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Intangible Asset Management

Brand protection return-on-investment

An overview of calculation frameworks and methodologies

Edition including the research report 'Substitution rates for counterfeit sales: an overview of previous literature'

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Introduction

The execution of a brand protection (BP) programme can entail significant costs for brand owners. Aside from the investment in monitoring technologies and analyst resource (in many cases, through a dedicated BP service provider), there are also typically a number of other requirements from appropriate stakeholders on the brand owner's side. These might include a requirement to oversee the BP programme generally, liaising with any service provider and collating the pre-requisite information for service configuration, and maintaining an appropriate portfolio of protected IP.

Overall, a BP programme will typically look to address a range of issues, including:

- areas where there are direct, quantitative impacts of brand infringements (including instances of lost sales, traffic misdirection, stolen funds and payments, etc.)

- issues with an impact which superficially appears qualitative (damage to reputation, brand value, etc.), though – as we shall see – there are established methodologies for quantifying these effects

- other factors (such as regulatory requirements for having a BP programme in place)

Overall, there is often a requirement to quantify the 'value' of a brand protection programme, which can also be a criterion for justifying corporate spend on its implementation[1].

[1] http://www.circleid.com/posts/20201112-brand-abuse-and-ip-infringements-part-2-return-on-investment/

Basic ROI calculation types

Introduction

There are a small number of areas in which there exist standard established methodologies for quantifying the return-on-investment (ROI) of a brand-protection initiative, although the underlying ideas (with appropriate modifications and data proxies) can often be adapted to be applicable to actions of other types. In this section, we provide an overview of two key areas for which standardised methodologies can relatively simply be formulated.

1. Domain recovery

The first model considers a case where a brand owner is able to reclaim an infringing brand-related domain name from a third party via some sort of dispute process. In general, this scenario will be most applicable in cases where the domain name contains the brand owner's trademark (or, depending on the type of name and nature of the dispute process, it may be sufficient for only a similar string to be used – e.g. in the DRS process used for .uk domains) and the brand owner wishes to take ownership of the domain name. The domain must also qualify for eligibility for recovery through the dispute process. In general, this will require:

- The brand owner's trademark rights to pre-date the creation of the domain name
- The domain name to be 'confusingly similar' to the mark
- The current owner not to have rights to, or legitimate interests in, the domain name
- Indications of bad faith being present

The ROI calculation can then be formulated on the basis that, post-acquisition, all web traffic to the infringing domain can be re-directed to the brand owner's official transactional website and, accordingly, a proportion of this traffic can be 'converted' (i.e. monetised) to generate revenue for the brand owner.

There are, however, a number of caveats to the applicability of this approach, including the following points:

- The ‘value’ of a domain name (via its associated traffic) may vary depending on the search-engine queries through which users are directed to the site; search terms which are more relevant to the area of business of the brand owner are likely to result in a higher conversion rate.

- Post-acquisition re-direction to the official site may not be appropriate in all cases, and can lead to the impression of affiliation between the parties, and/or may produce an undesirable brand association.

- Accordingly, a common alternative strategy is to hold the domain in an inactive state for a period of time, so as to reduce its domain authority (i.e. explicitly aim to decrease its search-engine ranking – and thereby also its levers of web traffic – and then assess its value simply as a component of the brand owner’s official domain portfolio (as an active website, or a strategic or defensive registration), in accordance with a domain registration and management policy[2].

[2] https://www.iamstobbs.com/opinion/strategies-for-constructing-a-domain-name-registration-and-management-policy

The ROI calculation itself requires a number of inputs (some of which must be assumed or extrapolated from other information, or may require data sourced directly from the brand owner), including:

- The web traffic (number of visitors) to the site
- The 'conversion rate' for visitors to the brand owner's official site (i.e. the proportion of visitors who will then go on to make a purchase / become a customer
- The average customer 'value', or spend

A schematic representation of how the calculation can then be formulated is shown in Figure 1.

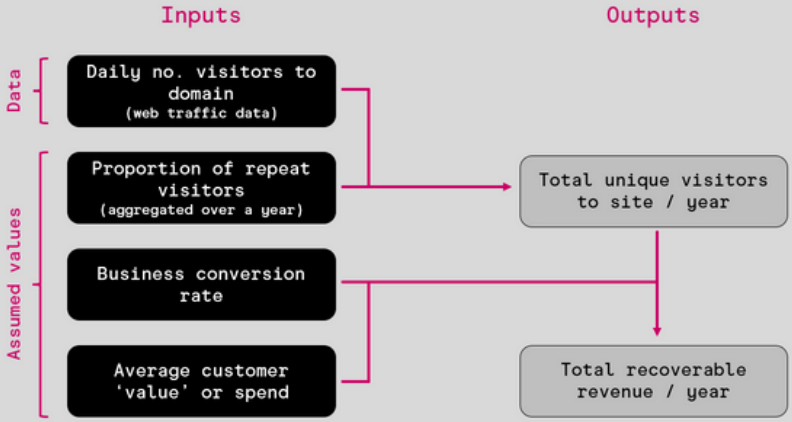

Figure 1: Formulation of the ROI calculation for a domain recovery case

Information on web traffic is typically obtained (pre-acquisition of the domain) from third-party data sources, though this is only possible if traffic levels are high enough for these sources to have information on the domain in question. It may also be possible to determine levels of traffic post-acquisition (i.e. once the technical infrastructure of the domain is under the control of the brand owner) through analysis of webserver data.

It is also worth noting that this approach is most meaningful for websites whose primary function is related to e-commerce; for other types of site content, other approaches may be more appropriate (e.g. for a phishing site, the 'value' may be more reasonably determined by considering assumed values for the numbers of victims, and the average financial loss per victim).

The standard calculation can then be carried out on the following basis:

- Web traffic data is normally expressed in terms of the number of visitors to the website per day.

- In order to convert this to a number of unique visitors per year, it is necessary to make an assumption about the proportion of this traffic which constitutes repeat visitors on distinct days, aggregated over the year.

- An assumed business conversion rate can then be used to determine the proportion of unique visitors who will make a spend on the brand owner's official website.

- Finally, an assumed average spend per customer will allow the 'value' associated with the traffic to the domain to be calculated.

An illustration of how the calculation can be constructed, using example values, is shown in Figure 2.

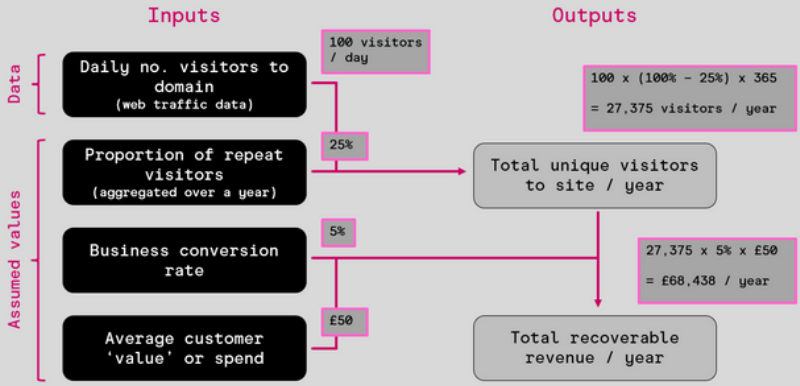

Figure 2: Illustration of the ROI calculation for a domain recovery case

Similar approaches can be used for other types of domain enforcement action, even where the domain is not recovered (i.e. where not all of its traffic can be 'reclaimed' and monetised). Examples of such cases may be:

- The deactivation (only) of an e-commerce site selling infringing goods

- The removal of pay-per-click links from the parking page associated with an infringing domain name

In these instances, it is necessary to make a further assumption regarding the proportion of the

site's traffic which can be reclaimed following successful enforcement. This may be dependent on a number of factors, e.g.:

