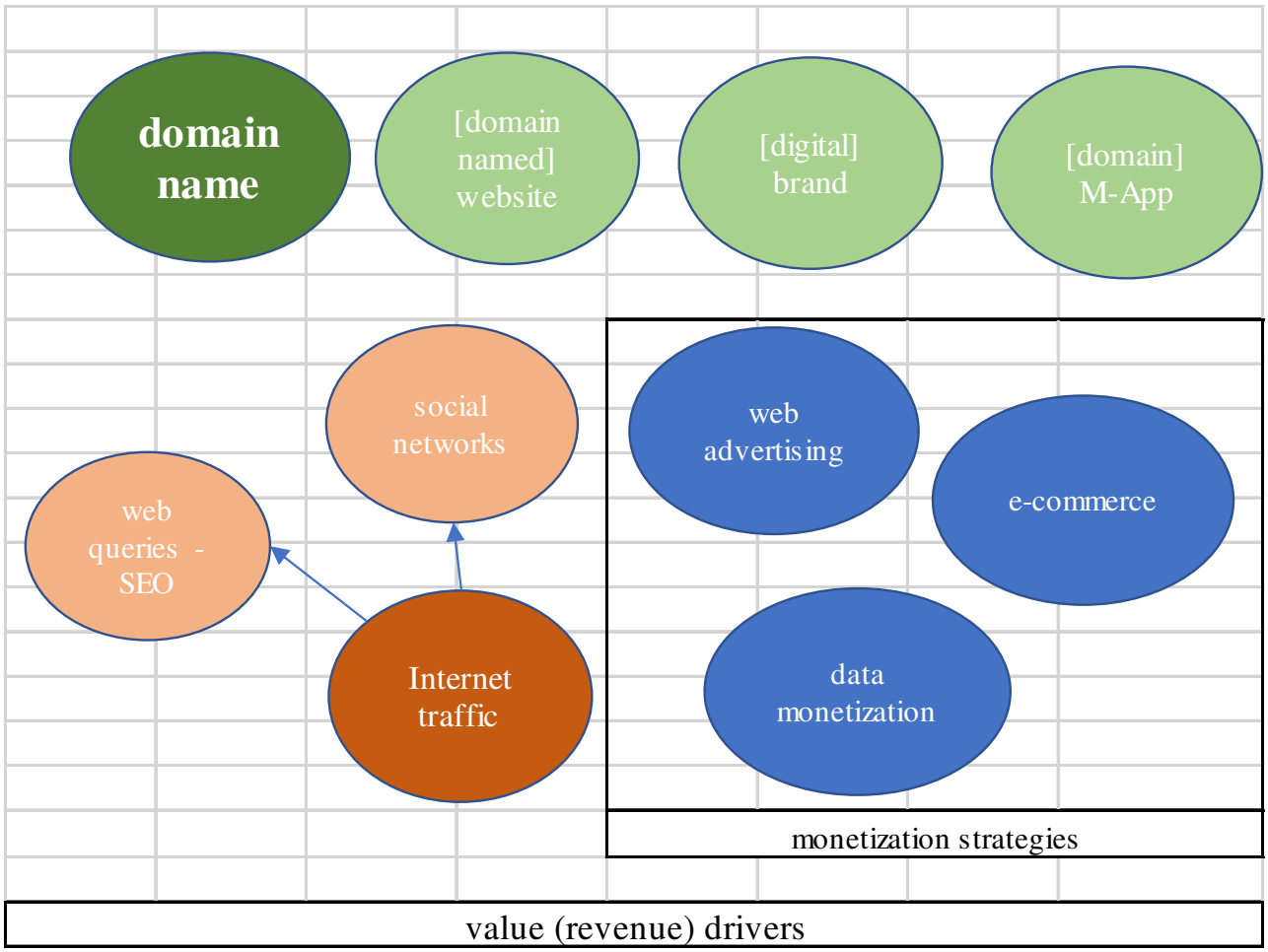
8. EVALUATING A PORTFOLIO OF WEB INTANGIBLES

Anson and Suchy (2005) show that intangible assets are increasingly intertwined with pieces of intellectual property. Information Technology (IT) bundle and internet related assets includes domains that are linked to marketing bundle (trademarks, corporate name often represented by the domain name.

