# 2

# Lost Profits and Disgorgement

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## 2.1 INTRODUCTION

This chapter addresses two particular types of monetary remedies for patent infringement: (1) recovery of the patentee's lost profits and (2) disgorgement of the infringer's profits. In one respect, these remedies are mirror images of each other.[1] Both analyses make a comparison between the actual world in which the patent was infringed and a hypothetical "but for" world in which no infringement occurred. The patentee's lost profits represent the difference between the amount the patentee would have made without any infringement, and the amount the patentee actually made. For disgorgement, it is the opposite – an accounting of the infringer's profits is based on the difference between the amount the infringer actually made, and its (necessarily lower) profit in a "but for" world where it did not infringe.[2]

Despite this parallel, there are important differences in both the theoretical justifications for lost profits and disgorgement and their acceptance in patent systems around the world. As discussed in more detail below, the two remedies have different objectives: Lost profits are intended to restore the patentee to the position it would have occupied absent infringement (i.e., to make the patentee whole), while disgorgement may serve other purposes, including deterring infringement, recapturing wrongful gains made by the infringer, and encouraging prospective users of patented technology to bargain for a license.[3] In addition, while all major jurisdictions permit

[1] *Cf.* Eisenberg 2006, 561 (noting that the disgorgement remedy in contract law "is the mirror image of the expectation interest" – that is, to put the nonbreaching party in the position it would have occupied absent breach); *see also infra* note 210 and accompanying text (explaining in greater detail why recovery of the patentee's lost profits and disgorgement of infringer's profits represent mirror images in terms of methodology).

[2] Although disgorgement typically refers to the infringer's profits, strictly speaking it is not necessarily limited to cases in which the infringer actually made a profit. The disgorgement remedy also could be applicable to cases where the infringer actually lost money from sales of infringing products or services, but the infringer's losses "would have been even greater but for the infringement." Cotter 2013a, 68. This might occur, for example, if use of the patented technology resulted in cost savings, without which the infringer's losses would have increased.

[3] *See* Roberts 2010, 655–56, 671–72, 684–85; Cotter 2013a, 68–69 (further explaining why disgorgement would create an incentive to negotiate because it can make infringers "at least incrementally worse off



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a practicing patentee to recover lost profits (at least in theory, although in practice it is more common in some countries than others), there is more divergence between major patent systems regarding whether and when the infringer can be required to disgorge its profits.

## 2.2 LOST PROFITS

### 2.2.1 *Introduction*

Patent systems around the world principally rely on monetary damages awards to compensate patentees for past acts of infringement.[4] For patentees that sell goods or services that practice the patented technology,[5] damages awards typically may include profits from sales lost due to the infringer's sales of its own competing products or services.[6] They may also include "price erosion," which are profits lost by the patentee on sales that it actually made, but at a lower price point than would have occurred absent competition from the infringer.[7] In both situations, the patentee must demonstrate causation – namely, that it would have made the sales that the infringer actually made,[8] or (for price erosion claims) that the patentee's actual sales would have been at a higher price absent infringement and thus would have resulted in a higher profit margin.[9] As a result, the lost profits inquiry requires a hypothetical reconstruction of the market as it would have existed "but for" the infringement.[10]

than they would have been if they had entered voluntary negotiations . . . "). In addition, in some jurisdictions like Japan, the infringer's profits are presumed to be equal to the amount of the patentee's actual damages. *Id.* at 323. In such situations, the infringer's profits serve as a proxy (albeit an imperfect one) for the restorative purpose of the lost profits remedy.

4 Cotter 2013a, 63; *see also* Lemley 2009, 669 (explaining "[t]he purpose of . . . patent damages rules is ultimately . . . to compensate the inventor for losses attributable for the infringement . . . .").

5 Lost profits generally are not available to nonpracticing entities (NPEs) and other patentees that primarily or exclusively monetize their patents through licensing and/or litigation. *See* Lee & Melamed 2016, 398 ("An increasing number of suits are brought by nonpracticing entities that cannot claim lost profits because they do not make or sell any products or services.").

6 *See* Cotter 2013a, 63 ("[T]he patent owner should be entitled to recover at least her own lost profit resulting from the infringement.").

7 *See, e.g.*, Thiele et al. 2010, 207 ("Price erosion occurs when a defendant's infringing activities force a patent owner to sell the patented product at a lower price than it would have set in the absence of the infringing product.").

8 *See, e.g.*, *BIC Leisure Prod, Inc.* v. *Windsurfing Int'l, Inc.* (Fed. Cir. 1993, p.1218) (U.S.) ("To recover lost profits . . . a patent owner must prove a causal relation between the infringement and its loss of profits.").

9 *See* Parr & Smith 2005, 621 (noting that the patentee must demonstrate "a causal link between the actions of the infringer and the price erosion of the patent holder's patented product"); *see also* Marchese 1994, 749 ("No matter the form of lost profits sought, the patentee must establish causation – i.e., a nexus between the infringing activity and the patentee's lost profits.").

10 *See, e.g.*, *Grain Processing Corp.* v. *Am. Maize-Prods. Co.* (Fed. Cir. 1999, p.1350) (U.S.).

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In this Section, we first discuss the availability and standard for awarding lost profits in major patent systems. This includes, for instance, the standard for determining entitlement to lost profits and whether the patentee must establish some degree of fault by the infringer as a prerequisite to recovery. Second, we address the role of noninfringing alternatives in this analysis, including whether the availability of a noninfringing alternative should limit or preclude an award of lost profits. As discussed below, major patent systems have taken divergent approaches to this issue. Third, we discuss whether and under what circumstances the patentee can recover lost profits for unpatented goods or services that are related in some way to the patented product. Fourth, we consider the issue of apportionment, most notably the question of whether lost profits awards for complex products should be apportioned to distinguish between the value of the patented feature(s) and other, unpatented aspects of the product. And fifth, we evaluate whether patentees should be entitled to recover for other sorts of harms related to market competition by an infringer, such as moral prejudice, loss of goodwill, and loss of chance.

### 2.2.2 *Specific Issues Regarding Lost Profits*

#### 1 Availability and Standard

Most major patent systems recognize that a patentee's lost profits are an appropriate measure of damages, although there are differences regarding both the standard for awarding lost profits as well as the implementation of this methodology. Here, we first summarize the availability and (where ascertainable) the standard for proving entitlement to lost profits in key jurisdictions and then offer several recommendations.

In the United States, Section 284 of the Patent Act provides that a "court shall award the [prevailing patentee] damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer."[11] Courts recognize two types of compensatory damages under Section 284: (1) "the patentee's lost profits" and (2) "the reasonable royalty [the patentee] would have received through arms-length bargaining."[12]

[11] 35 U.S.C. § 284.

[12] *Lucent Techs., Inc.* v. *Gateway Inc.* (Fed. Cir. 2009, p.1324) (U.S.); *see also* Lemley 2009, 655 ("Courts interpreting this provision have divided patent damages into two groups": (1) lost profits, which are available to patent owners who can prove they "would have made sales in the absence of infringement," and (2) "reasonable royalties, a fallback for everyone else.") We note that lost profits and reasonable royalties are not necessarily exclusive methodologies; for instance, in the United States, hybrid awards where a patentee recovers lost profits on some lost sales and reasonable royalties on the remaining sales are also possible. *See* Lemley 2009, 673 ("[T]here are also cases in which a patentee can prove that it would have made some but not all of the defendant's sales. In that case a hybrid award makes sense, with the patentee receiving lost profits on provable losses and a reasonable royalty on other sales."). This is not the case in all jurisdictions, however.

The classic type of lost profits damages are from lost sales of a product or service that practices the patent.[13] "Lost sales constitute sales that the patent owner failed to make due to the infringement, as well as sales the infringer made that the patent owner would have made but for the infringement."[14] For instance, in *Seymour* v. *McCormick* (1853), the Supreme Court of the United States held that a prevailing patentee "is entitled to the actual damages he has sustained by reason of the infringement, and those damages may be determined by ascertaining the profits which … he would have made, provided the defendants had not interfered with his rights."[15] However, the Court rejected the trial court's presumption "that if the [infringer] had not made and sold machines, all persons who bought the [infringer]'s machines would necessarily have been compelled to go to the patentee and purchase his machines."[16] Instead, the Court required proof the patentee would have actually made these sales absent infringement – a burden that it was unable to carry.[17]

Modern U.S. case law follows a broadly similar approach, holding that lost profits are not presumed,[18] and instead requiring the patentee to "show a reasonable probability that, 'but for' the infringement, it would have made the sales that were made by the infringer."[19] This is most commonly achieved using the four-factor *Panduit* test,[20] which requires "the patent owner to prove: '(1) demand for the patented product, (2) absence of acceptable non-infringing substitutes, (3) his manufacturing and marketing capability to exploit the demand, and (4) the amount of the profit he would have made.'"[21] The first three of these requirements are best viewed as proxies to establish causation in fact. The first,

[13] *See Rite-Hite Corp.* v. *Kelley Co.* (Fed. Cir. 1995, p.1545) (U.S.) (explaining the "general rule for determining actual damages to a patentee that is itself producing the patented item is to determine the sales and profits lost to the patentee because of the infringement"). Lost profits due to lost sales are sometimes called "diverted sales." *See* Chisum 2017, § 20.05[2][a].

[14] Skenyon et al. 2016, § 2:3.

[15] *Seymour* v. *McCormick* (U.S. 1853, p.486) (U.S.).

[16] *Id.* at 487–88.

[17] *Id.* at 490 (holding that the court "can find only such damages as have actually been proved to have been sustained" and that "[a]ctual damages must be actually proven, and cannot be assumed as a legal inference from any facts which amount not to actual proof of the fact").

[18] *See, e.g., Kaufman Co.* v. *Lantech, Inc.* (Fed. Cir. 1991, p.1141) (U.S.) ("The loss of profits is not presumed to result automatically from infringing sales.").

[19] *Rite-Hite Corp.* v. *Kelley Co.* (Fed. Cir. 1995, p.1545) (U.S.); *see also Aro Mfg. Co.* v. *Convertible Top Replacement Co.* (U.S. 1964, p.507) (U.S.) ("The question to be asked in determining damages is how much had the Patent Holder … suffered by the infringement. And that question [is] primarily: had the Infringer not infringed, what would the Patentee Holder–Licensee have made?" (internal quotations omitted)).

[20] *See State Indus., Inc.* v. *Mor-Flo Indus., Inc.* (Fed. Cir. 1989, p.1577) (U.S.) (referring to *Panduit* as the "standard way of proving lost profits," but also mentioning that it is "nonexclusive").

[21] *Id.* (quoting *Panduit Corp.* v. *Stahlin Bros. Fibre Works Inc.* (6th Cir. 1978) (U.S.)); *see also Mentor Graphics Corp.* v. *EVE-USA, Inc.* (Fed. Cir. 2017, p.1284) (U.S.) (explaining that *Panduit* is a "useful, but non-exclusive method to establish the patentee's entitlement to lost profits" (internal quotations and citation omitted)).

demand for the patented product, demonstrates that at least some consumers would have preferred the patentee's product because of the patented technology. The second, which will be discussed in more detail below, asks whether consumers would have been willing to substitute a noninfringing alternative for the patentee's product.[22] If so, the substitution effect will make it more difficult for the patentee to obtain supra-competitive profits.[23] The third asks whether the patentee would have been able to increase production in order to make (at least some of) the sales that the infringer actually made.[24] The fourth and final element encompasses the "but for" market reconstruction – i.e., what would have been the patentee's profits absent infringement? Courts in the United States have viewed this as a relatively demanding element, requiring "reliable economic proof of the market" that would have developed "'but for' the infringement" to establish the amount of lost profits with sufficient accuracy.[25]

U.S. courts also allow recovery for other foreseeable profits lost by the patentee due to the infringement.[26] These may include, for instances, losses due to price erosion,[27] lost sales of unpatented products sold by the patentee that directly compete with the infringing product,[28] and (explained in more detail below) lost sales of unpatented components and products that are "functionally associated" with

[22] This requirement was subsequently modified by the so-called market share rule announced in *State Industries, Inc.* v. *Mor-Flo Industries, Inc.*, which allows the patentee to recover lost profits on a portion of the infringer's sales even if there is a noninfringing alternative by dividing the infringer's sales among the patentee and the noninfringing firm(s) in proportion to their respective market shares, and to recover a reasonable royalty on the remainder. *State Indus., Inc.* v. *Mor-Flo Indus., Inc.* (Fed. Cir. 1989, p.1578) (U.S.); *see also* Blair & Cotter 2001, 25 ("Subsequent case law has recognized that [*Mor-Flo*'s] market-share principle in effect creates an exception to *Panduit* factor two.").