- The range of brands featured on the infringing site (e.g. for a 'mono-brand' site, it is reasonable to make the case that the majority of the traffic to the site is 'intended' for the brand in question; conversely, where multiple brands are featured, it is likely that only a proportion of the traffic relates to any one of the specific individual brands)

- The similarity of the domain name to that of the brand owner's official site; a greater degree of similarity – and therefore customer confusion – is likely to be associated with a greater proportion of reclaimable web traffic

2. e-commerce marketplace enforcement

When considering the removal of infringing items from e-commerce marketplaces, ROI calculations broadly fall into one of two main types:

- Advance (or 'a priori') calculations – estimate the potential ROI from a brand protection programme which is not yet in place

- Post-enforcement ROI calculations – quantify the 'value' of goods removed through an enforcement (takedown) programme

The first type, carried out before any enforcements have yet taken place, are generally formulated on the basis of a 'sweep' (or series of searches) across a range of key marketplaces, to identify the number of results returned in response to a search for the brand (and/or other relevant keywords). The calculation also requires a number of assumptions, specifically (for each marketplace site):

- The numbers of items typically offered per individual listing

- The proportion of listings which typically feature infringing (e.g. counterfeit) goods – i.e. those for which takedowns are possible / appropriate

In both cases, these assumptions are usually made on the basis of prior experience of monitoring and enforcing on the marketplaces in question for a range of customers. Typically, it will only be meaningful to specify these values to within an order of magnitude (at best), although they may also vary by product type, etc.

A general formulation is shown in Figure 3.

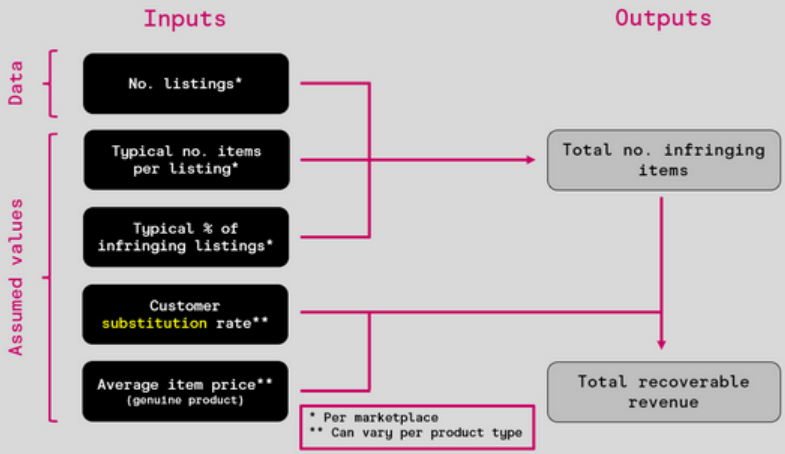

Figure 3: Formulation of the ROI calculation for an e-commerce marketplace enforcement programme ('a priori' calculation)

The calculation can then be carried out as follows:

- For each marketplace site, the number of results (i.e. listings) returned by the search is multiplied by the assumed number of items per listing and the proportion of listings which are typically infringing, to give the potential number of assumed infringing listings to be removed.

- The recoverable revenue is then calculated by determining the number of customers who will buy a legitimate item once the infringing version is made unavailable, and specifying their spend (i.e. the price of a genuine product). This first variable requires the specification of an overall substitution rate, which accounts for two main component factors:

- The proportion of customers who will buy a legitimate item once the infringing version is made unavailable (i,e. the ‘true’ substitution rate)

- The ‘conversion’ between the number of items available and the number of sales (i,e. accounting for the fact that not all available items translate to a sale) – this is analagous to the ‘conversion rate’ in the previous calculation

In some formulations of this calculation, these components are specified separately. However, in this overview, (for simplicity) we consider a single number which represents the overall substitution rate.

An illustration of how the calculation can be carried out in practice is shown in Figure 4.

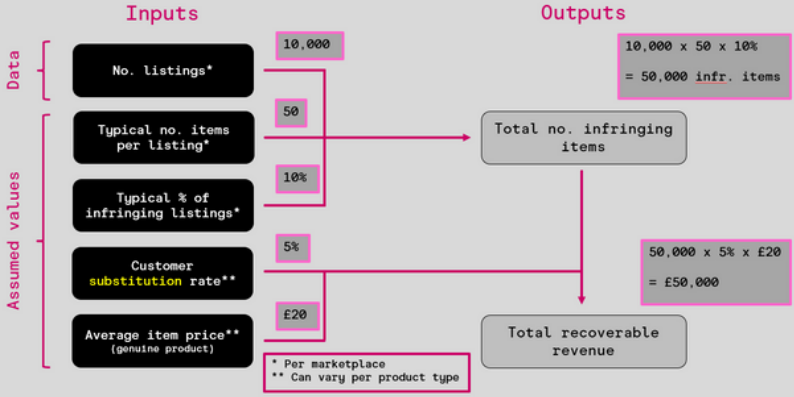

Figure 4: Illustration of the ROI calculation for an e-commerce marketplace enforcement programme (‘a priori’ calculation)

Similar ideas can be applied to calculate recoverable revenue in a post-enforcement style of calculation (i.e. after a series of takedowns have actually been carried out). The main difference in this case is that the calculation can be based on the actual numbers and values (prices) of the items removed, rather than having to rely on assumptions. This type of calculation is in many ways preferable, since it represents a truer reflection of the content which is genuinely infringing (and actionable). Additionally, it is typically often possible to make use of data from brand-monitoring tools, which will usually automatically extract (i.e. 'scrape') key pieces of information (such as prices and quantities) from the e-commerce listings.

One other fact to note is that it is often appropriate to apply a data 'cap' to the quantity information given in the listings. This is necessary because the quoted availabilities are sometimes unrealistically large (Figure 5). In these cases, the numbers are often simply intended to imply that the seller can manufacture on demand as many items as required, rather than giving a true reflection of the numbers held in inventory. Using a data cap involves specifying an upper limit to the quantities deemed to be on offer in the listings, so as to avoid the calculated recoverable revenue values being unrealistically high.

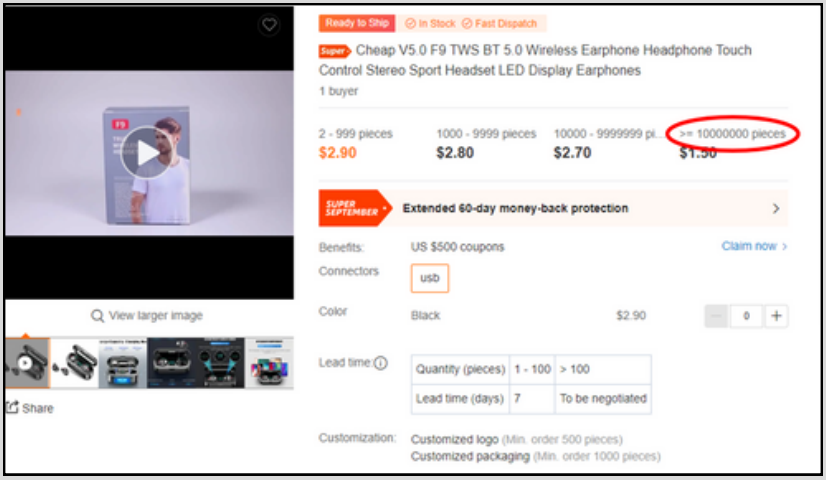

Figure 5: Example of an e-commerce marketplace listing offering an unrealistically high quantity of items

Other calculation types

The above general approaches are not specific to domain and marketplace enforcements and, overall, similar approaches can also be used to carry out ROI calculations in other contexts, including website and domain deactivations (providing appropriate data is available or can be assumed).