8.1. Integrated evaluation of IT-related intangibles

A fundamental factor in evaluating websites concerns the presence of IT-related intangibles.
Domain names can be evaluated as a stand-alone asset or within a portfolio of web intangibles.
As anticipated in par. 3, the domain name is just the gateway to the website and so its intrinsic value is just a small, albeit essential, part of the whole web value chain.
A portfolio of web intangibles is represented by the synergistic interaction of domain names and other Internet based intangibles (as mobile Apps, websites, virtual brands, social networks, etc.) with physical products and services that form an Internet ecosystem, as shown in Figure 4.

Figure 4 – *Domain names, other IT intangibles and Internet traffic-driven monetization strategies*



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The value chain that supports the Web-intangibles revenue model is sequential but with several interactions. The revenue model is based on a monetization of the web contacts induced by Internet traffic.
To consider the economic marginality, costs need to be subtracted from revenues, to get the EBITDA that also represents a financial parameter, as anticipated in par. 6.1.
Fixed initial costs for domain names can be negligible if they are built from scratch; if the name is already taken, then its purchase or rent can bear significant costs. Bare maintenance costs of the domain are also negligible, as it happens for trademarks / brands, even though the real cost is represented by constant refreshing and updating of the brand, its logo and its web address.
Internet traffic, incoming from web searches and social networks (like Facebook, Twitter, LinkedIn …) is the key value driver for the whole value chain. But web traffic needs to be monetized through the sale of contents, products and services or with web advertising proceeds. Business and revenue model are often so innovative and untested that they may hardly have a profitability benchmark.

8.2. Domains and (web) trademarks

Choosing the right domain name is a prerequisite for building a web brand (trademark).
Brand naming has been investigated by Arora et al. (2015). According to the authors, the results confirm extensive use of the promoter's name and place of origin (39.7 per cent of all brand names coded), compounding (34.1 per cent), abbreviations (18.2 per cent) and blending (7.9 per cent). The three dimensions of domain names - semantic, invented and non-word names - show significant differences in frequency. Practitioners may consider using newly defined categories, such as semantically related acronyms, in creating distinctive brand names. The use of sound symbolic names for brands is also investigated.
The value of a brand can be estimated with brand equity metrics.
Forrester (2016) analyzes the changing use of trademarks in the Domain Name System, from the introduction of new generic Top-Level Domains and their impacts on trademark rights.

8.3. Domains and M-Apps

M-Apps, (a shortening of the term "Mobile Application Software") represent a computer program (software) designed to run on mobile devices such as smart-phones, tablet computers, phablets, smart watches or other mobiles, such as notebooks (with specific extensions). Each app is associated with a logo that represents the touchscreen gateway to the app. A logo is graphical label even more difficult to conceive that a domain name, due to its stricter constraints (no different extensions, predefined measure). The relationship between M-Apps logos and domain names is still under-investigated: they both convey internet traffic but in a different (complementary) way.
M-Apps are increasingly popular and by now represent the trendiest software device. Investigations about their valuation paradigms are so increasingly common. Even if M-Apps belong to the broad category of Intellectual Property (IP) assets, their underlying business model is so innovative and different from traditional intangibles (such as patents, brands, etc.) that standard appraisal patterns, normally used for IP, may only be used as a starting point for valuation.
From a legal point of view, M-Apps is a piece of software. M-Apps are to be included within the software system since they are embedded in hardware devices (albeit different from PCs), to perform some defined tasks, linked to the Web.
According to Cavallari, Moro Visconti (2016), some apps are free while others must be bought. Usually, they are downloaded from the platform to a target device, but sometimes they can be downloaded to laptops or desktop computers. For apps with a price, a percentage, 20-30%, goes to the distribution provider (such as iTunes), and the rest goes to the producer of the app.
The same app can, therefore, cost a different price depending on the mobile platform.