[23] *See* Blair & Cotter 1998, 1634 ("When there are substitutes for the patented invention, the elasticity of demand is altered and the patentee's monopoly power diminishes."); *cf.* DOJ & FTC 2017, 4 (noting that "there will often be sufficient actual or potential close substitutes" for a patented "product [or] process" that will "prevent the exercise of market power").

[24] Note that this does not necessarily require that the patentee have been able to make *all* of the infringer's sales – if the patentee would have market power in the absence of the infringer, there would be some loss in total sales due to higher per-unit cost charged by the patentee, and thus fewer overall sales (i.e., deadweight loss). In addition, it does not require that the patentee itself necessarily have to be able to increase production – for instance, it would be sufficient if the patentee could contract with a third-party to make the additional patented products. *See, e.g., Ristvedt-Johnson, Inc.* v. *Brandt, Inc.* (N.D. Ill. 1992, p.562) (U.S.).

[25] *Grain Processing Corp.* v. *Am. Maize-Prods. Co.* (Fed. Cir. 1999) (U.S.); *see also* Lemley 2009, 658 (noting that "courts take [the *Panduit*] requirements seriously and quite often reject claims for lost profits").

[26] *See Rite-Hite Corp.* v. *Kelley Co.* (Fed. Cir. 1995, p.1546) (U.S.) ("If a particular injury was or should have been reasonably foreseeable by an infringing competitor in the relevant market, broadly defined, that injury is generally compensable absent a persuasive reason to the contrary.").

[27] *See, e.g., Yale Lock Mfg. Co.* v. *Sargent* (U.S. 1886, p.551) (U.S.) ("Reduction of prices, and consequent loss of profits, enforced by infringing competition, is a proper ground for awarding of damages."); *Minn. Min. & Mfg. Co.* v. *Johnson & Johnson Orthopaedics, Inc.* (Fed. Cir. 1999) (U.S.) (affirming the trial court's award of nearly $29 million in lost profits due to price erosion).

[28] *See, e.g., King Instruments Corp.* v. *Perego* (Fed. Cir. 1995) (U.S.) (affirming award of lost profits for the patentee's sales of an unpatented tape loader).

the patented item.[29] In addition, if a patentee can prove entitlement to lost profits for only some of its lost sales, it can "recover a mixed award of lost profits on some sales and an established or reasonable royalty on other sales."[30]

Despite this, awards of lost profits are increasingly uncommon in the United States. A recent study by consulting firm PricewaterhouseCoopers found that lost profits alone represented 26 percent of patent damages awards from 1997 to 2006, compared to nearly 60 percent that awarded damages based exclusively on a reasonable royalty.[31] This trend continued from 2006 to 2015, where only 21 percent of patent damages awards were based solely on lost profits.[32] In addition, the study's authors note that "price erosion claims have become almost nonexistent in recent years."[33] Several explanations have been offered for this development. First, lost profits are available only in a subset of patent disputes – namely, cases where both "the patent owner and infringer actively compete in the same market."[34] Thus, cases brought by nonpracticing patentees – which represent a considerable share of patent infringement lawsuits filed in the United States[35] – are ineligible for a lost-profits recovery. Second, in the context of complex, multifunction products, it may be difficult for a patentee to demonstrate that the infringer's inclusion of a patented feature caused it to lose sales.[36] Third, some patentees who might be eligible to recover lost profits appear to be eschewing them in favor of reasonable royalty damages.[37] This may be the case for several reasons: because the patentee is skeptical that it can satisfy *Panduit*'s rigorous requirements; because the patentee wishes to avoid disclosing detailed financial information regarding its business to a competitor; or because the patentee believes that it can obtain at least as large of an award using the more flexible reasonable royalty approach.

The UK and Commonwealth countries, like Canada and Australia, similarly permit awards of lost profits damages. Section 61 of the UK Patent Act authorizes

[29] *See Am. Seating Co.* v. *USSC Group, Inc.* (Fed. Cir. 2008, p.1268–69) (U.S.) (describing "convoyed sales").

[30] Chisum 2017, § 20:05.

[31] Berry et al. 2017, 11. Another 14 percent of awards involved a mix of both lost profits and reasonable royalties.

[32] *Id.* (reporting that 61 percent of patent damages awards were based on a reasonable royalty alone, while the remaining 19 percent of awards represented a mix of lost profits and reasonable royalties).

[33] Berry et al. 2015, 8.

[34] Lee & Melamed 2016, 394; *see also* Lemley 2009, 658 ("[P]atentees cannot possibly meet [the *Panduit*] requirements unless they participate in the market in direct competition with the infringer.").

[35] *See* Cotropia et al. 2014, 674 figure 1 (finding that less than half of patent cases filed in the United States in 2012 were brought by operating companies).

[36] *See Mentor Graphics Corp.* v. *EVE-USA, Inc.* (Fed. Cir. 2017, p.1289) (U.S.) ("With [complex], multi-component products, it may often be the case that no one patentee can obtain lost profits on the overall product – the *Panduit* test is a demanding one."). For example, buyers may have preferred the infringer's product for reasons entirely unrelated to the patented feature, such as a lower price or other, unrelated aspects of the infringer's product.

[37] *See* Lemley 2009, 657–61 (detailing various reasons that a patentee may not be able to establish lost profits, even if it directly competes in a product market with the infringer).

the patent owner to claim "damages in respect of the infringement," and like in the United States, case law in the United Kingdom has explained that the objective of patent damages is to restore the patentee to the position it would have occupied but for the infringement.[38] In general, this extends to all losses by the patentee (including lost profits and price erosion) that are: (1) foreseeable, (2) caused by the infringement, and (3) not excluded from recovery by public or social policy.[39] In practice, this standard appears to be more flexible and less demanding than *Panduit*; the High Court of Justice has specifically noted that although the burden of proof is on the patentee, "[d]amages are to be assessed liberally."[40] Both Canada and Australia permit the recovery of actual damages suffered by the patentee due to infringement as well,[41] including lost profits and price erosion subject to the foreseeability principle.[42] In Canada, for example, to recover lost profits, the patentee "must show on a balance of probabilities that 'but for' the defendant's wrongful conduct, [it] would not have suffered loss."[43]

One significant area of divergence between the United States on one hand, and the United Kingdom and Australia on the other, is that the latter may decline to award damages (including lost profits) against an infringer who was not aware, and had no reason to believe, that the patent existed.[44] In other words, in these jurisdictions, an unwitting infringer may only be subject to injunctive relief. In contrast, direct patent infringement in the United States is a strict liability offense, and damages can be awarded against even an innocent infringer.[45] This distinction may not be as sharp in practice, however, because "in the typical lost profits case, the defendant is a competitor of the plaintiff and thus unlikely to qualify as an innocent infringer."[46] In addition, in these countries the fact that a patentee marked

[38] *Gerber Garment Tech.* v. *Lectra Systems Ltd.* (Civ 1997, p.445) (UK).

[39] *Id.* at 444; *see also Ultraframe Ltd.* v. *Eurocell Building Plastics Ltd.* (Pat 2006, ¶ 47) (UK) ("Where a claimant has exploited his patent by manufacture and sale he can claim (a) lost profit on sales by the defendant that he would have made otherwise [and] (b) lost profit on his own sales to the extent that he was forced by the infringement to reduce his own price . . . ").

[40] *Ultraframe Ltd.* v. *Eurocell Building Plastics Ltd.* (Pat 2006, ¶ 47) (UK).

[41] *See Patents Act 1990*, § 122(1) (Austl.); Patent Act, R.S.C. 1985, c. P-4 (Can.), § 55.

[42] *See* Cotter 2013a, 187 n.87 and cases cited therein.

[43] *Apotex Inc.* v. *Merck & Co.* (Fed. Ct. 2015, ¶ 45) (Can.).

[44] The UK statute prohibits any monetary award in those circumstances, while the Australian statute states that the trial court has discretion whether to award damages or not in such cases. *Compare* Patents Act, 1977, c. 37, § 62(1) (UK) ("In proceedings for infringement of a patent damages shall not be awarded . . . against a defendant or defender who proves that at the date of the infringement he was not aware, and had no reasonable grounds for supposing, that the patent existed . . . "), *with Patents Act 1990*, § 123(1) (Austl.) ("A court may refuse to award damages . . . in respect of an infringement of a patent if the defendant satisfies the court that, at the date of the infringement, the defendant was not aware, and had no reason to believe, that a patent for the invention existed.").

[45] *See Commil USA, LLC* v. *Cisco Sys., Inc.* (U.S. 2015, p.1926) (U.S.) ("Direct infringement is a strict-liability offense."); *Global-Tech Appliances, Inc.* v. *SEB S.A.* (U.S. 2011, p.761 n.2) (U.S.) ("Direct infringement has long been understood to require no more than the unauthorized use of a patented invention. Thus, a direct infringer's knowledge or intent is irrelevant." (internal citations omitted)).

[46] Cotter 2013a, 190.

its products[47] with the patent number(s) or an Internet link containing patent information can undermine a claim of innocent infringement.[48]

Lost profits are similarly available as a matter of principle in every EU country,[49] although in practice they appear to be considerably less common than in the United States and the United Kingdom.[50] For example, in Germany, patent owners may recover the difference between the profit they would have earned absent infringement and their actual profits.[51] This may include "both profits lost on sales lost to the infringer and damages for price erosion," as well as "more remote harms" like market confusion provided that such harms were likely caused by the infringement.[52] Similarly, in France, the patentee can recover lost profits on lost sales of patented goods as well as price erosion.[53] However, the amount of lost profits awarded in France appears to be considerably lower than in the United States, even after accounting for the larger size of the U.S. economy.[54]

In Asia as well, lost profits are available in most major jurisdictions, although many also require some degree of culpability by the infringer. For example, in its 1998 amendments to Japan's patent law, the Diet "intended for awards of lost profits ... to be the general or default remedy in patent infringement matters."[55] As a result of these changes, the owner or exclusive licensee of a Japanese patent can claim damages "against an infringer ... sustained as a result of the intentional or negligent infringement of the patent right."[56] Japan's Patent Act also presumes that the amount of the patentee's lost profits is the same as the infringer's profits.[57]

[47] Some working group members question the desirability of patent marking requirements and their relationship to an infringer's mental state.

[48] For instance, in Australia, if the patented product is marked with the patent information and widely sold prior to infringement, the infringer is presumed "to have been aware of the existence of the patent ..." *Patents Act 1990*, § 123(2) (Austl.); *cf.* Patents Act, 1977, c. 37, § 62(1) (UK) (providing that "a person shall not be taken to have been ... aware [of the patent] or to have had reasonable grounds for so supposing by reason only of the application to a product of the word 'patent' or 'patented,' ... unless the number of the patent or a relevant internet link accompanied the word or words in question").

[49] For example, the EU IP Rights Directive provides that judicial authorities in member states pay the IP rightsholder (here, the patentee) "damages appropriate to the actual prejudice suffered ... as a result of the infringement ... including lost profits ... which the injured party has suffered." Directive 2004/48/EC, art. 13(1).

[50] *See, e.g.*, Pitz & Hermann 2007, 190 (explaining that "[t]he calculation of damages based on lost profits plays little part in German court practice" because "the most commonly used method to determine damages in Germany [is] a reasonable royalty on the infringer's sales").

[51] Cotter 2013a, 262.

[52] *Id.*

[53] *Id.* at 264.

[54] *See id.* at 259 & n.150 (describing Pierre Véron's empirical studies of French patent litigation, which found a median damage award of €40,000 from 2000 to 2009, compared to the median award in the United States of over $5 million during a similar time frame).

[55] *Id.* at 313 (citing Takenaka 2009, 478).