Furthermore, for some channel types, 'classic' web traffic data may not be available or meaningful, but it may instead be possible to use other metrics as 'proxies' for the number of visitors to (or popularity of) a piece of content. Examples might include:

- (For social media,) the number of followers or 'likes' of a profile or posting
- (For mobile apps,) the number of downloads
- (For digital content subject to piracy or file-sharing,) the number of individuals involved in sharing the content (e.g. 'seeds' and 'leechers' with protocols such as BitTorrent)

Additionally, in some cases, it may be possible to incorporate other data to provide a measure of lost and/or recoverable revenue. Examples might be metrics giving information on the volumes of goods being sold via third-party infringing e-commerce websites, such as data sourced from trade or import / export databases, or from open-source investigation[3,4].

[3] https://www.worldtrademarkreview.com/anti-counterfeiting/return-investment-proving-protection-pays
[4] 'Brand Protection in the Online World: A Comprehensive Guide' by David N. Barnett

Extending the ideas

In this section, we explore a number of ideas which can be used to extend the concepts discussed above, and tailor the approaches to situations which are more complex and/or take account of additional factors.

1. Variable substitution rates

The concept of a substitution rate – discussed above in the concept of e-commerce marketplace enforcement programmes – takes account of the proportion of customers who will buy a legitimate item once an infringing version is made unavailable (via a takedown process).

In reality, substitution rates will vary markedly, with a strong dependence on the nature and price of the infringing item. For example, the substitution rate may be much lower for an obvious counterfeit with a very low price point (i.e. where the buyer is likely to be much more aware that they are not buying a legitimate product, and will constitute part of a very different customer market to that of the legitimate, high-priced original)[5,6,7]. Similarly, the substitution rate is likely to vary depending on whether the customers are knowingly visiting a non-legitimate e-commerce site, or

[5] https://circleid.com/posts/20220726-calculating-the-return-on-investment-of-online-brand-protection-projects
[6] https://circleid.com/posts/20221005-four-steps-to-an-effective-brand-protection-program
[7] 'Digital Brand Protection: Investigating Brand Piracy and Intellectual Property Abuse', Chapter 17: Accounting and Accountability by Steven Ustel

whether they are intending to visit a genuine supplier but have been misdirected via some sort of abuse of protected IP. Substitution rates are also likely to be dependent on platform type – e.g. takedowns from B2B (business-to-business) e-commerce platforms are likely to impact on an earlier stage in the supply chain and may be more significant for controlling the proliferation of items on other (say, B2C; business-to-consumer) platforms, rather than directly translating to recoverable revenue.

In general, it is possible to account for these ideas using a variable substitution rate. In one such formulation[5], the substitution rate is assumed to decrease as the unit price of the item in question increases; however, it may be more realistic to reformulate this idea in terms of the price differential between the infringing and legitimate goods, rather than its absolute value (Figure 6).

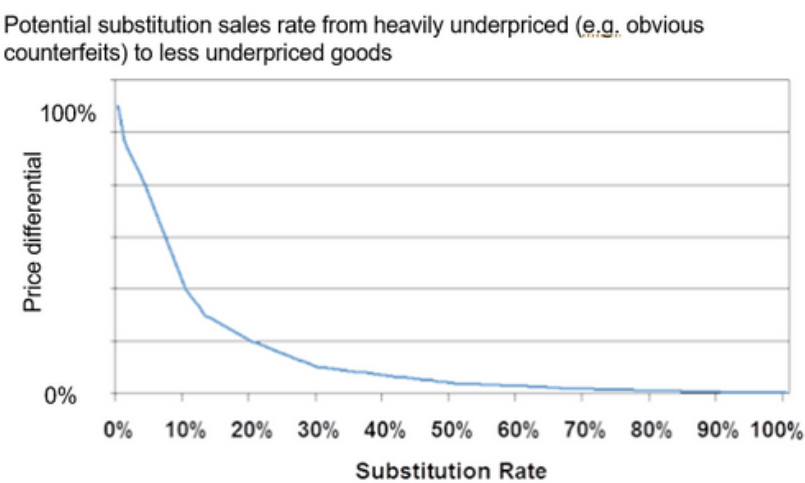

Figure 6: Example of the suggested relationship between substitution rate and price differential between infringing and legitimate goods

A detailed overview of previous research into substitution rates is featured in Appendix A.

There are also a number of additional caveats and considerations associated with this type of approach. Firstly, low substitution rates (as might be appropriate for takedowns of counterfeit versions of high-end luxury items) do not necessarily imply that the enforcement itself is of low 'value', since a proactive takedown programme can have positive impacts on brand reputation and value.

In general, a number of related factors will be important. Some brands are very adversely affected by high levels of counterfeiting, in terms of their resulting prestige and image, whilst others are able to retain their desirability. Part of this difference may be due to factors such as pre-existing brand value and the quality of marketing. Other relevant points to consider are:

- The level of customer confusion between real and counterfeit goods
- The degree of overlap in customer base for real and counterfeit goods
- The level and type of communication by the brand to customers regarding counterfeits (e.g. not acknowledging the issue vs. clarity of communication about the potential dangers of counterfeit items).

2. Long-term impact

For many brand protection programmes, the aim for brand owners is a long-term change to the infringement landscape, and the value of the initiative is more usefully quantified in terms of this overall impact, rather than simply considering numbers of takedowns on an ongoing basis. Examples of these types of long-term goals might include:

- A general decrease in the numbers of active infringements over time (which may be a result of a proactive enforcement programme making the brand makes a less attractive target to infringers, who potentially turn their attentions to other brands)

- 'Cleaning' the set of results returned in response to brand-specific searches (e.g. on marketplaces or search engines), so that only legitimate channels and partners are displayed (on, say, the first few pages of results) – essentially, decreasing the 'visibility' of infringements

- Gaining 'ownership of the buy button' – this is similar to the above point, and essentially means that, on platforms where multiple sellers can be returned in response to a particular query, the official channel(s) is returned as the top or default result

Figure 7 shows an example of the profile over time of the monthly numbers of enforcements for an effective brand protection programme. In this case, an initial high level of infringements has been successfully addressed, such that only low levels of enforcements are needed after a period of time

(in this case, approximately 18 months) to tackle the smaller numbers of new infringements as they arise.

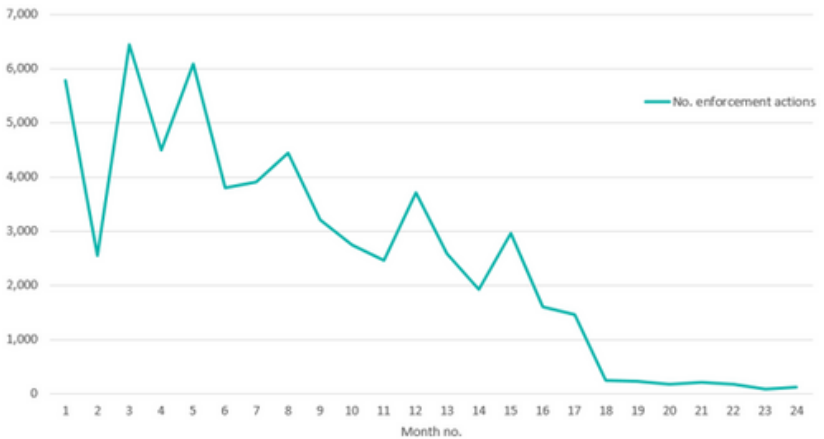

Figure 7: Example of the enforcement profile over time for a successful brand protection programme

However, it is important to judge the success of a brand protection programme not just on a decrease over time in the numbers of enforcements required (as a proxy for an apparent decrease in the number of infringements). In many cases, infringers will simply change tactics in response to a brand protection programme by the brand owner, so it is important to monitor for changes to the landscape more generally, to ensure that nothing is being missed by simply retaining a consistent approach over time. Examples of changes in approach by infringers might include:

- Moving to alternative or emerging platforms
- Describing infringing items using brand variations (such as abbreviations or deliberate misspellings (Figure 8)) or using generic keywords only, rather than the brand name itself, so as to circumvent detection

Figure 8: Example of a marketplace listing utilising a deliberate misspelling ('ifone') of the iPhone brand name

- Targeting alternative products or sub-brands
- Changing the types or styles of infringements offered – e.g. moving to higher-quality counterfeits which may be more difficult to distinguish from the legitimate item

Even excluding any changes by the infringers themselves, the absolute numbers of takedowns do not necessarily provide the full picture. For example, it is not uncommon for the types of infringements tackled by a brand protection programme to need to change over time – it might be practical to begin with the higher-impact or easier takedowns, and then move on to more complex (and time-consuming) – and thereby often lower volumes of – enforcements as the programme evolves.