Public demand and the availability of developer tools drove rapid expansion into other categories, such as those handled by desktop application software packages. As with other software, the explosion in number and variety of apps made discovery a challenge, which in turn led to the creation of a wide range of review, recommendation, and curation sources, including blogs, magazines, and dedicated online app-discovery services.
Platforms (stores) represent a key value driver in the industry, becoming pivotal nodes (hubs) within the networks that link different stakeholders, such as users and developers.
Sale of Apps through stores represents a classic e-commerce transaction. When platforms become dominant, they represent industry standards (as it happened with MS Windows) and generate scalable returns, since their fixed costs can easily reach a breakeven point: Returns are then complemented by negligible variable costs, associated with incremental users.
Apps can be sold for free (freemium = free + premium) or paid. Some 90% of the apps downloaded tend to be freemium. Revenue streams for freemium app providers follow different patterns and are mainly represented by subsequent premium services (e.g., a free app that introduces to paying services). Even paid apps earn much or their revenues from accessories (on-line advertising; B2B or B2C e-commerce; customer web profile to be sold, etc.).
Paid apps are normally cheap (from 0.99 $ up to few $) and their revenue model also relies on high volumes of customers and users.
Since the app market is becoming increasingly crowded, with millions app competing, their added value is growing as the industry is becoming saturated and mature. For instance, popular weather forecast apps find it increasingly difficult to differentiate from others, and they tend to be all freemium.
A growing number of apps use geo-localization with Geographic Information Systems (GIS), to improve the quality of GPS services and to geo-tag social network users.
Some companies offer M-Apps as an alternative method to deliver content (media) with certain advantages over an official website. Platforms (stores) represent a key value driver in the industry, becoming central nodes (hubs) within the networks that link different stakeholders, such as users and developers. Sale of M-Apps through stores represents a typical e-commerce transaction. When platforms become dominant, they represent industry standards (as it happened with MS Windows) and generate scalable returns, since their fixed costs can easily reach a break-even point, being complemented by negligible variable costs, associated with additional users.
M-Apps can be sold for free (freemium = free + premium) or paid. Some 90% of the M-Apps downloaded tend to be freemium. Revenue streams for freemium app providers follow different patterns and are mainly represented by following premium services (e.g., a free app that introduces to paying services).
Multi-homing M-Apps supply several platforms, such as Apple's iOS and Google's Android operating systems.

8.4. Domains and social networks

The main social networks may have a strong impact on the evaluation they contribute to make contents of the website viral. The most important are Facebook, Twitter, My Space, Google Plus and Linkedin (www.ebizmba.com/articles/social-networking-websites). Socials increase the Web traffic and can carry it to specific domains. Through the web marketing, many strategies can be put in:

- *benchmarking online* (study of several scenarios);
- *online branding* (increasing of brand reputation through internet);
- *e-commerce* (commerce of products B2B or B2C);
- *e-learning* (employees on line training);
- *online customer support*.

For what concerns Social Networks, it should be checked in any valuation if the domain name and its related website has a:

- Facebook / LinkedIn page;
- Google Plus account;
- Twitter account;
- YouTube channel;
- Instagram profile.

8.5. The value chain of Web information

As shown in Cavallari and Moro Visconti (2016), M-Apps represent a sharing platform of data and information that can be described with a flow-chart that depicts a progressive value chain. To the extent that information is collected, processed and exchanged through the web, it incorporates an incremental value that can be shared among the stakeholders that participate to its co-creation.
Value is created by sharing skills and co-creating new business models and functions, in a complex web of stakeholders (suppliers, customers, platform intermediaries, etc.) that rotate around the M-Apps.
Mobile apps have access to a surprisingly large amount of information about the user. Based on the app, information on contacts, age, location in time, unique phone ID, and even the phone number can be captured. In many cases, apps capture the information without a clear business need. Value co-creation, beyond passive (unaware) data capture, can readdress M-Apps information towards shared business oriented targets. Feedbacks from App users improve information quality.