[56] Tokkyo-hō [Patent Act], No. 121 of 1959, art. 102(1) (Japan).

[57] Cotter 2013a, 308.

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Despite these changes, one study found that lost profits represented the minority approach to compensating the patentee: about 20 percent of all patent damages claims in Japan were based on lost profits, and a mere 17 percent of successful claims.[58] Korea's patent law is highly similar to Japan's, providing that lost profits shall be awarded only for intentional or negligent infringement.[59]

In China, Article 65 of the Patent Law establishes a statutory preference for awarding "the patentee's actual losses caused by the infringement," although it also permits use of the infringer's profits as a proxy for the amount of the patentee's loss if it is difficult to determine.[60] In addition, while "article 65 does not expressly condition damages liability on the defendant's intent or negligence …, as a general matter, Chinese law accepts the principle that damages liability is conditional upon the defendant's fault."[61] Despite this preference, lost profits are rarely awarded in China; in over 90 percent of cases, statutory damages are awarded instead.[62] Several empirical studies also have found that the amount of Chinese patent damages awards tend to be low, particularly by U.S. standards.[63]

India's law regarding patent damages has been influenced by that of the United Kingdom.[64] The Indian Patent Act authorizes the patentee to elect to recover either actual damages or an accounting of the infringer's profits.[65] Similarly, India precludes any damages, including lost profits, in cases where the infringer "was not aware and had no reasonable grounds for believing that the patent existed."[66] However, there appears to be little precedent from Indian courts that provides specific guidance regarding damages.[67]

In light of the foregoing discussion, we make several recommendations regarding the availability and standard for awarding lost profits damages. First, we recommend that lost profits (including from lost sales and price erosion) should be the preferred measure of damages when a patentee can establish harm in a product market due to the infringement. As the Supreme Court of the United States explained in *Aro Manufacturing* v. *Convertible Top Replacement Co.*, the patentee's loss from patent infringement is "'the difference between [the patentee's] pecuniary condition after the infringement … and what his condition would have been if the infringement had not

[58] Matsunaka 2004, 170.
[59] Patent Act, Act No. 14691, March 31, 2017, art. 128(1) (Kor.).
[60] Cotter 2013a, 353.
[61] *Id.* at 354 (citing Jingjing Cao).
[62] Cotter & Golden 2018, 17 n.77.
[63] Cotter 2013a, 354–55; Love et al. 2016, 733–34; *but cf. WatchData Co.* v. *Hengbao Co.* (Beijing IP Ct. 2016) (China), *discussed in* Ge 2017 (awarding lost profits damages of RMB 49 million – approximately U.S. $7 million – for infringement of USB security token technology).
[64] Cotter 2013a, 375.
[65] The Patents Act, No. 39 of 1970, § 108(1) (India).
[66] *Id.* § 111(1). *Compare to* Patents Act, 1977, c. 37, § 62(1) (UK).
[67] Cotter 2013a, 375.

incurred.'"[68] Lost profits best serve this make-whole objective by compensating the patentee's actual losses caused by the infringer's market entry. Although available in all major jurisdictions, in practice lost profits are less commonly awarded than other methodologies for determining damages, such as a reasonable or established royalty or an award of the infringer's profits. In particular, we are concerned about authority suggesting that a patentee could potentially obtain *greater than* its lost profits under an alternative measure of damages (such as a reasonable royalty), as this would tend to overcompensate the patentee.[69]

Second, we recommend that lost profits should be awarded whenever a practicing patentee can demonstrate "but for" causation by a preponderance of the evidence.[70] The focus on causation is central to the lost-profits analysis, but some jurisdictions such as the United States have articulated more detailed standards or requirements as part of this inquiry (i.e., the *Panduit* factors). Rigorous adherence to such standards might make it more difficult in practice for a patentee to establish entitlement to lost profits.[71] We recommend that jurisdictions instead focus on "but for" causation as the central inquiry for lost profits claims.

Third, as previously noted, jurisdictions differ on whether some degree of fault or culpability is required to support an award of lost profits. We were unable to reach a consensus about whether lost profits should be available regardless of the infringer's degree of fault. However, this may be a worthwhile topic for further research.[72]

Fourth, we were unable to reach a consensus regarding some jurisdictions' (rebuttable) presumption that the amount of the patentee's loss is equal to the amount of the infringer's profits. Arguments in favor of this approach include that it may simplify the damages calculation and thus reduce adjudication costs,[73] and

[68] *Aro Mfg. Co.* v. *Convertible Top Replacement Co.* (U.S. 1964, p.507) (U.S.) (quoting *Yale Lock Mfg. Co.* v. *Sargent* (U.S. 1886, p.582) (U.S.)).

[69] *See* Love 2009, 915–23 (criticizing decisions by the U.S. Court of Appeals for the Federal Circuit suggesting that overcompensation through reasonable royalty awards may be appropriate in some circumstances); *see also Rite-Hite Corp.* v. *Kelley Co.* (Fed. Cir. 1995, p.1576–78) (U.S.) (Nies, J., dissenting) (arguing that a "reasonable royalty" in excess of a patented product's sales price is inappropriate). We discuss the appropriateness of non-compensatory damages that may exceed the patentee's actual loss in Chapter 3.

[70] Our recommendation is limited to remedies for infringing conduct taking place within a particular jurisdiction. We take no collective position on the issue of whether a patentee should be entitled to recover lost profits that it would have earned outside of a particular jurisdiction but for infringing conduct within that jurisdiction (i.e., extraterritorial lost profits), which is an issue currently (as of early May 2018) before the Supreme Court of the United States. *See WesternGeco LLC* v. *Ion Geophyiscal Corp.*, No. 16–1011 (U.S.).

[71] *See generally* Lemley 2009.

[72] *See* FTC 2011, 131–34 (discussing potential modifications to liability for inadvertent infringement). For example, some scholars have suggested that independent invention should be a defense to patent infringement. *See, e.g.*, Shapiro 2006; Vermont 2006.

[73] *See* Cotter 2016b (describing the potential benefits and drawbacks of Japan's presumption that the patentee's profits presumptively are the same as the infringer's profits).

that the patentee may prefer to rely on the infringer's profits because it would not require disclosure of the patentee's sensitive financial information (such as net revenue, fixed costs, variable costs, and research and design costs) to a competitor. Arguments against this approach include that the infringer's profits may represent a poor proxy for the amount of the patentee's lost profits, potentially resulting in over- or under-compensation. For example, if the infringer is more efficient than the patentee (and thus has a higher per-unit profit on its sales), then using the infringer's profits as a basis for determining the patentee's loss will result in overcompensation.[74] In contrast, if the infringer is less efficient than the patentee (and thus has a lower per-unit profit on its sales), then using the infringer's profits will result in under-compensation unless the patentee can overcome this presumption. It is unclear, however, to what extent this presumption actually results in over- or under-compensation. We propose further research on this issue from both theoretical and empirical perspectives.

## 2 Noninfringing Alternatives

A specific issue worth further discussion is the role that noninfringing alternatives play in the lost-profits analysis. If the infringer could have competed against the patentee just as effectively by offering a noninfringing alternative to the patented invention, the patentee would have lost just as many sales (and thus profits) absent the infringement. In such a case, the patentee has not lost any profits *caused* by the infringement, since it would have lost those profits anyway, and it should recover at most a reasonable royalty reflecting some portion of the value of the patented technology to the infringer (e.g., its profit-enhancing or cost-reducing advantages over the next best alternative). Put another way, an award of lost profits if a noninfringing alternative exists would render the patentee better off than it would have been "but for" the infringement, and thus would enable the patent owner to reap a reward in excess of the economic value of its invention.[75] Courts in the United States[76]

[74] In such cases, from an efficiency perspective, we would prefer the infringer be the producer than the patentee. This might occur, for instance, though a license.

[75] Alternatively, if the patentee is entitled under domestic law to recover the infringer's profits attributable to the infringement – a topic discussed in depth in Section 2.3 below – those profits should reflect the value of the patented technology over the next best alternative, rather than the entire profit derived from sales of the infringing product. To award the entire profit would render the infringer worse off as a result of the infringement, and thus would be difficult to justify in terms of patent policy absent a compelling reason for additional deterrence, such as those discussed in Chapter 3.

[76] *See, e.g.*, *Grain Processing Corp.* v. *Am. Maize-Prods. Co.* (Fed. Cir. 1999, p.1350–51) (U.S.) ("A fair and accurate reconstruction of the 'but for' market … must take into account, where relevant, alternative actions the infringer foreseeably would have undertaken had he not infringed. Without the infringing product, a rational would-be infringer is likely to offer an acceptable non-infringing alternative, if available, to compete with the patent owner rather than leave the market altogether."); *SmithKline Diagnostics, Inc.* v. *Helena Labs. Corp.* (Fed. Cir. 1991, p.1166) (U.S.) (analyzing the

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and France[77] have long recognized the relevance of noninfringing alternatives in these contexts, as more recently has Canada,[78] while courts in the United Kingdom and Germany have not.

The United Kingdom in particular continues to abide by an 1888 decision of the House of Lords, *United Horse-Shoe & Nail Co.* v. *John Stewart & Co.*,[79] which rejected the relevance of noninfringing alternatives to damages calculations.[80] With all due respect to the House of Lords, we think that *United Horse-Shoe* fails to grasp the economic logic embodied in the noninfringing alternative concept, and that there is little reason for contemporary patent systems to continue adhering to the decision. We therefore recommend that *United Horse-Shoe* and other similar decisions elsewhere be overruled, and that courts explicitly recognize the importance of considering noninfringing alternatives to the accurate calculation of patent damages.[81]

Relatedly, to the extent that domestic law permits the recovery of the infringer's profits attributable to the infringement,[82] we also recommend that courts or legislatures explicitly define the term "profit" to mean the benefit derived from the infringement over the next best alternative. Although that benefit most commonly takes the form of an increase in the infringer's profits compared to what it would have earned using a noninfringing alternative, in a case in which the infringer winds up losing money (for example, because it did not sell enough infringing products to cover costs) the infringer nonetheless benefits if its losses would have been even greater absent the infringement. Thus, to the extent disgorgement is permitted, the infringer also should be required to disgorge the cost saving it enjoyed as a result of the infringement, even if it earned no "profit" in an accounting sense.

availability of noninfringing alternatives to the patented technology and reasoning that "if the realities of the market are that [non-infringing third parties] would likely have captured sales made by the infringer, despite a difference in the products, it follows that the 'but for' test" for lost profits "is not met").

77 Cotter 2013a, 265 n.171 (citing French cases regarding noninfringing alternatives in the lost profits analysis).

78 *See Apotex Inc.* v. *Merck & Co.* (Fed. Ct. 2015, ¶ 1) (Can.) (concluding that "as a matter of law, the availability of a non-infringing alternative is a relevant consideration" in calculating damages for patent infringement); *see also* Crowne 2015.

79 *United Horse-Shoe and Nail Co. Ltd.* v. *John Stewart & Co.* (HL 1888) (UK).

80 Notably, Lord Watson's opinion in *United Horse-Shoe* does appear (in contrast to the other Lords) to recognize that noninfringing alternatives are relevant in the lost profits analysis, although he ultimately ruled against the infringer on the basis that the alternative was not proven. *See id.* at 267 ("[I]n estimating [the patentee's] damage, there must be taken into account all legitimate competition to which they would have been exposed if [the infringing] nails had not been on the market . . . [T]o ignore it would be tantamount to giving [patentee] not compensation merely, but profits which they would never have earned . . .").

81 *See, e.g., Grain Processing Corp.* v. *Am. Maize-Prods. Co.* (Fed. Cir. 1999, p.1356) (U.S.) ("The availability of substitutes will influence the market forces defining th[e] 'but for' marketplace . . ."). We agree that *Grain Processing* was correctly decided and recommend that it be generally followed.

82 *See infra* Section 2.2.2 (explaining jurisdictions' recognition of the disgorgement remedy).

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Another matter is what qualifies as a noninfringing alternative to the patented technology. For example, U.S. case law establishes that an alleged alternative must have similar functionality and a comparable price to the patented technology.[83] This definition, however, fails to recognize that substitution is a matter of degree in product markets,[84] particularly for multifunctional products where consumers may value certain features more than others. Even an imperfect substitute that provides some, but not all, of the functionality of the patented invention can nonetheless affect both the price of the patented product as well as consumer choice.[85] As a result, we recommend that courts focus on the substitutability of noninfringing alternatives in evaluating how many of the infringer's sales the patentee would have made in the "but for" analysis.