However, although it is necessary to take note of all these caveats, it is possible to formulate a methodology structure for ROI calculations which takes account of a general decrease over time in infringement activity (and resulting required enforcement actions).

In order to construct this formulation, we consider changes over time in the case of the infringement landscape for a newly-launched brand (Figure 9)[8].

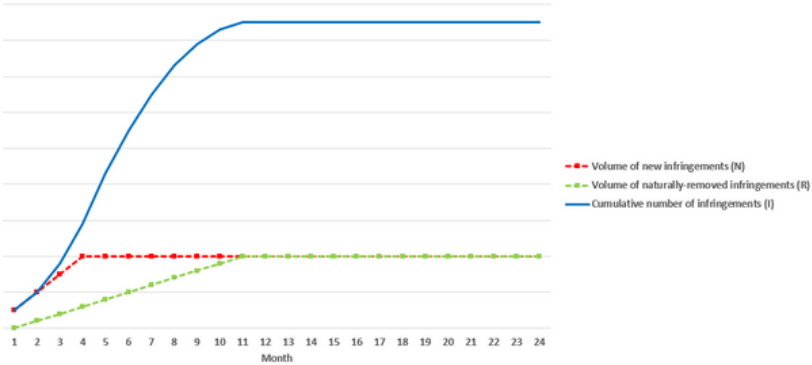

Figure 9: An illustration of the possible infringement landscape over time for a newly-launched brand

The key ideas are:

- After launch, the numbers of infringements (N; dashed red line) ramp up, to a constant level
- Even in the absence of any enforcement actions, there will be a 'natural removal' of infringements from the Internet, arising from factors such as: content being deactivated or expiring after a period of use; older content dropping down search-engine rankings, and so on. The level of this natural removal (R; dashed green line) will also increase over time (though more slowly than N)
- The net effect is that the overall numbers of active infringements (I; solid blue line) will

[8] https://www.linkedin.com/pulse/calculation-return-investment-brand-protection-thoughts-david-barnett/

also increase over time (with the monthly increase (ΔI) in I equal to the difference between the monthly values of N and R) – i.e. ΔI = N – R

We also assume it is unrealistic that the number of active infringements will rise indefinitely, but is instead more likely eventually to reach some sort of steady state (though the levels and timescales for this may vary significantly, depending on a range of factors). This implies that R will eventually catch up with N, or N will ultimately drop off (or both).

In the second part of the formulation, we assume that the brand owner begins a programme of monitoring and enforcement in month 12. This is illustrated in Figure 10.

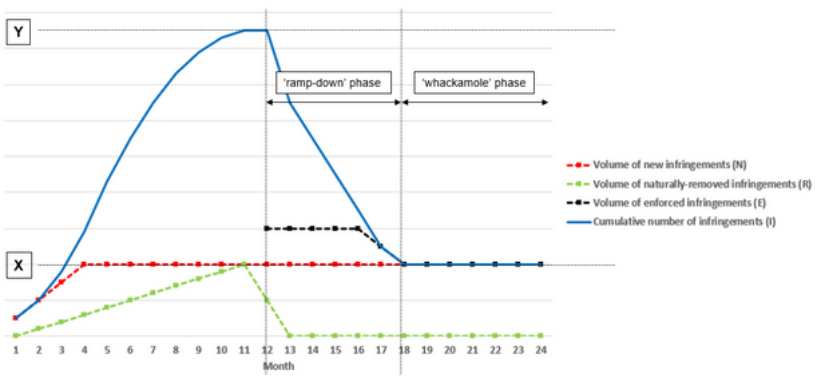

Figure 10: An illustration of the possible infringement landscape over time for a newly-launched brand, with the introduction of a brand protection programme in month 12

The formulation is as follows:

- The brand protection programme includes a monthly number of enforcements (E; dashed black line) which must be greater than N for the programme to be successful.

- After the commencement of active enforcement, the rate of natural removal of infringements drops off to zero (i.e. the infringements are being taken down more quickly than they naturally disappear)

- Since initially E > N, the number of active infringements (I) drops off to a steady state*, such that we reach a point (after month 18 in Figure 10) where the monthly number of enforcements simply needs to 'keep pace' with the rate of appearance of new infringements (the 'whackamole' phase, in which infringements are taken down as quickly as they appear) (i.e. E = N)

For a 'classic' ROI calculation (as described in the previous section), the value of a brand protection programme is generally described in terms of the number of enforcements carried out within a given period – i.e.

$$ROI = C \times E$$

where C is the 'cost' of an infringement being active (or, equivalently, the 'value' of removing it) and E is the number (X) of enforcements in that period (as above).

* The value of I could equivalently be written as zero at this point, if its value is calculated at the end of the month (i.e. post-enforcement) rather than at the start

However, in our updated model, we suggest it is preferable to consider the difference in the landscape which has arisen in response to the implementation of the brand protection programme (or, equivalently, the effect of stopping the programme). Accordingly, rather than calculating ROI as a function of X ('ROI = f(X)'), we consider it in terms of the difference between Y and X ('ROI = f(Y – X)') – i.e. reflecting the difference in the number of active infringements compared with that which would have been present if the programme were not being carried out.

This model can be further expanded to account for external changes in the industry landscape (i.e. changes we assert would have occurred even in the absence of a brand protection programme). In order to quantify this, it is necessary to benchmark against a competitor brand (or, more realistically, a group of competitor brands) for which no enforcement actions are being carried out (Figure 11).

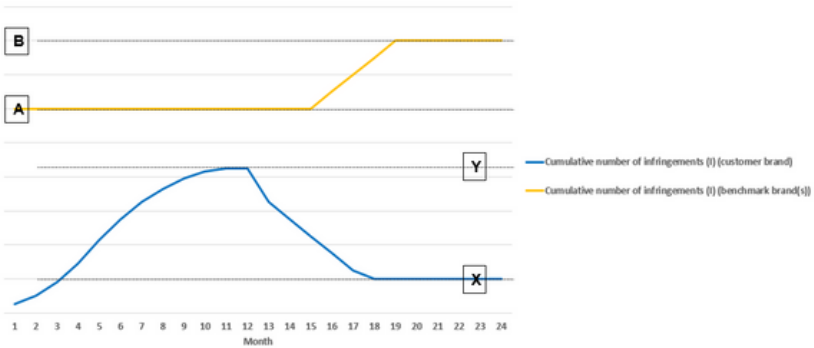

Figure 11: An illustration of the possible infringement landscape over time for a newly-launched brand with the introduction of a brand protection programme in month 12 (as in Figure 10), and for a competitor 'benchmark' ('control') brand

In this case, we see an increase in the level of infringements for the benchmark brand(s) across the monitoring period, which we assume is representative of the industry landscape in general (perhaps driven by some sort of external event resulting in an overall increase in infringement activity). We can then assume that, in the absence of a brand protection programme, the numbers of infringements for the brand under consideration would have increased by the same proportion (equal to (B / A)). Therefore, to calculate the ROI, we consider the difference between the final level of infringements (X) and the level which would have been in place in the absence of the brand protection programmme, but also taking into account the changes in the industry landscape (i.e. a value of (B / A) x Y) – i.e. in the formulation shown above, ROI = f(((B / A) x Y) – X).

Even here, however, there are also other caveats to consider - for example, it is difficult to separate industry developments from the effects of brand-specific changes (such as simple variations in its popularity) over time.