9. BANKABILITY OF DOMAIN NAME ASSET VALUE

Moro Visconti (2015) shows that intangibles intrinsically incorporate information asymmetries and may discourage debt, but are also a vital component of cash generating value, so representing a key factor for debt servicing, with paradoxical effects (more guarantees with less collateral?).
Intangible value is hidden in the balance sheet by inadequate accounting, but not in the profit & loss account or in the cash flow statement, where the incremental contribution of intangibles to profit is detectable.
Valuation approaches may be synergistically linked to operating and financial leverage, since they contain key accounting and economic/financial parameters, as it will be shown in the next paragraphs.
A synthesis of intangible appraisal methods, which may be summarized in a comprehensive valuation dashboard, is depicted in Figure 2.
EBITDA, examined in par. 6.1., is a key parameter for assessing debt service capacity, so being linked even to classic capital structure concerns. To the extent that debt is properly served with positive cash inflows deriving (also) from EBITDA (and then CFo), a key relationship can consequently be established between market / income valuation models and bankability concerns.
Capacity to serve debt is often measured by EBITDA multipliers over negative interests (and by cover ratios, described in the appendix); being EBITDA a differential and incremental economic / financial flow from operations, it should conveniently exceed negative interests at least 4-5 times, considering also its contribution to the coverage of other monetary costs, such as for example taxes.
Being intangible appraisal so difficult and slippery, synergistic combination of different complementary techniques is, whenever possible, highly recommended.

10. CYBERSQUATTING, TYPOSQUATTING AND DOMAIN TROLLS

Domain names bear cases of misuse, including phishing, spam, hit and traffic stealing, online scams, among others (Spaulding *et al.*, 2016).

Cybersquatting is the phenomenon of registering domain names corresponding to trademarks or names of other people. It has two typical goals: the realization of gain on the domain transfer to anyone who has a real interest and unfair competition, such as diverting the customers of the competitor on other site or on other products.
Cybersquatters sometimes register "variants" of popular trademarked names, a practice known as 'typosquatting'. As a first step towards this misuse, the registration of a legitimately-looking domain is often required. For that, domain typosquatting provides a great avenue to cybercriminals to conduct their crimes (Spaulding *et al.*, 2016).
According to https://business.yell.com/knowledge/what-are-domain-name-trolls/ 'Domain name trolls' is a generic term for people or businesses that strategically register desirable domain names, which they do not intend to use for legitimate purposes. This is known as 'domain squatting' or 'cybersquatting'. These could be:

- another business' name or slogan which has not yet been registered as a domain name by the business itself
- an existing domain name which is in use, but about to expire
- a variant of an existing business domain name – for example, differently spelled, misspelled, or separating words differently, eg using hyphens or dots
- breaking news – for example, the name of a new venture or brand announced by a major corporation

They can then:

- sell the domain name on to the most likely party (such as the business whose name or slogan it is) for a profit
- sell it to a competitor or someone else who might use it to harm the business, such as a disgruntled customer
- otherwise misuse the name – eg by using the site to show advertisements or sell their own products, setting it to redirect to another site, or even infecting users' computers with malware when they mistakenly visit

Another strategy is as follows: Internet domain name registrations are for a fixed period. If the owner of a domain name does not re-register the name with an internet registrar prior to the domain's expiration date, then the domain name can be purchased by anybody else after it expires (http://news.bbc.co.uk/2/hi/programmes/working_lunch/3239639.stm).
Being the value of domain names is intrinsically linked to Internet traffic and openness, it tends to zero in the dark or deep web, not indexed by search engines and requiring specific software, configurations or authorization to access.
Malware may use unregistred domains or manipulated domain names to be spread across the Web.