In addition to these recommendations, there remain several issues regarding noninfringing alternatives that deserve further research. First, as discussed in Chapter 1, to date there has been little discussion in the legal and economic literature of how courts should proceed when the next best alternative itself is patented.[86] In the reasonable royalties context, the principal question raised by the presence of patented alternatives is whether one should assume that the owners of the two patents engage in Bertrand competition – which ultimately could drive the price of both patents down to zero, if neither is better than the other – or whether such an assumption threatens to undermine the patent incentive. In the present context, the question that arises from the presence of patented alternatives is whether courts should presume that the patented alternative was not available to the infringer, or instead should require proof that the patent covering the alternative was either invalid or would have been licensed (and if so, at what price). The problem with the latter option is that it risks greatly increasing the cost of adjudication for comparatively little benefit.[87] Further research to address the issue would be welcome.

Second, further research on which party should be required to prove the absence of noninfringing alternatives would be helpful, as there is an apparent conflict among jurisdictions on this issue. In the United States, the case law is a bit muddled, but the patentee generally must make this showing as part of the *Panduit* test for lost

[83] *See BIC Leisure Prod, Inc.* v. *Windsurfing Int'l, Inc.* (Fed. Cir. 1993, p.1219) (U.S.) (holding that to be acceptable, "the alleged alternative 'must not have a disparately higher price than or possess characteristics significantly different from the patented'" technology); *TWM Mfg. Co., Inc.* v. *Dura Corp.* (Fed. Cir. 1986, p.901–02) (U.S.) ("A product lacking the advantages of that patented can hardly be termed a substitute 'acceptable' to the consumer who wants those advantages." (internal quotations omitted)).

[84] *See In the Matter of Mahurkar Double Lumen Hemodialysis Catheter Patent Litig.* (N.D. Ill. 1993, p.1389–90) (U.S.) ("Competition is not an all-or-none process. There are degrees of substitutability.").

[85] *See* Blair & Cotter 2005, 214 ("Whether one product substitutes for another depends not only upon the function of the two products, but also upon the prices at which they are offered to the public."); *see also* Seaman 2010, 1715–18 (advancing a similar argument).

[86] *See also* Sichelman 2018, 319–20 (mentioning this issue).

[87] For a brief discussion of the issue, *see* Cotter 2018, 191–92.

profits.[88] This effectively requires the patentee to prove a negative – namely, that there was no feasible noninfringing alternative during the period of infringement. In contrast, in Canada, the infringer bears the burden of demonstrating the existence of a noninfringing alternative.[89] To our knowledge, there is little discussion in the legal or economic literature addressing which of these approaches is optimal. One might speculate that the infringer often would be better placed than the patentee to propose and substantiate the existence of noninfringing alternatives, particularly if, as in *Grain Processing*, the infringer had the capacity to create and implement a noninfringing design around without much difficulty. But perhaps patent owners have unique insights into the matter that are not apparent at first blush, or maybe the allocation of the burden of proof on this issue does not matter much in practice because both parties have sufficient motivation to present the evidence that best favors their position.

Third, the degree of certainty needed to establish that a noninfringing alternative was in fact available to the infringer is not always clear. The U.S. decision in *Grain Processing*, for example, held that a noninfringing alternative was available during the period of infringement – even though it was not actually on the market – because it would have been simple for the infringer to develop a noninfringing (but slightly costlier) process to produce the (unpatented) end product. Other cases addressing this issue turn on their unique facts,[90] and of course having to establish the availability of an alternative that was not actually on the market at the time of

[88] *See, e.g., Presidio Components, Inc.* v. *Am. Tech. Ceramics Corp.* (Fed. Cir. 2017, p.1381) (U.S.) (reversing the jury's award of lost profits because the patentee "failed to provide evidence that [a noninfringing product] was either not an acceptable or available substitute" to the patentee's product); *Datascope Corp.* v. *SMEC, Inc.* (Fed. Cir. 1989, p.822–23) (U.S.) (affirming district court's denial of lost profits because the patentee "failed to prove element . . . two . . . of the *Panduit* test – absence of acceptable noninfringing substitutes"); *see also Panduit Corp.* v. *Stahlin Bros. Fibre Works Inc.* (6th Cir. 1978, p.1156) (U.S.) ("[A] patent owner must prove . . . absence of acceptable noninfringing substitutes . . . "). But in *Grain Processing Corp.* v. *Am. Maize-Prods. Co.* (Fed. Cir. 1999) (U.S.), the Federal Circuit shifted the burden to the infringer, explaining that "[w]hen an alleged [noninfringing] alternative is not on the market during the [period of infringement], a trial court may reasonably infer that it was not available as a non-infringing substitute at that time. The accused infringer then has the burden to overcome this inference by showing that the substitute was available during the [period of infringement]." *Id.* at 1353. Moreover, when there are only "two suppliers in the relevant market" (i.e., the patentee and the infringer were the only sellers), there is "a presumption of 'but for' causation" for lost profits, and "the burden . . . then shifts to the infringer" to demonstrate that the patentee would not have made some or all of the diverted sales. *Micro Chem., Inc.* v. *Lextron, Inc.* (Fed. Cir. 2003, p.1125) (U.S.). The infringer can rebut this presumption, for example, "by showing that it sold another available, noninfringing substitute in the relevant market." *Id.*; *see also Integrated Tech. Corp.* v. *Rudolph Tech., Inc.* (Fed. Cir. 2013) (U.S.) (holding that in a market with only two suppliers, the fact finder may infer that any sales made by the infringer would have been made by the plaintiff, notwithstanding evidence that the infringer could have competed by means of a noninfringing alternative).

[89] *See, e.g., Apotex Inc.* v. *Merck & Co.* (Fed. Ct. 2015, ¶ 74) (Can.) ("As a matter of principle, the burden lies on the defendant to establish the factual relevance of a non-infringing alternative on a balance of probabilities.").

[90] *See, e.g.*, Kidd 2014. For discussion of the relevant Canadian law on this issue, *see* Siebrasse 2017.

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infringement poses some risk of increasing adjudication and error costs.[91] Nonetheless, we are inclined to agree with the *Grain Processing* framework on the basis that the increase in accuracy justifies the cost, though further research might help to structure this analysis so that courts can apply it in a consistent, predictable, and cost-efficient fashion.

### 3 Lost Profits on Sales of Related but Unpatented Products

Another important issue is whether a prevailing patentee can recover lost profits damages for unpatented products that are related to sales of the patented product.

In the United States, courts have applied three (at least partially overlapping) doctrines to determine which kinds of potential lost sales can be compensated for in a lost profits award. Generally, these doctrines apply respectively to (1) sales of products that incorporate both infringing and noninfringing components, (2) additional contemporaneous sales of distinct but related items, and (3) anticipated future sales of replacement or repair parts.

First, in the context of complex products, courts have applied the so-called entire market value rule to define the scope of the primary lost "sale" for which profits may be owed. Though the majority of modern case law on the entire market value rule has come in the context of reasonable royalty awards,[92] courts have also discussed the doctrine in relation to lost sales of infringing products or assemblies that have both patented and unpatented components. In such cases, the entire market value rule dictates that lost profits damages may be recovered for lost sales of all components that operate as part of the same "functional unit" as the infringing component or part, such that they are "analogous to components of a single assembly or parts of a complete machine."[93] Thus, for example, a patentee that sells paper winding equipment can recover lost profits for lost sales of the entire line of equipment – including the unpatented stand, loader, embosser, and sealer – because all three work together with the infringing rewinder as part of a single assembly that the patentee virtually always bundled into a single sale.[94]

Second, courts have also developed the related concept of "convoyed" or "collateral" sales. Convoyed sales are sales of items that, though physically separate from the infringing product, are nonetheless typically sold along with the infringing product. Though case law in this area is muddled, courts have sometimes suggested that patentees may recover damages for lost sales of items simply because they were traditionally purchased at the same time as the infringing device.[95] For example, in

[91] *See* Kidd 2014.
[92] *See* Chapter 1.
[93] *Rite-Hite Corp.* v. *Kelley Co.* (Fed. Cir. 1995, p.1550) (U.S.).
[94] *Paper Converting Mach. Co.* v. *Magna-Graphics Corp.* (Fed. Cir. 1984, p.22–23) (U.S.).
[95] *See Kaufman Co.* v. *Lantech, Inc.* (Fed. Cir. 1991, p.1144) (U.S.) ("In determining whether a patentee should be awarded lost profits on unpatented accessory sales, the deciding factor is whether the patentee could normally anticipate the sale of unpatented items as well as the patented ones."); *Paper*

*Golden Blount, Inc.* v. *Robert H. Peterson Co.*, the Federal Circuit affirmed an award of lost profits damages that included profits lost on aesthetic artificial logs and grates in addition to profits lost on infringing gas fireplace burners because it was "standard practice in the industry" to sell all three items together.[96] However, in most cases involving convoyed sales, the Federal Circuit has required that the patentee demonstrate that the unpatented component must be "functionally associated" with or related to the patented product in some way.[97]

Third, at least some case law differentiates between convoyed sales and sales of repair or replacement parts, sometimes called "derivative sales," which are often made in the future after the original infringing sale.[98] However, in principle, the same rules applicable to convoyed sales appear to apply in this context as well. As the Federal Circuit stated in *King Instrument Corp.* v. *Otari Corp.*, lost profits damages are recoverable for spare parts when the patentee "normally would have anticipated the sale of the spare parts" but for infringement.[99] Thus, for example, in *Leesona Corp.* v. *United States*, the patentee was allowed to recover damages reflecting lost sales of replacement anodes for a patented battery where in "a normal 'life cycle,' it was anticipated that the 22 anodes for each battery would each be replaced 50 times."[100]

At their core, all three doctrines focus on drawing a line between what sales were, and were not, foreseeably lost due to infringement. We recommend that losses associated with all three categories of sales should generally be recoverable provided that the patentee can demonstrate both (1) "but for" causation and (2) proximate causation, which is established by demonstrating that sales of the unpatented component, part, or good was "reasonably foreseeable by an infringing competitor

*Converting Mach. Co.* v. *Magna-Graphics Corp.* (Fed. Cir. 1984, p.23) (U.S.) (affirming district court award of damages relating to lost sales of unpatented "auxiliary equipment" that are not "integral parts" of the patented invention and holding that such losses are normally recoverable when "normally the patentee . . . can anticipate [the] sale of such unpatented components as well as of the patented ones" (internal quotations and citation omitted)); *see also Rite-Hite Corp.* v. *Kelley Co.* (Fed. Cir. 1995, p.1578–81) (U.S.) (Newman, J., dissenting) (rejecting the majority's conclusion that a convoyed item must be "functionally inseparable from the patented item." (internal quotations omitted)).

96 *Golden Blount, Inc.* v. *Robert H. Peterson Co.* (Fed. Cir. 2006, p.1370–72) (U.S.).

97 *See, e.g., Am. Seating Co.* v. *USSC Group, Inc.*(Fed. Cir. 2008, p.1268) (U.S.) ("A 'convoyed sale' refers to the relationship between the sale of a patented product and a functionally associated non-patented product . . . A functional relationship does not exist when independently operating patented and unpatented products are purchased as a package solely because of customer demand."); *Rite-Hite Corp.* v. *Kelley Co.* (Fed. Cir. 1995, p.1550) (U.S.) ("Our precedent has not extended liability to include items that have essentially no functional relationship to the patented invention and that may have been sold with an infringing device only as a matter of convenience or business advantage.").

98 *See Carborundum Co.* v. *Molten Metal Equip. Innovations, Inc.* (Fed. Cir. 1995, p.881 n.8) (U.S.) ("The expression 'convoyed sales' should preferably be limited to sales made simultaneously with a basic item; the spare parts here [which are sold, if ever, after the original infringing sale] should best be called 'derivative sales.'").

99 *King Instrument Corp.* v. *Otari Corp.* (Fed. Cir. 1985, p.865–66) (U.S.).