3. Brand value

A key area which is often neglected in classic brand protection ROI calculations in the impact of a successful brand protection programme on brand value.

The intellectual property associated with a brand has an intrinsic value[9,10], including its potential to generate future revenue[11]. A related idea is the concept of brand equity, the value of products and services associated with the brand. There are well-established approaches for calculating brand value, taking account of factors such as the costs to create the brand assets initially, consideration of planned or natural brand obsolescence, and the use of 'royalty relief' methodology (considering the equivalent cost for licensing the IP if it were not owned by the brand). These parameters are affected by brand visibility (customer awareness, market perception, etc.) and customer loyalty (which drives the potential to generate income)[12]. Accordingly, there is the potential for infringements and other instances of brand abuse to adversely affect brand value. Damaging factors might typically include:

- Unauthorised use of IP (e.g. sale of counterfeits, instances of fraudulent websites, false claims of affiliation, etc.)

[9] https://www.iamstobbs.com/opinion/adding-value-to-the-determination-of-brand-protection-return-on-investment
[10] http://www.circleid.com/posts/20201110-brand-abuse-and-ip-infringements-part-1-brand-impact/
[11] https://www.ipwatchdog.com/2018/04/24/intellectual-property-valued-selling-business/id=96098/
[12] https://www.prophet.com/2016/09/brand-equity-vs-brand-value/

- Brand dilution or genericism (i.e. the evolution of a brand name into a generic descriptor of the product type in question), or the sale of lookalike products or brands

- Reputational damage (as might result from boycott activity and activism, brand association with undesirable content, etc.)

There are also additional complicating factors, such as the fact that higher levels of abuse could be taken to imply that the brand is a desirable one, and therefore actually has an intrinsic greater brand value.

In order to further consider these points, it is instructive to consider a global study[13] looking (year-on-year) at the total global enterprise value of listed companies (Figure 12).

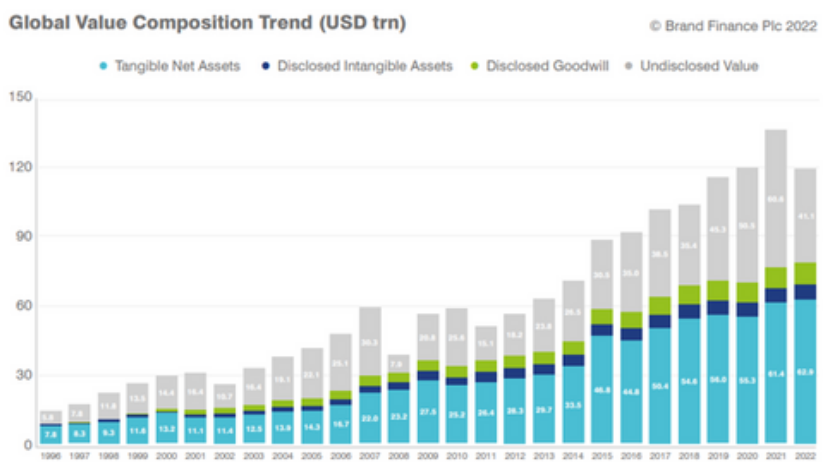

Figure 12: Total global enterprise value of listed companies and its constituent components (© Brand Finance plc, 2022)

[13] https://static.brandirectory.com/reports/brand-finance-gift-2022-full-report.pdf

The principal components of overall company value are:

- Net tangible assets (light blue) – i.e. property etc.

- Intangible assets disclosed on the corporate balance sheet – e.g. assets (including brands) pertaining to company acquisitions, patents held, customer contracts, etc. (dark blue) and acquired 'goodwill' (dark green)

- Other (principally undisclosed) intangible assets (grey) – i.e. the difference between the corporate 'net book' value of balance-sheet assets and the enterprise value as determined by the financial market, encompassing factors such as internally generated brand value, goodwill, etc. – the 'premium' on the business

Overall, almost 50% of global enterprise value is 'intangible', of which only a small proportion is reflected on the balance sheet. Internally generated brand value itself typically represents a significant part of enterprise value and naturally varies by industry type, but is potentially around 20% on average across all sectors.

The significant value of brand – noting that the numbers in Figure 12 are in trillions of US dollars – highlights the importance of adequate investment in, and management and protection of, company brands.

A trademark targeted by high volumes of unauthorised use will be affected through both 'brand' and 'financial' impacts (essentially, the 'value at risk'), largely driven by changes in customer perception and behaviours. Conversely,

steps taken by the brand owner to invest in and improve brand (and IP) protection can significantly improve brand performance and economic value.

Some of the positive impacts arising from an effective programme of brand protection might typically include:

- Brand impacts:
    - Improved brand awareness / familiarity / loyalty
    - Growth of brand perception / reputation
- Financial impacts:
    - Increased sales volume / value (including forecasted values)
    - Enhanced brand growth opportunities
    - Reduced customer churn
    - Lower cost of capital (brand risk)
    - Lower operating costs required to address the issues (e.g. enforcement actions, customer education, brand re-designs and marketing, additional product innovation, market research, etc.)

The interplay between these factors is illustrated by the schematic in Figure 13.

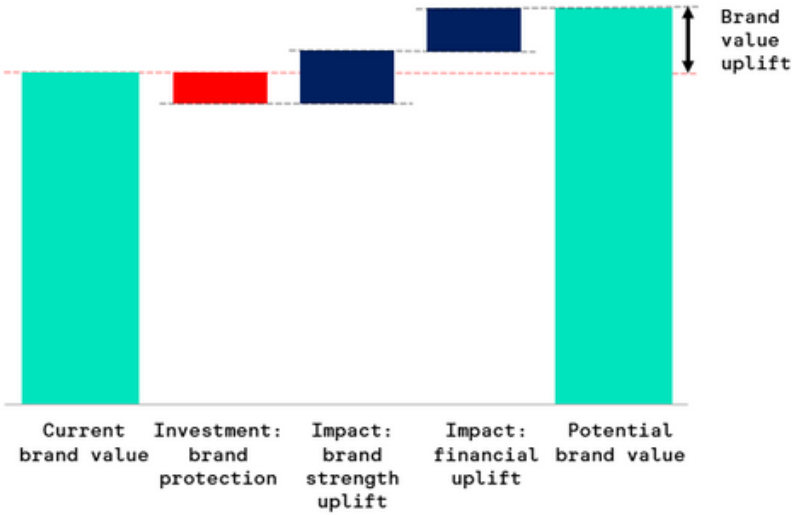

Figure 13: Schematic of the impact on brand value of a successful brand protection programme

Starting with a particular brand valuation, we consider the case where the brand owner makes a spend ('investment') on a brand protection programme, which might typically be calculated as a percentage of brand value or sales (shown as a cost in red in Figure 13). Following the BP programme, an uplift in both brand strength and financial factors, as discussed above, can be expected. These have a positive additive effect, resulting in a final brand valuation (shown as the light blue bar on the right of Figure 13). If the BP programme has been successful, the uplifts will be greater than the spend (i.e. a positive ROI) and the final brand value will be greater than the initial one (by a net uplift value).

4. Cybersecurity ROI

As the importance of a strong cybersecurity posture becomes increasingly appreciated by brand owners, it may also prove useful to be able to construct ROI-style calculations to illustrate the value of implementing security measures (such as domain security products and technologies).

In these cases, the measures are generally proactive, rather than reactive, meaning the metrics will need to reflect the effects of a security initiative on the probability of a cyber-attack which has not yet happened. However, when such breaches do occur, they can be highly damaging from both a financial and reputational point of view, meaning the potential returns from decreasing the likelihood of an attack can be significant.