11. DOMAINS LITIGATION AND DISPUTE RESOLUTION

According to Pokorná, Večerková, 2013, since the domain name is a replacement of the computer IP address, and it concerns a different expression of this address, its legal character is somewhat controversial. Domains can come into conflict with the rights to designations, especially trademarks and commercial names. Court practice is resolving these conflicts using rules for unfair competition, or rules for protection of commercial names and trademarks, but it is not ruled out that in the future, special legal regulation of domain names could be established.
The applicant of a new domain name is required to verify if the given name is already taken.
By registration and use of a domain name, entitlement to a trademark may be violated, because the trademark owner holds exclusive right to use it in relation to products or services, for which it was recorded, and exclude from using it all who use identical or similar designations, if similarity could lead to mistaken identity.
Though it is not possible to identify a domain name with a commercial name, the trade name can be used as a second-level domain within the framework of the domain name.

From the technical essence of a domain name, we see that the IP address of a computer and its expression by a domain name is unique, and by the nature of the matter, it is ruled out that two computers would have an identical IP address, thus an identical domain name. The applicant of a new domain name is required according to the registration rules to always verify if the given name is taken or is still unused. If it is indeed taken, but the applicant feels that he has legal entitlement to it, this situation alone leads to a domain confl ict, whose resolution the registration rules also cover. Cases of interchangeability of domain names stand outside registration's reach, because the registrar is not obliged to verify if the just-registered domain name can be mistaken for the domain name of another user. In the lack of special regulation, these cases will be resolved by the rules of unfair competition, whereas the priority rule applies (First-come, fi rst-served) – if two otherwise equal entitlements should come into confl ict, the user fi rst registering the domain name will be given preference. The person (entity) feeling aff ected by interchangeability of his (its) domain name with the domain name of another user bears the burden of proving the existence of elements of a general clause against unfair competition.

* * *

ICANN offers an arbitration option which can settle domain name disputes outside of the court system. Celebrities and company representatives must still prove the bad faith intentions of a cybersquatter, but a successful arbitration can be held without legal representation. The cybersquatter may be compelled to relinquish domain rights at a fair market value or be fined for improper use of a trademark. This would not apply if the cybersquatter registered a domain name *before* it became associated with a celebrity or trademark.

Intellectual Property (IP) disputes can be managed through professional mediation for a faster and efficient solution to conflicts. An example is given by MSFD – IP Dispute Resolution Center (http://www.mfsd.it/mfs_mediazione.php?nav_set=401). MSFD reports that there are three types of mediation:

1. Voluntary, there are few mediation centers specialized in IP disputes, a subject-matter where mediation (in absence of a pre-existing covenant) is optional and therefore voluntary (i.e., not imposed by the law), that is, one party or both parties by mutual agreement may freely chose to resort to mediation.

2. Referred, where the nature and the status of the cause so permits and the parties agree, the court (one of the 21 so called Companies Tribunals or the Court of Appeal – Companies Sections) may order the parties to submit their case to mediation with a mediation center. In such case, the mediation or at least the first meeting is mandatory and therefore the statute of limitations is suspended and if mediation fails, parties return to the court.

3. Mandatory, in the following three cases:

    a. where the mediation procedure is provided by a contractual clause (e.g. a license agreement or a general settlement agreement)

    b. Where the parties to a dispute decide to sign a mediation agreement. Some entities provide a specific model clause for disputes over IP matters or a free-of-charge service of assistance for the drafting of an ad hoc mediation clause

    c. the court, including the appellate court, orders the parties to refer to mediation.

According to Domain Name Case-Law (https://cyber.harvard.edu/property00/domain/CaseLaw.html), disputes are due to:

- cybersquatting (see par. 10.)
- Competing Use - In several cases, competitors have registered their adversary's trademark. As with cybersquatting, the case law in this area is fairly well settled and courts have ruled against such behavior.