100 *Leesona Corp.* v. *United States* (Ct. Cl. 1979, p.975) (U.S.).

in the relevant market."[101] Such a change would appear to be consistent with the law in several other countries, which permit the recovery of lost profits on lost sales of collateral goods subject to normal principles of proximate causation.[102]

There is one possible qualification to the argument that patentees generally should be able to recover lost profits for lost sales of unpatented products that they would have earned, but for the infringement, as long as those losses are proximately caused by the infringement. Suppose that the patentee is not making, using, or selling *any* products covered by the patent in suit, but rather is enforcing the patent to maintain its position in the market for the unpatented product. By their nature, patents tend to suppress competition with respect to use of technology. But it is debatable whether the enforcement of a patent merely to eliminate the use of a newer and possibly superior technology is consistent with the underlying purposes of the patent system. It is at least plausible that awards of lost profits (and injunctions) in such cases disserve the public interest. On the other hand, requiring patent owners to "work" their patents in order to recover lost profits would be at odds with the traditions of countries such as the United States, which generally has eschewed such requirements. In addition, it might be easy for patent owners to circumvent such a requirement by engaging in some token use of the technology covered by their patents. We therefore recommend further research on the frequency with which patent owners seek to enforce "idle" patents, and of the appropriate legal rules for addressing such conduct.[103]

## 4 Apportionment

One topic that is particularly significant for complex, multifunctional products is whether the patentee is required to quantify the portion of its lost profits that are attributable to the patented feature(s), as opposed to unpatented aspects and other components of the larger product. This is known as apportionment.

Historically, apportionment was an important issue in early U.S. patent cases.[104] For example, in *Seymour* v. *McCormick*,[105] the Court distinguished between a patent directed to an entirely new machine and a patent that merely claimed an improvement on an existing machine. In the former situation, a patentee "would be entitled to the entire lost profit on any sales to an infringer because those sales would

[101] *Rite-Hite Corp.* v. *Kelley Co.* (Fed. Cir. 1995, p.1546) (U.S.).

[102] Cotter, 2013a, 187 (discussing applicable rules in the United Kingdom, Canada, and Australia); *see also id.* at 262 n.160, 264, 320–21 (discussing applicable rules in Germany, France, and Japan).

[103] For discussion and citation to other sources discussing both the legal issues and the broader economic topic of technology suppression, *see* Blair & Cotter 2005, 246–54; Hovenkamp & Cotter 2016.

[104] *See* Bensen 2005, 3 (noting that "between 1853 and 1915, the Supreme Court addressed apportionment more than thirty-five times in patent damages decisions, sometimes in two or three decisions in the same year").

[105] *Seymour* v. *McCormick* (U.S. 1853) (U.S.).

have necessarily gone to the patentee."[106] In contrast, the Court held that it would be a "grave error" to award similar damages for "an improvement of small importance when compared with the whole machine."[107] Thus, *Seymour* "recognized that if patent damages were not calculated after apportioning value between the patented invention and the prior art," it would overcompensate the patentee.[108]

Other courts and scholars have concluded that "apportionment is not required . . . because patentees need only show 'but for' causation to recover lost profits."[109] For instance, in *W. L. Gore & Associates* v. *Carlisle Corp.*, the court held that "once the fact that sales have been lost has been proven, there is no occasion for the application of apportionment."[110] In other words, the "but for" standard for lost profits largely obviates the need for further apportionment.[111]

The U.S. Court of Appeals for the Federal Circuit recently addressed the issue of apportionment for lost profits awards in *Mentor Graphics Corp.* v. *EVE-USA, Inc.*[112] Both parties in *Mentor Graphics* made and sold emulation and verification systems, which are software programs that allow one computer system to act like another, ordinarily noncompatible, system.[113] These emulation systems, which are used by chipmakers like Intel to test semiconductor designs, are highly complex and expensive. The patented technology at issue covered a method and apparatus for debugging chip designs by inserting "test probes" with the ability to measure "intermediate values" in a series of logic gates.[114] This feature was later incorporated into the infringing emulators.[115]

At trial, the jury awarded the patentee over $36 million in lost profits.[116] On appeal, the infringer asserted that the verdict should be overturned because the district court had failed to apportion the amount of lost profits "to cover only the

[106] Bensen 2005, 6 (citing *Seymour* v. *McCormick* (U.S. 1853, p.489) (U.S.)).

[107] *Seymour* v. *McCormick* (U.S. 1853, p.490–91) (U.S.).

[108] Love 2007, 268.

[109] Bensen 2005, 4; *see also* Rabowsky 1996, 285, 295 ("[U]nder current law, there is never a need to apportion lost profits between patented and unpatented items . . . [A]pplication of the entire market value rule and the generic 'but for' causation test eliminates the need for apportionment."); Conley 1987, 371, 373 ("[T]he concept of recovery of lost profits, as uniformly applied by the courts, does not admit to dividing the patent owner's lost profits according to any perceived value contributed by the invention . . . It is submitted that the district court in *W. L. Gore* set forth the proper approach for determining the scope of damages due to lost sales.").

[110] *W. L. Gore and Assoc., Inc.* v. *Carlisle Corp.* (D. Del. 1978, p.364) (U.S.).

[111] *See* Cotter 2013a, 116 ("[A]pportionment makes little sense if the goal is to estimate the plaintiff's lost profits based on the plaintiff's own sales.").

[112] *Mentor Graphics Corp.* v. *EVE-USA, Inc.* (Fed. Cir. 2017) (U.S.).

[113] *Id.* at 1280, 1286.

[114] U.S. Patent No. 6,240,376 (filed July 31, 1998); *see also Mentor Graphics Corp.* v. *EVE-USA, Inc.* (Fed. Cir. 2017, p.1281) (U.S.) (describing the patented technology).

[115] The two inventors were originally Mentor employees and assigned the patent-in-suit to Mentor; they subsequently left Mentor and founded EVE-USA, Inc., the principal defendant. *Mentor Graphics Corp.* v. *EVE-USA, Inc.* (Fed. Cir. 2017, p.1280) (U.S.).

[116] *Id.* at 1283. The jury also awarded the patentee a much smaller amount ($242,110) as a reasonable royalty. *Id.*

patentee's inventive contribution."[117] While agreeing that "apportionment is an important component of damages law generally" and that it is "necessary in both reasonable royalty and lost profits analysis," the Federal Circuit rejected the infringer's argument, holding that "apportionment was properly incorporated into the lost profits analysis … through the *Panduit* factors."[118] Specifically, it explained that *Panduit*'s first two requirements – "that patentees prove demand for the product as a whole and the absence of non-infringing alternatives" – appropriately "ties lost profit damages to specific claim limitations and ensures that damages are commensurate with the value of the patented features."[119] Under the facts in *Mentor Graphics*, the lost profits analysis under *Panduit* was straightforward; the relevant market contained two suppliers (the patentee and the infringer), there was one purchaser (Intel), and there were no acceptable noninfringing alternatives, so each sale made by the infringer necessarily resulted in a lost sale to the patentee.[120] In addition, the infringer did not dispute any of this evidence on appeal.[121] As a result, the Federal Circuit held that "satisfaction of the *Panduit* factors satisfies the principles of apportionment."[122]

We believe that the Federal Circuit's approach in *Mentor Graphics* is correct. If the infringement caused the patentee to lose sales, the principle that patentees should be made whole requires that the patentee recover the profits it would have earned on these lost sales, even if the patented feature is only one aspect of a more complex product.[123] By contrast, an infringing sale that does not displace a patentee's

[117] *Id.* at 1287.

[118] *Id.* at 1288.

[119] *Id.* However, the Federal Circuit expressly declined to consider whether alternative (non-*Panduit*) methods of determining lost profits would be subject to apportionment. *See id.* ("We leave for another day whether a different theory of 'but for' damages adequately incorporates apportionment principles.")

[120] *Id.*; *see also id.* at 1289 ("Mentor would have made every single sale to Intel that Synopsis otherwise would have made.").

[121] *Id.* at 1286–88.

[122] *Id.* at 1288; *see also id.* at 1290 ("We hold that the district court did not err in refusing to further apportion lost profits after the jury returned its verdict applying the *Panduit* factors. We conclude that, when the *Panduit* factors are met, they incorporate into their very analysis the value properly attributed to the patented feature.").

The Federal Circuit recently denied a petition to rehear the *Mentor Graphics* case en banc, with five judges joining an opinion by Judge Stoll declaring that the panel's decision "is consistent with longstanding patent law damages principles" and that "based on the jury's undisputed fact findings on the *Panduit* factors in this case, … the panel [decision] properly accounted for apportionment." *Mentor Graphics Corp.* v. *EVE-USA, Inc.* (Fed. Cir. Sep. 1, 2017, p.1299–1300) (U.S.) (Stoll, J., concurring in the denial of rehearing en banc). Dissenting from the denial of rehearing, Judges Dyk and Hughes contended that "the panel decision … improperly holds that when lost profits are awarded for patent infringement" under the *Panduit* test, "there is no requirement for apportionment between patented and unpatented features." *Id.* at 1300 (Dyk, J., dissenting from denial of rehearing en banc). *See also* Chao 2018, 1345 (asserting that the panel decision in *Mentor Graphics* erred by "relying exclusively on [a] 'but for' analysis" that "fails to distinguish between lost profits attributable to a feature, and lost products attributable to an entire product").

[123] *See* Cotter 2009, 1178 n.137 (noting that "any other rule renders the patentee worse off as a result of the infringement").

sale should result in a reasonable royalty, where the value of other, non-patented features is considered in determining the royalty.[124] As the Federal Circuit noted in *Mentor Graphics*, courts may grant mixed awards of lost profits and reasonable royalties in cases where some but not all lost sales are due to the infringement;[125] this is particularly likely in cases involving complex, multicomponent products, where different customers value different features in their purchasing decisions. These mixed awards obviate the need for courts to engage in further apportionment of lost profits to cover only the value of the patented feature.

## 5 Potential Recovery for Other Harms

A final consideration is the availability of damages to compensate for other types of harms suffered by the patentee as a result of infringer's unlawful competition that fall outside the categories previously discussed.

Although as a general matter tort law aims to restore the victim to the position it would have occupied had the tort never occurred, legal systems throughout the world often impose substantial limits on this restorative principle, both to reduce the costs of adjudication and to vindicate other social policies. Similarly, if the goal of the patent system were to fully restore the patent owner to the position it would have occupied but for the infringement, courts would permit the patentee to recover not only its lost profits on lost sales due to the infringement, but also compensation for any other proven and quantifiable harms so caused, such as: (1) future losses that the patentee may suffer due to the infringer's accelerated entry into the market; (2) losses to the patent owner's goodwill or reputation, or to the prestige of the goods embodying the patented invention, due for example to consumers confusing the infringer's product with the patentee's; (3) lost profits at subsidiaries of the patentee;[126] (4) lost profits due to cost increases from lost economies of scale; (5) the opportunity cost of having to devote time to litigation, advertising or marketing expenses incurred in response to the infringement; and (6) emotional harms resulting from the infringement.

For a variety of reasons, however, it is unlikely that any legal system would award damages for *all* of these losses, even if the patent owner were able to prove them. For example, no legal system of which we are aware allows patent owners (or other tort

[124] *See Georgia-Pacific Corp.* v. *U.S. Plywood Corp.* (S.D.N.Y. 1970, p.1120) (U.S.) ("The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer."); *see also Lucent Technologies, Inc.* v. *Gateway, Inc.* (Fed. Cir. 2009, p.1332–33) (U.S.) (overturning a jury's $357 million damages award in part because the accused product was "an enormously complex software program comprising hundreds, if not thousands or even more, features," and the patent-in-suit covered only "one small feature" of that product).

[125] *Mentor Graphics Corp.* v. *EVE-USA, Inc.* (Fed. Cir. 2017, p.1286) (U.S.).

[126] For instance, this might occur if the patentee's subsidiary supplies an unpatented active pharmaceutical ingredient to the patentee for manufacture in the patented formulation.

victims, for that matter) to recover damages for their opportunity costs of having to devote time to litigation – a result that probably is sound, given the substantial difficulties that would surround the accurate quantification of such losses.