Using probability theory[14], it is possible to express the expected financial loss per year (L) due to a cyberattack as follows:

$$L = p \times C$$

where p is the probability of an attack during the year, and C is the financial cost (or 'damage') of an attack. If, therefore, the probability of an attack can be decreased from p_before to p_after through the implementation of cybersecurity measures, the expected saving (S) (per year) to the organisation can be expressed as:

$$S = (p\_before - p\_after) \times C$$

[14] The formulation is based on the principle that the expected value (E_x) of a variable (X) is given by:

$$E\_x = Sum\_I \left[p(X\_I) \times X\_I \right]$$

where p(X_I) is the probability of X taking the I-th value

In reality, these values are extremely difficult to quantify. However, some relevant figures are available from previous work; a recent study showed that 88% of organisations were subject to some form of DNS attack in 2021, with each attack costing the enterprise an average of almost $1 million[15]. If we then (conservatively) assume that the annual probability of an attack can be reduced through the introduction of cybersecurity measures from 10% to 1%, the equivalent annual saving to the company will be of the order of $90k, If the cost of implementing these measures is less than this value, the return on investment will be positive. The size of the ROI will also likely be augmented by other factors, such as the cost of accessing cyberinsurance cover, and the positive impacts on brand value and reputation.

[15] https://www.efficientip.com/wp-content/uploads/2022/05/IDC-EUR149048522-EfficientIP-infobrief_FINAL.pdf

Discussion and Conclusions

Other factors to consider

In practice, there are an almost limitless number of ways to construct a ROI calculation, and the specifics will vary from case to case, with the methodology to be agreed with the brand owner. Wherever additional relevant information is available, it makes sense to incorporate this into the final versions of the calculations used to quantify the value of an organisation's brand protection initiative. Some examples of other possible inputs into these calculations might include:

- Increases in numbers of visitors to physical stores or volumes of traffic to official websites (e.g. as determined from the brand owner's webserver data)
- Increases in sales directly through the 'buy button' on e-commerce marketplaces
- Information on fines / damages recovered from enforcement approaches such as legal actions
- Information from 'on-the-ground' / offline actions – e.g. numbers of products removed from the supply chain via customs seizures, etc.

In addition, it may be appropriate to make adjustments to the calculation (e.g. relating to substitution rates) based on a classification of type of infringement (e.g. counterfeit vs, grey market / parallel import vs. trademark abuse (e.g. misdirection)).

Even where their effects are not easily quantifiable, other brand protection approaches may also prove valuable to brand owners. Examples might include the use of product verification tools (allowing customers to verify the legitimacy of official goods) and customer education programmes (e.g. highlighting the dangers associated with the purchase of counterfeits).

In general, any approach to the calculation of ROI will require a number of assumptions and will be associated with a range of caveats. Some of the most significant points to bear in mind are as follows.

- Brand protection (i.e. the combination of monitoring and enforcement) can be considered just one component of a broader strategy of IP management – parts of which are business operation costs rather than revenue generators in their own right. Examples of other IP management tasks might typically include the construction and maintenance of a trademark portfolio, and the acquisition of domains for possible future use (brand 'futureproofing').

- Some (not easily quantifiable) types of enforcement (such as notices or legal action resulting in assurances by infringers not to reoffend, or actions on channels where volume data is not readily available) may have higher impact than simple (marketplace) takedowns – when considering the 'value' of such actions, it may be worth thinking in terms of infringements avoided in the future (this is the so-called 'high-impact' enforcement approach).

- Whilst the numbers produced as outputs from ROI calculations provide some measure of the ‘value’ of the brand protection programme, they may not equate to ‘real’ recoverable revenue, even in cases where the programme is perfectly constructed and implemented. Instead, it may be better to think of the values in more qualitative terms, viewing them as comparisons or ‘points systems’, measuring the (relative) success of the programme.

Summary and key points

The concept of brand protection actually covers a range of initiatives and addresses a variety of issues types, and it is not necessarily straightforward to quantify the value of an overall programme.

This document is intended really just to set out a series of standard methodologies which can be applied and adapted as part of a general framework agreed with a brand owner for calculating the value of a brand-protection programme (or justifying the spend on its implementation), although the specifics are likely to vary from case to case.

Overall, most standard ('classic') ROI methodologies tend to use some sort of construction in the form of ROI = C x E, where E is the number of enforcements, and C is some measure of 'cost' - i.e. the difference in revenue between an infringement being active and being removed. This type of approach is most easily applicable to cases of: (i) domain recovery and traffic re-direction; and (ii) e-commerce marketplace takedowns (or takedowns across other channels where similar data are available), though the methodologies can often be adapted to be applicable to other types of takedown. In some cases, data proxies can be utilised to serve as inputs to the calculation.

However, it is possible to extend these basic ideas using additional or alternative approaches which can take account of additional factors. In this document we have considered:

- The use of variable substitution rates (depending on the price differential between

infringing or legitimate goods, or on channel or infringement type)

- Quantification of the long-term impact of a brand-protection programme, including the use of benchmarks to account for changes in the overall industry landscape

- Quantification of the impact of brand protection on brand value

- Possible frameworks for quantifying the ROI of cybersecurity initiatives.

It is also often advantageous to incorporate relevant data from other sources (such as information on sales volumes or website visits, litigation processes, or offline actions) into specifically tailored ROI calculations.

The importance of less easily quantifiable brand protection initiatives, such as the use of product verification tools and customer education, and ‘high-impact’ enforcement approaches, should also not be neglected.

Finally, it is important to appreciate that there are multiple caveats associated with any ROI approach – the output values are most safely utilised only for like-with-like comparisons, once a standardised approach has been agreed in any given case, and care should be taken not to over-interpret the significance of the specific numbers.

Appendix A: Substitution rates for counterfeit sales: an overview of previous literature

Introduction

One of the central ideas in the quantification of the 'value' of a brand protection (BP) programme (BP 'return-on-investment' ('ROI')) is that it is necessary to be able to convert measurements of the actions taken into measurements of the corresponding impact. In many cases, this is most meaningfully quantified as the amount of revenue which can be recovered following the removal of infringing content via an enforcement (takedown) process.

One of the areas in which BP ROI calculations can most easily be formulated is in cases of e-commerce marketplace takedowns[p.13] (of listings of infringing products – counterfeits, trademark or copyright infringements, etc.). In this context, it is relatively simple to calculate the value of items removed (essentially, the sum across all listings of price per listing multiplied by quantity per listing). However, the determination of recoverable revenue is less straightforward; it requires an assumption of the substitution rate[16] (i.e. the proportion of consumers purchasing an

[16] N.B. In this context, the 'overall' substitution rate actually consists of two component factors: the 'true' substitution rate (as defined above) and the 'conversion' between the number of items available and the number of sales (i,e. accounting for the fact that not all available items in a listing translate to a sale).

infringing item who would instead buy a legitimate item, if the infringing version is made unavailable via an enforcement action), together with the price of the corresponding legitimate item (a piece of information which is generally readily available). Accordingly, determination of a reliable estimate of the substitution rate is of key importance, but may be very hard to quantify.

Review

In the simplest formulation of an associated BP ROI calculation, substitution rate can be assumed to be a fixed value ‘across the board’, with the least sophisticated models simply using a value of 1 (i.e. 100%, or a one-to-one substitution). In reality, however, this value is likely to be highly variable, and dependent on a number of factors, such as product type, price point, type of sales channel, and whether or not the consumer is knowingly or unknowingly purchasing a non-legitimate item.

Overall, it seems reasonable (and has been noted previously) that the substitution rate is likely to be much lower for an obvious infringement (say, counterfeit) with a very low price point compared to the legitimate item (i.e. where the buyer is likely to be much more aware that they are not buying a legitimate product, and will occupy a significantly different customer market to that of the legitimate, high-priced original)[17,18,19,20]. In one such formulation (Figure 14), a substitution rate which varies with price is suggested, with lower substitution rates for more expensive (legitimate versions of) items. However, it may be more realistic to instead restate the substitution rate in terms of the price differential between the infringing and the legitimate item (expressed, say, as the percentage of the legitimate price at which the infringing version is being offered)[21]. Some analyses suggest that the substitution rate is best calculated as a simple function of the ratio between the price of the counterfeit and the (‘market’) price of the legitimate item[22].