- Non-competing Use - Legitimate Claims. The area of legitimate competing claims is the most complex in this field. Consequently, it remains more unresolved than other domain name disputes. Because the trademark system is divided territorially and by industry, many companies can use the same name as a trademark without causing infringement. While courts have seemingly stretched trademark law in cybersquatting or competing use cases, that trend is not mirrored in legitimate claims cases. Thus, in legitimate claims cases, courts have emphasized that mere registration of domain name without more (such as an offer to sell or an intent to block the trademark holder from using the name) is not sufficient to constitute commercial use. There are two types of legitimate competing claims disputes. In the first type, the trademark holder sues a domain name holder who has a legitimate claim, but no trademark rights. Because the domain name system is not a corollary to the trademark system, a domain name registrant need not have a corresponding trademark in order to have a legitimate right to the name. In the second type of legitimate dispute both parties have a trademark claim in the name.
- Reverse Domain Name Hijacking. It occurs when the trademark holder attempts to get a domain name from a party where the party has a legitimate competing claim and there is no question of infringement or dilution. As noted above, the domain name system is not a corollary to the trademark system. Nonetheless, some trademark holders behave as though it is. They seem to believe that no one has the right to use a domain name that might relate to a trademark or product name held by the company. Thus they sue legitimate domain name registrants to recover the domain name even though there has clearly been no infringement or dilution. While there are many reported instances of this behavior, it is estimated that most domain name holders simply give in to the trademark demands and thus the majority of disputes are never publicized. Again, the line between categories is often difficult to draw. Thus the distinction between legitimate competing claims and cases of reverse domain name hijacking may be unclear. There are some clear instances, however, that serve as an example of the behavior often called reverse domain name hijacking.

According to Alberti *et al.*, 2017, naming and name resolution have fundamental roles in the current and future Internet architectures. In the contemporary Internet, many limitations and problems on this area are longtime well-known, including the limited number of namespaces, the overloaded semantics of IP addresses and domain names, the use of network layer names at higher-levels of the architecture, and the limited name resolution capabilities of DNS.

12. INTERNET GOVERNANCE

The Internet governance represents all the activities related to the Internet and its development. The World Summit on the Information Society (www.itu.int/wsis/implementation/igf/) has defined the roles of various stakeholders and influences many areas of development and coordination: the development and coordination policies at international, national and regional level, the promotion of research and development of innovative technologies, measures designed to contrast online crimes, and the resolution and arbitration of disputes.
The Internet Corporation for Assigned Names and Numbers (ICANN, https://new.icann.org/) is an American non-profit organization responsible for coordinating IP addresses and domain names that people use to connect to the internet.
The structure of internet is not produced by a hierarchy, but rather from thousands of positive bottom-up private contributions. They are referred to "stakeholders" and include registers domains, IP address operators, internet providers and individuals.
Different countries allow for diverse levels of freedom with respect to the internet. For example, the Chinese government obscures many websites and inspects content published on the internet, discouraging forms of activism that are potentially destabilizing to the government.

The DNS is the way to make the use of internet accessible to all and it allows you to connect easily from domain name to an IP address (www.cfr.org/internet-policy/internet-governance/p32843?-042314#cid=soc-email-at-none-what_is_internet_governance-042314).
ICANN plays a unique role in the infrastructure of the internet. Through its contracts with registries (such as dot-com or dot-info) and registrars (companies that sell domain names to individuals and organisations), we help define how the domain name system functions and expands.
Internet governance is a large, complex, and ambiguous topic (Solum, 2013).

13. CONCLUSION

Domain names represent the gateway to Internet connections and access to specific websites. They can be appraised as a stand-alone IP asset or within a portfolio of web intangibles that includes web-sites, digital brands, M-Apps and other related devices.
Internet traffic stands out as the main value driver, even if the contacts that it generates need to be properly monetized, following increasingly sophisticated business and revenue models.
Several valuation models have been thoroughly described, considering the peculiar nature of domain names but also its analogic reference to the broader category of IP assets. While "quick and dirt" algorithms freely available on the Web may provide instant appraisals, more professional valuations are typically needed.
Domain name disputes, due to cybersquatting or other causes, are growing and may be solved with professional mediation (see MSFD).

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