On the other hand, ordinary principles of proximate causation in Anglo-American jurisprudence and counterpart doctrines elsewhere do not necessarily preclude patent owners from recovering for some of these other losses where provable. For example, courts in the United States and elsewhere have approved awards of lost profits resulting from the infringer having gained an accelerated foothold in the marketplace as a result of its infringement, though such losses can be difficult to prove and awards do not appear to be common.[127]

As for injury to goodwill, reputation, or prestige, as well as emotional harms, Article 13(1) of the EU Enforcement Directive states that in setting damages for the infringement of IP rights, the judicial authorities of member states "shall take into account all appropriate aspects, such as the negative economic consequences, including lost profits, which the injured party has suffered, any unfair profits made by the infringer *and, in appropriate cases, elements other than economic factors, such as the moral prejudice caused to the rightholder . . .*"[128] In its 2016 *Liffers* decision, the Court of Justice of the European Union held that under Article 13(1), an IP owner can recover damages for moral prejudice in addition to a reasonable royalty[129] – though what "moral prejudice" means in the context of patent infringement cases remains somewhat unclear. (*Liffers* itself was a copyright case, and it refers to the possibility that moral prejudice may include injury to the author's reputation.) According to Fox et al. (2015), in the patent context, the concept has met with varying interpretations throughout the EU:

> Moral prejudice has barely any constancy between European jurisdictions even under the Enforcement Directive, and so there is no clear line to follow. All of the above-mentioned jurisdictions, with the exception of Germany, have it as an available claim, though it is rare (to an extreme) in the Netherlands, and England and Wales. In France, while theoretically tied to reputation, it appears to be used as a mechanism to adjust the quantum equitably. In Italy, moral prejudice must be demonstrated (essentially, damage to reputation), and then quantified as up to as much of 50 percent of the loss of profits.[130]

[127] *See* Blair & Cotter 2001, 10–11 (stating that U.S. courts have awarded or considered awarding damages for additional costs, such as advertising and marketing expenditures, incurred in response to the infringement, as well as for "lost future profits, injury to the patent owner's reputation resulting from the sale of poor-quality infringing goods, and the infringer's accelerated entry into the marketplace once the patent expires," although "[t]hese latter injuries . . . are more commonly perceived either as being subsumed in one or more of the other categories, or as being too remote or speculative.") (citations omitted); *see also* Cotter 2013a, 187, 262 n.160, 314 n.110, 320–21 (discussing the possibility of recovery for more remote harms in the United Kingdom, Germany, and Japan).

[128] Directive 2004/48/EC, art. 13(1) (emphasis added).

[129] *See Liffers* v. *Producciones Mandarina SL* (E.C.J. 2016) (EU).

[130] Fox et al. 2015, 572–73.

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Similarly, a recent patent infringement decision of the Court of Appeal of Madrid held that "moral damages" – including "psychological suffering or distress, which is considered to exist in a variety of situations such as psychological or spiritual shock or suffering, helplessness, worry (as a mental sensation of disquiet, sorrow, fear or foreboding uncertainty), anxiety, anguish, uncertainty, shock, affliction and other similar situations" – are in theory compensable (although the patent owner had not proven the facts alleged in support of them), as well as damages for "loss of prestige," which were awarded based on evidence that the infringing products were of lower quality than the plaintiff's, having been presented "in simple cardboard boxes as opposed to the luxury image attributed to the products of the complainant."[131] In the United States, by contrast, while damages for harm to goodwill or reputation resulting from patent infringement are in theory compensable[132] (though again, apparently rare), emotional harms probably are not.[133]

A standard law-and-economics account of proximate causation suggests that infringers who have breached a duty of care should not be responsible for losses having a low *ex ante* probability of occurring because the imposition of liability in such cases would increase adjudication costs without materially decreasing the (already low) risk of harm.[134] Whether this account (or other accounts of) proximate cause counsel in favor of more generous awards of damages for "moral prejudice" in patent cases has not been much addressed (to our knowledge) in the scholarly literature; neither has the related topic of the extent of proof that should be necessary to recover for and quantify such losses, assuming they are compensable at all. Further research on these issues may be warranted.

A final question related to this body of issues is whether courts should award damages, in patent or other cases, for "loss of chance" – i.e., for the profits that would have been earned on lost sales, discounted by the probability that those sales would have been made but for the infringement. For example, if the plaintiff can prove that there was a 30 percent chance it would have made ten more sales, under the loss of chance doctrine it would be entitled to recover 30 percent of the profit it would have earned on those sales. Courts in some countries award patent owners lost profits on this basis, but the United States does not. Rather, in the United States, the patent owner would recover no damages unless it could prove that it more likely than not suffered the loss (i.e., that the probability was greater than 50 percent).[135]

The principal argument in favor of awarding damages for loss of chance is that such a rule results in more accurate compensation to patentees in the aggregate. For example, if a patent owner could show that it had a 40 percent chance of making

[131] *See* Cotter 2016c (quoting a translation by Miquel Montañá).

[132] *See Lam, Inc.* v. *Johns-Manville Corp.* (Fed. Cir. 1983, p.1068) (U.S.).

[133] *See Rite-Hite Corp.* v. *Kelley Co.* (Fed. Cir. 1995, p.1546) (U.S.) (stating that "remote consequences, such as a heart attack of the inventor or loss in value of shares of common stock of a patentee corporation caused indirectly by infringement are not compensable").

[134] *See, e.g.*, Landes & Posner 1983, 119–20, 125–33; Shavell 1980, 490–93.

[135] For further discussion, *see* Cotter 2014b.

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each of one hundred individual sales, under the U.S. rule it would recover no lost profits, even though it is likely that it would have made at least *some* of the one hundred sales. Conversely, if the owner can show that it had a 60 percent chance of making each of the hundred sales, it would recover lost profits for all one hundred, even though it is likely it would not have made all of them. On the other hand, one might question whether courts (or juries) are well positioned to make such finely grained probability determinations, and even if they are, whether the additional cost of adjudication would be justified by the marginal accuracy gains. Further research in this area might be of more than merely theoretical interest.

## 2.3 DISGORGEMENT OF INFRINGER'S PROFIT

In this Section, we first discuss several theoretical justifications for disgorgement of the infringer's profits. We then describe the availability of, and requirements for, the disgorgement remedy in major patent systems around the world. Finally, we conclude with an analysis of specific issues regarding disgorgement as a remedy, including the authors' recommendations regarding its availability, methods of calculation, and burden of proof.

### 2.3.1 *Theoretical Justifications*

As discussed in Section 2.2.2, disgorgement of the infringer's profits serves a different objective than the make-whole rationale of awarding the patentee its actual losses due to the infringement. In particular, "awards of defendant's profits threaten to undermine the principle that courts should not overcompensate patent owners."[136] For instance, where the infringer is more efficient than the patentee (i.e., it has a higher per-unit profit), the patent owner may be better off under a disgorgement remedy than if the infringement had never occurred.[137]

Several justifications have been offered for disgorgement of an infringer's profits. First, the disgorgement remedy prevents unjust enrichment by ensuring the infringer is no better off as a result of the infringement. In other words, it "correct[s] the imbalance created by the infringer retaining a benefit for which it would be unjust . . . to retain without paying the patent owner."[138] For example, in 1888, the Supreme Court of the United States awarded the patentee recovery of the infringer's profit, reasoning that equity would not permit "the wrongdoer to profit by his own wrong."[139]

[136] Cotter 2013a, 68.

[137] For example, if the patentee makes $3 profit per unit sold, the infringer makes $5 profit per unit sold, and the patentee lost one hundred units of sales to the infringer (assuming no other changes), then disgorgement of the infringer's profits results in a $200 surplus to the patentee above its lost profits compared to the hypothetical "but for" world where infringement never occurred.

[138] Roberts 2010, 670.

[139] *Tilghman* v. *Proctor* (U.S. 1888, p.145) (U.S.).

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The *Restatement (Third) of Restitution and Unjust Enrichment* articulates a similar rationale for the disgorgement remedy more generally. It explains that "[t]he object of restitution . . . is to eliminate profits from wrongdoing while avoiding, so far as possible, the imposition of a penalty. Restitution remedies that pursue this object are often called 'disgorgement' or 'accounting.'"[140] Under the *Restatement* approach, "the unjust enrichment of a conscious wrongdoer . . . is the net profit attributable to the underlying wrong."[141] "Conscious wrongdoer," in turn, is defined as one who acts either "with knowledge of the underlying wrong" or "despite a known risk that the conduct in question violates the rights of the claimant."[142]

Second, disgorgement may deter patent infringement by ensuring that the infringer is not better off as a result of infringing. Absent disgorgement, a prospective user of patented technology may opt to infringe rather than take a license,[143] particularly if the make-whole remedy for the patentee (lost profits and/or a reasonable royalty) will leave the infringer with some profit.[144] Disgorgement also may be combined with make-whole damages to the patentee, ensuring that the wrongdoer will be worse off than if it had not infringed, although this also runs the risk of over-rewarding the patentee and over-deterring potential infringers.[145]

Third, disgorgement may encourage patent licensing. Without the disgorgement remedy, potential users of patented technology may "lack an incentive to negotiate" *ex ante* because, as explained above, they may be no worse off if they infringe, get caught, and pay the patentee's losses, and they will be better off if they can infringe and avoid detection.[146] As a result, disgorgement "ensure[s] that defendants are at least incrementally worse off than they would have been if they had entered into voluntary negotiations."[147]

[140] Restatement (Third) of Restitution and Unjust Enrichment § 51(4); *see also id.* at cmt. a ("The principal focus of § 51 is on cases in which unjust enrichment is measured by the defendant's profits, where the object of restitution is to strip the defendant of a wrongful gain . . . Restitution measured by the defendant's wrongful gain is frequently called 'disgorgement.'").

[141] *Id.* at § 51(4).

[142] *Id.* at § 51(3).

[143] *See* Lemley 2005, 1045 (arguing that, in the United States, "[p]atent law emphasizes deterrence least among the intellectual property regimes" because "it does not require disgorgement of profits").

[144] This may occur, for instance, when the infringer is more efficient than the patentee (i.e., because the infringer does not incur the patentee's R&D costs), and thus the infringer's profit from infringement exceeds the patentee's losses.

[145] *See* Cotter 2013a, 69 ("A rule permitting awards of defendants' profits nevertheless does pose some risk of overdeterrence; moreover, to the extent patent holdup is a concern, overcompensatory damages awards threaten to exacerbate the problem.").

[146] *Id.* Of course, this simplifies the analysis because the infringer may want to avoid litigation for other reasons, such as litigation costs, the possibility of paying the patentee's attorney's fees and costs, and the possibility of enhanced damages for conscious infringement where available (as in the United States).

[147] *Id.*; *see also* Lemley 2005, 1046 (explaining that disgorgement "helps intellectual property owners internalize the positive externalities of their invention by preventing unauthorized uses and therefore encouraging licensing").

### 2.3.2 *Comparative Approaches to Disgorgement*

#### 1 North America

In the United States, historically, recovery of the infringer's profits was possible as an equitable remedy for patent infringement.[148] The Patent Act of 1819 created federal jurisdiction for actions in equity under the patent laws, thus authorizing federal courts to issue injunctions and other equitable relief, including "an equitable account of the infringer's illicit profits."[149] The Patent Act of 1870 explicitly extended disgorgement to actions at law as well, providing that "the claimant shall be entitled to recover . . . the profits to be accounted for by the defendant."[150]

However, in the Patent Act of 1946, Congress dropped all references to the infringer's profits.[151] The legislative history suggests that Congress was concerned by the time and expense needed to calculate the infringer's profits, which in some cases took many years of litigation.[152] In *Aro Manufacturing Co.* v. *Convertible Top Replacement Co.*, Justice Brennan of the Supreme Court concluded that the purpose of the 1946 amendment was "precisely to eliminate the recovery of profits as such and recovery of damages only,"[153] in an opinion concurred in by a total of four of the nine Justices.[154] Although it was "only a plurality opinion and arguably constituted dictum,"[155] later court decisions have interpreted the amendment in the same manner.[156] Therefore, most

[148] *See* Chisum 2017, § 20:02[3] ("Neither the earliest [U.S.] patent acts (1790 and 1793) nor the 1819 Act conferring equitable jurisdiction in patent infringement actions on the federal courts mentioned recovery of profits or any other monetary recovery in equity. Nevertheless, the courts recognized the power of a court of equity, which had acquired jurisdiction over a case by virtue of the complainant's request for injunctive relief, to grant full and complete relief by ordering an accounting of the infringer's illicit profits. Although an infringer was not a true trustee for the patent owner, the remedy of an accounting for profits, a familiar device in the equitable law of trusts, was readily adopted and applied to patent cases. Finally, the 1870 Act expressly referred to a complainant's entitlement to recover 'the profits to be accounted for by the defendant.'"(citation omitted)).