Figure 14: One suggested formulation of the variation of substitution rate with item price (© CircleID / C. Abrahams)

[17] https://circleid.com/posts/20220726-calculating-the-return-on-investment-of-online-brand-protection-projects
[18] https://circleid.com/posts/20221005-four-steps-to-an-effective-brand-protection-program
[19] 'Digital Brand Protection: Investigating Brand Piracy and Intellectual Property Abuse', Chapter 17: Accounting and Accountability, by Steven Ustel
[20] https://www.worldtrademarkreview.com/report/special-reports/q3-2021/article/the-wtr-archive-why-one-size-fits-all-approach-roi-brand-protection-will-never-work
[21] It is also worth pointing out that this formulation may not be so appropriate for very low priced items – e.g. there is little significant distinction (in terms of absolute value, and therefore customer preference) between a £2 legitimate product and a £1 infringement, even though the price differential as a factor (50%) is significant.
[22] https://uibm.mise.gov.it/attachments/category/225/Counterfeiting_Scope,%20characteristics%20and%20analyses%202012.pdf

The article from which Figure 14 is taken also states (without citation) that “around 20% of ‘well-intentioned’ online buyers would end up being offered a non-genuine experience, and it is these sales that the brand owner would hope to gain if they can remove the fake offer”, which may be a useful benchmark for constructing a fixed ‘across-the-board’ assumed substitution rate. It is also noteworthy that a similar figure is given by another study (from 2003) looking at a rather distinct type of infringement, finding that illegal music downloads reduce legitimate purchases by 20% (i.e. every five music downloads substitutes one legitimate purchase)[23]. However, the figures vary markedly between studies. One analysis assumed a ‘conservative’ figure of 10%, for sales of recorded music[24], another cited a study assuming a 5% rate for digital piracy and 10% for physical piracy – though stated that these figures are small compared with industry reports[25], while yet another study found that 45% of consumers of pirated DVDs would purchase an authorised version if the copy was unavailable[26,27]. At the other end of the scale, a figure of around 65% (stated as being consistent with a survey-based range of 40 – 70%) was cited in a further piece of research, in which a substitution rate was derived from data on the sales of pirated units and the price of legitimate goods[28].

[23] Rob, R. and Waldfogel, J. (2006), ‘Piracy on the High Cs: Music Downloading, Sales Displacement, and Social Welfare in a Sample of College Students’, Journal of Law and Economics, vol. XLIX.

[24] https://www.asisonline.org/security-management-magazine/articles/2010/07/counterfeiting-and-piracy-at-what-cost/

[25] https://www.usitc.gov/publications/332/pub4199.pdf

[26] Ipsos MediaCT and Oxford Economics (2011), ‘Economic consequences of movie piracy in Australia’, report on behalf of AFACT

[27] https://www.inta.org/wp-content/uploads/public-files/perspectives/industry-research/2017_Frontier_Report.pdf

Looking at the contributing factors in more detail, WIPO states in their Advisory Committee of Enforcement[29] that, as alluded to above, a one-to-one substitution rate is only appropriate if three conditions are met:

1. The infringing item is essentially identical in quality to the legitimate one
2. The consumer is paying full retail price for the infringing item
3. The consumer is unaware they are purchasing a non-legitimate product

Where these factors do not hold true, the substitution rate will be lower than 100%. The degree of deception of consumers purchasing infringing goods (i.e. relating to point 3 above) is likely to vary according to a number of factors, but product type may be particularly important. For example, fake pharmaceutical sales are likely to involve a high degree of deception (since customers are generally less willing to buy counterfeit pharmaceuticals), and the substitution rate is therefore likely to be high. A similar principle holds true for food, with one study citing a high conversion rate (57%) for meat products[30,31] (although even for food and beverages, there is also a customer market for products known to be counterfeit, for which the substitution rate will

[28] IPI (2007), reported at https://www.acte.be/wp-content/uploads/2020/07/Measuring-IPR-infringements-in-the-internal-market.-Development-of-a-new-approach-to-estimating-the-impact-of-infringements-on-sales.pdf
[29] https://www.wipo.int/edocs/mdocs/enforcement/en/wipo_ace_6/wipo_ace_6_4.pdf
[30] https://www.theglobeandmail.com/report-on-business/rob-commentary/counterfeit-products-threatening-the-food-industrys-delicate-balance/article29220689/
[31] https://canadiangrocer.com/food-fraud-catch-me-if-you-can

be correspondingly lower; one study (USITC, 2010 – referenced previously) gives a value of 2% for the UK). Similarly, for other consumer product types where deliberate purchase of counterfeits may be more common (especially if the legitimate sales channels are more markedly separated from the counterfeit ones), the substitution rates will again be low. In some studies, the difference between 'knowing' and 'unknowing' purchase of counterfeits is referred to as the distinction between the 'primary' market (i.e. consumers attempting to purchase genuine products) and the 'secondary' market (for intentional purchasers of counterfeits)[32]. Similar comments on the effect on substitution rate also appear in other studies[33].

One particularly significant study is the UK IPO Counterfeit Goods Research (Wave 3) (2023)[34]. In particular, Part 3 of the study (based on an extensive survey) includes the proportions of respondents who answered, for each product category type, "if [the counterfeit products] weren't available, they would buy the product directly from the brand". Though this is not an explicit equivalence of substitution rate (since the respondents in this part of the study are intentional purchasers of counterfeits – in many cases, for considerations of price – and therefore just a subset of the full customer market), it does provide some useful insights (and we can assume that, if non-intentional purchasers of counterfeits were included, the substitution rates would be higher). These values are shown in Table 1.

[32] https://www.acte.be/wp-content/uploads/2020/07/Measuring-IPR-infringements-in-the-internal-market.-Development-of-a-new-approach-to-estimating-the-impact-of-infringements-on-sales.pdf
[33] https://www.gao.gov/assets/gao-10-423.pdf
[34] https://www.gov.uk/government/publications/ipo-counterfeit-goods-research-wave-3

Product category	Proportion of respondents
Cosmetics and toiletry products	28%
Hygiene products	38%
Clothing products (excluding sportswear)	19%
Footwear / shoes (excluding sports footwear)	25%
Accessories (excluding watches)	19%
Watches (including smartwatches)	35%
Regular sportswear	24%
Sportswear from clubs / franchises	34%
Toys	20%
Electrical accessories	25%
Alcohol products	36%

Table 1: Proportion of intentional purchasers of counterfeit goods who would buy a legitimate item if the counterfeits were unavailable, according to the UK IPO Counterfeit Goods Research (Wave 3)

The study shows that product type can have a marked impact on substitution rate. For example, sales of counterfeit versions of products such as clothing and accessories may translate to legitimate sales to a lower degree (i.e. lower substitution rates), due to the perceived reasonable quality of counterfeits, the high price of legitimate items (and the associated risk of theft), and the view of many big brands as unethical.

It is also noteworthy that the study found 11% of unintentional buyers of fake products expressed anger at the brand whose product they thought they were buying, thereby also highlighting the potential impacts of counterfeiting on reputation and brand value.

The research also includes some significant other analysis, looking at individuals who had stated an openness to purchasing counterfeits, and finding what they would consider to be the optimum price for a counterfeit (compared to the legitimate item). Below this price point, respondents would doubt the product quality; above it, price begins to become a concern (compared with that of the legitimate item). For a counterfeit bottle of perfume (legitimate item price: £70), the optimum price was found to £25 (36% of the genuine item); for a counterfeit handbag (legitimate item price: £1,500), the optimum price was £101 (7% of the genuine) (Figure 15).

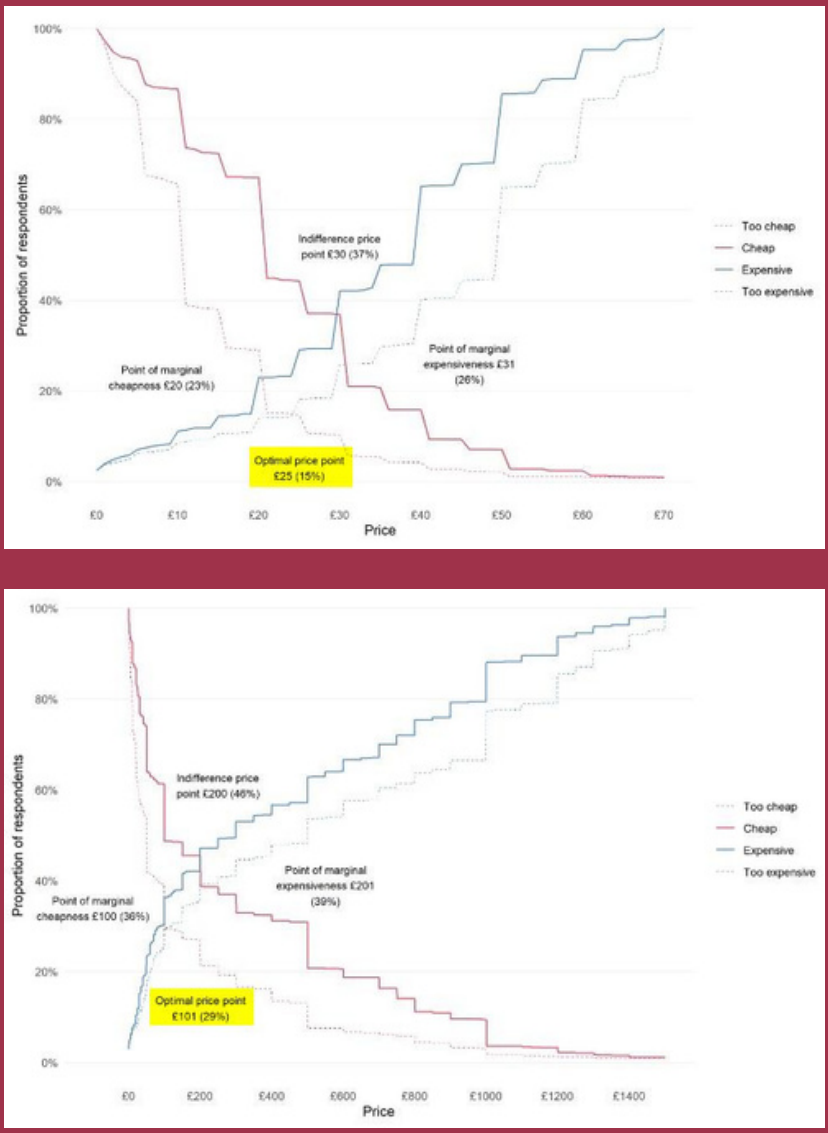

Figure 15: Perceptions of price for a counterfeit version of a bottle of perfume (£70) (top) and a handbag (£1,500) (bottom) (© UK IPO)

This part of the analysis does not, of course, translate easily into insights regarding substitution rate as a function of price, other than to say that, at these optimum price ratios (i.e. where the counterfeit item is most favourably viewed as an alternative to the legitimate version), the substitution rate is likely to be low.

Other surveys also give comparable numbers to those shown in Table 1. A 2007 study by the ACG[35,36], for example, found that 27% of purchasers of fake watches would have bought a genuine alternative if the fake was unavailable, with over a quarter of the consumers having bought the counterfeit unintentionally.

The following substitution rates, derived from the above study and an additional piece of research[37], have been cited in multiple overviews and analyses[38,39]:

Product sector	Substitution rate
Perfumery and cosmetics	49%
Watches and jewellery	27%
Clothing and accessories	39%
Other sectors	30%

Table 2: Substitution rates based on ACG and Tom et al.

[35] https://www.wipo.int/ip-outreach/en/tools/research/details.jsp?id=691
[36] Original link: http://www.a-cg.org/guest/pdf/surveywatches.pdf
[37] Tom, G. et al. (1998), 'Consumer demand for counterfeit goods', Psychology & Marketing, Vol. 15/5, pp. 405-421.

Other sectors are referenced in alternative studies. For example, one review cites substitution rates of 20% for movie piracy, 10 – 50% for music, 0 – 70% for plant seeds and up to 100% for books. The overview also states that some researchers view substitution rates for IP infringements generally as close to zero, stating that digital piracy serves mainly just to increase awareness of the works of the content creator[40].

The first of the analyses referenced as a source for Table 2 also gives some useful information on the proportion of purchases of fake items which are made knowingly, as a function of product type, ranging from 20% for automotive spare parts to 55% for perfumery and cosmetics.

Other factors are also likely to be relevant. For example, substitution rates are likely to be low in developing economies, where consumers generally have lower purchasing power, but the price of legitimate goods may be comparable to other geographies. This effect may be accentuated if the region has ready access to facilities for the low-cost production of counterfeits[41].

[38] https://www.prv.se/globalassets/dokument/english/piracy/counterfeiting-and-piracy-and-the-swedish-economy-2019.pdf (also available at https://read.oecd-ilibrary.org/governance/counterfeiting-and-piracy-and-the-swedish-economy_eb300f5b-en)
[39] https://www.ige.ch/fileadmin/user_upload/geistiges-eigentum/faelschungen-piraterie/Study_counterfeiting-piracy-and-the-swiss-economy_EN_01.pdf
[40] https://www.google.co.uk/books/edition/The_Global_Regime_for_the_Enforcement_of/1ew0DwAAQBAJ
[41] https://infojustice.org/archives/3214

Key take-aways

The substitution rate converting counterfeit sales into legitimate sales is a key piece of data for any brand owner looking to quantify recoverable revenue as part of a brand protection ROI analysis. However, there has been relatively little previous work to satisfactorily quantify this parameter – not least because it is extremely difficult to prove.

However, it does seem that – for many classes of product – a value in the range of roughly 20 – 40% may be appropriate, and therefore – all other factors being equal (!) – a conservative figure of 20% (i.e. a gain of one sale for every five infringements removed) might be appropriate for an 'across-the-board' single-figure estimation in many cases.

In practice, however, the most realistic estimation of substitution rate may vary significantly from this figure, depending on a range of factors. These are likely to include at least the following:

- Price differential between the infringing and the legitimate item – A larger price discrepancy is likely to imply a smaller substitution rate (e.g. customers purchasing a very low-priced version of a normally expensive item are less likely to buy the legitimate item if the infringement is unavailable).

- The degree of deception involved in the sale – A higher degree of deception (e.g. involving customer misdirection and/or high-quality counterfeits) will imply a higher substitution rate (e.g. customers already believing they are

purchasing a legitimate item will be more likely to purchase that legitimate item if the infringing version is made unavailable).

- The product type – Counterfeit versions of some types of product (such as pharmaceuticals and food) are unlikely to be viewed as favourable options by consumers, and will therefore be associated with higher substitution rates (i.e. customers will be more inclined to buy legitimate versions). Conversely, for other product types (such as clothing), where health considerations are less of a factor, and the high price and high desirability (from a pure appearance point of view) of the legitimate items are more relevant, counterfeit versions may be much more favourably viewed relative to the legitimate item (implying lower substitution rates).

- The nature of the consumer market – Markets in which consumers generally have lower spending power will generally be more likely to have lower substitution rates, particularly if there is a strong capability for the low-cost production of counterfeits in-region.

Overall, there is no satisfactory one-size-fits-all approach for the estimation of substitution rate. In general, it is most reasonable to consider the characteristics of each enforcement programme on a case-by-case basis, ideally incorporating analysis of the data in a granular way. The most rigorous assessment should consider price, product-, market- and channel type, the way in which buyers are drawn to the point of sale, and the way in which the items are presented.

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