[149] *Id.*; *see also Stevens* v. *Gladding* (U.S. 1854, p.455) (U.S.) ("The right to an account of profits is incident to the right to an injunction in copy and patent-right cases."); Roberts 2010, 657–58.

[150] Act of July 8, 1870, § 55, 206.

[151] Congress's intent in the 1946 amendments is said to be "unclear." *See* Chisum 2017, § 20.02[4][a] ("[The Report of the House and Senate Patent Committees] stresses the intricate and insolvable problem of apportionment and the expense and delay of complex and technical accounting procedures before masters. However, the last paragraph of the Report states that the bill 'would not preclude the recovery of profits as an element of general damages.' This suggests an alternative and narrower intent, to wit, to eliminate a mandatory accounting of profits where the patent owner is willing to have recovery based on a reasonable royalty." (citation omitted)).

[152] *See* Roberts 2010, 662–63 (explaining that "[t]he majority of the legislative history [of the 1946 Patent Act] provides support for the general proposition that Congress eliminated the recovery of the infringer's profits" because of the "wasted time and expense generated by the profit apportionment problem").

[153] Chisum 2017, § 20.02[4][b].

[154] *Aro Mfg. Co.* v. *Convertible Top Replacement Co.* (U.S. 1964, p.505) (U.S.).

[155] Chisum 2017, § 20.02[4][c].

[156] *See*, *e.g.*, *Zegers* v. *Zegers, Inc.* (7th Cir. 1972) (U.S.). For other examples, *see* Chisum 2017, § 20.02[4][c].

commentators believe that an award of the infringer's profits is not possible for utility patents in the United States.[157]

For design patents, however, Section 289 of the Patent Act provides that the infringer shall "be liable to the owner to the extent of his total profit, but not less than $250."[158] The Patent Act of 1887 introduced a provision to the same effect,[159] and when Congress abolished the recovery of the infringer's profits in 1946, they retained the special "total profit" provision for design patents.[160]

While Section 289 makes it unlawful to manufacture or sell an "article of manufacture" to which a patented design or a colorable imitation thereof has been applied and makes an infringer liable to the patent holder "to the extent of his total profit,"[161] in the case of a design for a multicomponent product, a question arises how to identify an "article of manufacture": whether it must always be the end product or it can also be a component of the product. In a case involving the infringement of designs for smartphones, the U.S. Court of Appeals for the Federal Circuit took the former interpretation and identified the entire smartphone as the only permissible "article of manufacture" for the purpose of calculating the infringer's "total profit" because "[t]he innards of Samsung's smartphones were not sold separately from their shells as distinct articles of manufacture to ordinary purchasers."[162] However, in *Samsung* v. *Apple*, the Supreme Court recently reversed the Federal Circuit's judgment and remanded the case.[163] In a unanimous opinion written by Justice Sotomayor, the Court stated that "the term 'article of manufacture' is broad enough to encompass both a product sold to a consumer as well as a component of that product."[164] Thus, the Supreme Court adopted the interpretation under which a patent holder would "sometimes be entitled to the infringer's total profit from a component of the end product."[165] The Court left it up to the lower courts to determine how to define the relevant "article of manufacture" and how to calculate the profit attributable to that article.[166]

In Canada, a successful patentee is entitled to damages, but may request an accounting of the infringer's profits.[167] The grant of an accounting is within the

[157] *See* Roberts 2010, 665 (contending that the relevant part in *Aro Mfg.* was arguably *obiter dictum*, but acknowledging that "subsequent courts, including the Supreme Court" have treated it as authoritative regarding the elimination of disgorgement as a remedy).

[158] 35 U.S.C. § 289.

[159] Act of Feb. 4, 1887, § 1, 387–88.

[160] *See* Chisum 2017, § 23.05[1][a] (explaining that the reason for the distinction between utility and design patents is "less than clear").

[161] 35 U.S.C. § 289.

[162] *Apple, Inc.* v. *Samsung Elecs. Co., Ltd.* (Fed. Cir. 2015, p.1002) (U.S.).

[163] *Samsung Elecs. Co., Ltd.* v. *Apple, Inc.* (U.S. 2016) (U.S.).

[164] *Id.* at 435.

[165] *Id.* at 434.

[166] *See id.* at 436 (declining to "set out a test for identifying the relevant article of manufacturing at the first step of the § 289 damages inquiry . . .").

[167] Patent Act, R.S.C. 1985, c. P-4 (Can.), § 55 (damages), § 57 (accounting).

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discretion of the court, though it is normally granted when sought, in the absence of some reason why it should not be permitted.[168] There are no fixed criteria for denying an accounting, though traditional equitable criteria will be considered.[169] In practice, "an accounting of profits has been the dominant monetary remedy for patent infringement in Canada," with at least twelve reported decisions since 1990.[170]

## 2 Europe

In the EU, Article 13 of the IP Enforcement Directive (2004/48/EC) stipulates:

1. Member States shall ensure that the competent judicial authorities, on application of the injured party, order the infringer who knowingly, or with reasonable grounds to know, engaged in an infringing activity, to pay the rightholder damages appropriate to the actual prejudice suffered by him/her as a result of the infringement. When the judicial authorities set the damages:

(a) they shall take into account all appropriate aspects, such as the negative economic consequences, including lost profits, which the injured party has suffered, any unfair profits made by the infringer . . .[171]

As the provision requires the judicial authorities of Member States to "take into account . . . any unfair profits made by the infringer," a state "arguably would be in compliance with the Directive if it merely permitted courts to consider the defendant's profit in estimating the plaintiff's own 'actual prejudice.'"[172] The Commission Staff Working Document "Analysis of Enforcement Directive" published in December 2010[173] states:

> The profits unlawfully made by the infringer ("unjustified enrichment") constituted a new aspect for assessing damages in some Member States and it has been implemented into the national legislation in very different ways.
>
> Many Member States require a rightholder to prove that profits were made with or as a result of the infringing products (causal link). Infringers may sometimes make higher profits with the infringing products than the rightholders with their

[168] *See* Siebrasse 2016 (reviewing the cases).

[169] *See, e.g., J.M. Voith GmbH* v. *Beloit Corp.* (Fed. Ct. 1997, ¶¶ 110, 113, 119) (Can.); *Philip Morris Prod. S.A.* v. *Marlboro Canada Ltd.* (Fed. Ct. 2015) (Can.).

[170] Siebrasse et al. 2008, 85; *see also* Cotter 2013a, 198 n.129 (listing cases).

[171] Directive 2004/48/EC, art. 13(1).

[172] Cotter 2013a, 257. For a similar analysis of apportionment of a breaching party's profits in contract disputes to reflect the nonbreaching party's expectancy interest, *see generally* Anderson 2015 (arguing in favor of a compensatory remedy for nonpecuniary loss in breach of contract cases, where the remedy is apportionment of the breaching party's profits based on evidence indicating nonpecuniary loss). Notably, this approach does not depend on the state of mind of the breaching party, and thus represents a compensatory rather than punitive approach.

[173] European Commission, at 22–23, COM (2010) 779 final (Dec. 22, 2010).

branded goods. Rightholders appear to find it very difficult to prove that they would have earned the same profits as the infringers, particularly where the infringers offer their products under conditions that significantly differ from those of the legal channels (e.g., lower prices, lower manufacturing costs, and absence of related services). Furthermore, in some Member States[174] it appears that infringers' profits can only be taken into consideration once, either as a recovery of unfair profits or as damages (or part of damages), but not in a cumulative way. In other Member States[175] the transfer of infringers' profits are awarded as an alternative, when the profits are higher than the rightholder's calculated damages (e.g., the rightholders' lost profits). Finally, in some Member States,[176] in addition to damages, also the transfer of the infringer's profits may be ordered.

In Germany, damages awarded for patent infringement are intended to be compensatory in nature and may be recovered for negligent or intentional infringement.[177] Surrender of the infringer's profits has been generally accepted as a method for calculating patent infringement damages for decades and, in 2008, its availability was codified in Section 139, para. 2 of the German Patent Act.[178] Under this provision, a patentee may choose among three methods for calculating damages (i.e., lost profits (actual damages suffered), license analogy (royalty), and the infringer's profits), but may not combine or cumulate them with respect to any single act of infringement.[179]

Traditionally, patentees rarely elected to calculate damages by reference to infringers' profits, primarily because courts liberally allowed infringers to deduct production costs from the revenue they earned on sales of infringing products. However, the decision by Federal Court (BGH) in the *Gemeinkostenanteil* case in 2000[180] brought about a fundamental change. In that decision, the Court held that, while the variable costs of manufacturing and marketing the infringing products may be deducted, an infringer's fixed costs may no longer offset its revenue. Though

[174] *Id.* at 22 n.52 ("E.g., Slovak Republic.").
[175] *Id.* at 23 n.53 ("E.g., Germany and Italy.").
[176] *Id.* at 23 n.54 ("E.g., Benelux countries in cases of bad faith.").
[177] Kamlah 2014, 904.
[178] *Id.* at 915. Article 139 of the Patent Act was amended in response to Article 13 of the EU Enforcement Directive. The theoretical ground for surrender of the infringer's profits was unclear and controversial. The pervasive view seems to have been to understand the remedy as a result of an analogous application of the rules on false agency (angemaßte Eigengeschäftsführung; Section 687, para. 2 of BGB (the Civil Code)). Some scholars have criticized this view, pointing out that false agency requires an intentional act while patent infringement can be committed negligently. *Id.* After the codification of para. 2 of Article 139, a view to take the surrender of the infringer's profits as just one of different methods for calculation of damages for the compensatory purpose seems to be getting more support from scholars and practitioners. *See* Melullis 2008, 679; Grabinski 2009, 260–61 (stating that a recourse to the law of false agency is not necessary any more, at least for the new Article 139, para. 2). *See also* Schönknecht 2012, 311 (stating that the methods based on the infringer's profits and license analogy are merely different forms of liquidation of a unitary damages claim). For an argument about the characterization of the three methods in Germany, *see* Cotter 2013g.
[179] Kamlah 2014, 907; Schönknecht 2012, 311.
[180] BGH v. 2.11.2000 – I ZR 246/98 – *Gemeinkostenanteil* (Ger.).

this case dealt with infringement of design rights, courts have applied the same rule to damages awarded for patent infringement. Post-*Gemeinkostenanteil*, Germany has seen a marked increase in requests for damages based on alleged infringers' profits.[181]

In France, Code de la propriété intellectuelle Article, L. 615–7, provides for two different methods of calculation: actual damages and an analogy to licenses. It stipulates that "[t]o set the amount of damages, the court distinctly takes into account: the negative economic consequences of the infringement, including the loss of earnings and any loss suffered by the injured party, the moral prejudice caused to the latter and the profits made by the infringer, including the savings in intellectual, material and promotional investments that it achieved from the infringement."[182] It is said that "[t]he place of the infringer's profits in the calculation of damages is not yet clear in case law," and "[s]ome decisions have considered that the claimant can be granted the infringer's profits, while others take a different position."[183]

In the United Kingdom, "it is standard to allow the successful patentee to elect for either an inquiry as to damages or an account of profits for past infringements."[184] The patentee is entitled to limited disclosure of the infringer's financial information in order to choose between damages or profits.[185] An account of profits is an equitable and restitutionary remedy whose purpose is to deprive the infringer of the profits that it has improperly made by wrongful acts committed in breach of the claimant's rights and transfer those profits to the claimant.[186] Requesting of profits is said to be a "much rarer choice than requesting damages because the outcome is much more uncertain."[187]

[181] Kamlah 2014, 907. Grabinski 2009, 262, reports that in recent years the method based on the infringer's profits has been used in at least three-fourths of the cases for damages for the infringement of patents or utility models before LG Düsseldorf (the regional court in Düsseldorf). For the details of the calculation method of the infringer's profits, *see, e.g.*, Kühnen 2017, 863–78; Kamlah 2014, 916–20. *See also* Cotter 2013d (discussing BGH v. 24.7.2012 – X ZR 51/11 – *Flaschenträger*).

[182] Romet et al. 2015, 170; Fox et al. 2015, 569.

[183] Romet et al. 2015, 170. In the accompanying footnotes, the authors cite *TYC Europe* v. *Valeo* (CA Paris 2013) (Fr.); *Hydr Am* v. *Gimaex and Weber Hydraulik* (TGI Paris 2013) (Fr.) and *Time Sport International* v. *JCR* (TGI Paris 2013) (Fr.) as decisions taking the former position, while citing *Saint Dizier Environment* v. *Materiel Santé Environment and CME* (TGI Paris 2013) (Fr.) as a decision taking the latter.

[184] *Glaxosmithkline UK Ltd.* v. *Wyeth Holdings LLC* (Pat 2017, ¶ 31) (UK); *see also*, Birss et al. 2016, ¶ 21–52.

[185] Birss et al. 2016, ¶ 21–53 (citing *Island Records Ltd.* v. *Tring Int. Plc.* (Ch 1995) (UK)).

[186] Birss et al. 2016, ¶ 21–136; Rennie-Smith 2015, 81, 104. As to the calculation of profits, *see* Birss et al. 2016, ¶¶ 21–137 to –140 ("Where only part of a product or process infringes, profits are to be apportioned between those which were caused by or attributable to the use of the invention (and which the patentee may thus recover) and those which were not. However, where the invention is the essential ingredient of the defendant's whole product or process it may be appropriate not to apportion." (citing *Celanese Int'l Corp.* v. *BP Chemicals Ltd.* (Pat 1999, ¶ 46) (UK)). For a discussion on the recent decision *Design & Display Ltd.* v. *OOO Abbott & Anor* (Civ 2016) (UK), *see* Cotter 2016a.

[187] Fox et al. 2015, 568.

## 3 Asia

Article 102 of the Japanese Patent Act provides for three special methods for calculating damages: methods using the patentee's profit margin, the infringer's profits, or hypothetical royalty. Paragraph 2 of that Article provides: "Where a patentee or an exclusive licensee claims against an infringer compensation for damage sustained as a result of the intentional or negligent infringement of the patent right or exclusive license, and the infringer earned profits from the act of infringement, the amount of profits earned by the infringer shall be presumed to be the amount of damage sustained by the patentee or exclusive licensee." Though courts initially limited this form of damages to patentees that were practicing the patented invention, the Grand Panel of the Intellectual Property High Court softened this requirement in 2013, holding that disgorgement is available anytime the patentee lost profits as a result of infringement, even if those profits did not result from lost sales of goods or services covered by the patent-in-suit.[188] For example, it is now generally accepted that disgorgement is an available remedy for patentees that sell unpatented products that compete with the infringing products supplied by the infringer. It is still unclear and disputed, however, whether patentees that only license the patent-in-suit to third parties may request disgorgement as a remedy. Moreover, when disgorgement is awarded, at least some courts have apportioned the infringer's profits to reflect the percentage of infringing sales attributable to the infringing feature.[189]

Section 65 of the Patent Act of China provides for several methods for determination of the amount of damages: the actual loss incurred by the patentee, the infringer's profits, and reasonable royalties – though, in practice, the vast majority of patentees in Chinese patent suits pursue statutory damages.[190] Though disgorgement is rarely awarded, the Chinese Supreme People's Court (SPC) has held that an infringer's profits may be calculated by multiplying the profits per unit of infringing product and the quantity of the infringing products that have sold in the market.[191] The SPC also held in 2009 that disgorgement awards may be apportioned "to deduct profits led by factors other than the infringed patent from the whole amount of the infringing profits."[192]

Australia follows a similar approach to the United Kingdom and Canada and permits disgorgement of an infringer's profits.[193] The leading authority makes clear

[188] *Sangenic Int'l Ltd.* v. *Aprica Children's Prod. Inc.* (IP High Ct. 2013) (Japan) (Waste Storage Device).

[189] For example, the court in Case No. 2014 (Ne) 10022 (IP High Ct. 2014) (Japan) (Telephone Number Automatic Creation Device) admitted 65 percent "partial reversal of the presumption" based on the infringer's profits, taking into account the contribution of the patented invention to the profits.

[190] Pattloch 2015, 315, 343. *See also* Hu 2016, 5, 8 (showing that out of the patent (invention patent) infringement cases that awarded damages between June 1, 2008 and Dec. 31, 2011, 5.26 percent, 2.26 percent, 0 percent, and 92.48 percent were based on losses of patentees, infringers' profits, analogies of royalties, or statutory damages, respectively).

[191] Hu 2016, 16 (citing Wu 2014).

[192] *Id.* (citing Supreme People's Court of the People's Republic of China 2009, art. 16).

[193] Cotter 2013a, 198.

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that, like in the United Kingdom, a patentee may elect an accounting in lieu of seeking monetary damages.[194]

### 2.3.3 *Specific Issues Regarding Disgorgement*

#### 1 Availability

We were unable to reach consensus regarding the question of whether disgorgement should be available in all major patent systems. We acknowledge the divergence in approaches between jurisdictions on this issue,[195] as well as the competing policy arguments for and against disgorgement. Group members who favor disgorgement point to several potential benefits. First, it creates an incentive for potential infringers to engage in *ex ante* licensing of patent rights, while not being as serious of a sanction as punitive damages. While an accounting will not incentivize a truly innocent infringer (i.e., an infringer that was unaware of the patent-in-suit and could not have reasonably identified all patents covering a product prior to market entry)[196] into negotiating *ex ante*, it can incentivize a negligent or deliberate infringer to do so. Second, disgorgement may be advantageous for a patentee who wishes to avoid divulging financial information to a competitor in a damages assessment. This appears to be a motivation for pharmaceutical companies routinely electing an account in countries such as Canada, even when damages based on the patentee's loss would be greater.[197]

In contrast, group members who are less enthusiastic about disgorgement as a remedy point to several potential drawbacks of the remedy. First, disgorgement may create a significant risk of over-deterrence, causing firms to be less willing to introduce new and innovative products, particularly complex products that incorporate numerous different technologies.[198] In addition, non-compensatory damages awards like disgorgement threaten to exacerbate the holdup problem.[199] Furthermore, there may be substantial litigation costs associated with calculating the amount of profit due to infringement that is to be disgorged.[200] Finally,

[194] *Dart Indus. Inc.* v. *Decor Corp. Pty Ltd.* (HCA 1993) (Austl.)).

[195] *See supra* notes 148–194 and accompanying text.

[196] *See* FTC 2011, 55–56 (explaining the contention that for IT products, "the enormous number of potentially relevant, overlapping patents make identifying the applicable rights prior to product launch prohibitively costly").

[197] Siebrasse et al. 2008; *cf.* Michel 2010, 11 (noting that the need for protective orders is "particularly acute in the context of damages discovery, which often includes extremely sensitive financial information concerning a party's costs, revenues, profits, and the like. Disclosure of such information publicly could severely harm a party's business or competitive position.").

[198] Cotter 2013a, 69; *see also* Cotter 2011, 740 n.69 (expressing similar concerns about the risk of over-deterrence posed by restitutionary awards in patent cases).

[199] Cotter 2013a, 69.

[200] *See supra* note 153 and accompanying text (describing litigation costs and delays in the United States for disgorgement of profits from utility patents prior to 1946).

disgorgement in the context of complex, multifunction products may amplify the risk of error in calculating a remedy, as courts will be required to determine the share of infringer's profit due to infringement of patented feature(s), as opposed to unpatented or licensed components, as well as the infringer's own contributions to the infringing product.

In light of this lack of consensus, the recommendations in the rest of this Section are oriented at jurisdictions where disgorgement is an accepted remedy. In countries like the United States that do not currently award disgorgement as a remedy, we propose further research on whether an accounting may be desirable as an alternative to enhanced damages to deter willful infringement.

### 2 Discretionary or As of Right

In jurisdictions where disgorgement of the infringer's profits is available as a remedy, one question is whether it should be awarded automatically or at the trial court's discretion. Though an accounting is an equitable remedy, in UK law, a successful patentee is entitled to an accounting if it so elects.[201] Similarly, when the remedy was available in U.S. law, it appears to have been routinely granted, perhaps as of right. In Canadian law, in contrast, the remedy is clearly discretionary, though it is normally granted.[202]

In view of the potential burden on the infringer in taking an accounting, particularly in complex product cases, we recommend that in jurisdictions that choose to allow an accounting, the grant of accounting be within the discretion of the court. One factor that should be considered is whether an accounting will place an undue burden on the infringer, recognizing that the costs of discovery in an accounting are likely to fall disproportionately on the infringer.[203] That is, an accounting should not be granted when it is used primarily as a tool to harass the infringer.

[201] *See, e.g., Siddell* v. *Vickers* (Civ 1892, p.162) (UK) (reviewing the cases and stating that "the Plaintiff in an action for infringement of a patent, having succeeded, is entitled at his election either to damages or an account of profits, and that is the state of the law"); *Celanese Int'l Corp.* v. *BP Chemicals Ltd.* (Pat 1999, ¶ 35) (UK) ("A plaintiff who is successful in patent litigation has an entitlement to elect between damages and an account."); *Hollister Inc. & Dansac AS* v. *Medik Ostomy Supplies Ltd.* (PCC 2011, ¶ 7 (UK) (quoting *Celanese*). However, neither damages nor an accounting is available against an innocent infringer. Patents Act, 1977, c. 37, § 62(1) (UK). In Australian law, it appears that an accounting is routinely granted if requested, but the court "may" refuse to order either damages or an accounting against an innocent infringer. *Patents Act 1990*, § 123(1) (Austl.).

[202] A successful patentee is presumptively entitled to an accounting in the sense that an accounting, if sought, is normally granted in the absence of some reason why it should not be permitted. *See* Siebrasse 2016 (reviewing the cases). Traditional equitable factors will be considered in making the decision to deny an accounting. *See, e.g., J.M. Voith GmbH* v. *Beloit Corp.* (Fed. Ct. 1997, ¶¶ 110, 113, 119) (Can.); *Philip Morris Prod. S.A.* v. *Marlboro Canada Ltd.* (Fed. Ct. 2015) (Can.).

[203] *See, e.g., Eurocopter* v. *Bell Helicopter Textron Canada Ltée* (Fed. Ct. 2012, ¶ 412) (Can.) (refusing to grant an accounting in part because of the difficulty of calculating the accounting in a case in which the patented invention, helicopter landing gear, "although essential for the proper functioning and security of a helicopter, represents just a small part of the total cost of a helicopter").

This is not to say that we are recommending that an accounting be granted sparingly. It should also be recognized that when damages are sought, particularly in the form of lost profits, the discovery burden will fall disproportionately on the patentee, and the desire to avoid that burden is an entirely legitimate reason for the patentee to elect an accounting in lieu of lost profits. As explained in more detail below, the patentee will often pay an implicit price in the form of foregone damages when electing an accounting,[204] and this is an inherent disincentive to abuse of the accounting remedy. The concern that an accounting will unduly burden the infringer will be further mitigated in jurisdictions with limited discovery. Therefore, an accounting should not be denied solely because of the burden it places on the infringer, but only when that burden is disproportionate to the amount at issue, as compared with the alternative of assessing damages.

We would also emphasize that the concern for the burden on the infringer is not necessarily the only consideration that should be taken into account in determining whether an accounting should be granted. We focus on this point because it is one lesson to be taken from the history of the accounting remedy in U.S. law. Because an accounting of profits is not available in the United States and it is not the primary remedy in most jurisdictions in which it is available, the broader question of when an accounting should be granted has not received sustained attention, either in the cases or in the literature. We propose further research on this issue.

## 3 Calculating the Infringer's Profits

A) DIFFERENTIAL PROFIT METHOD. In our view, the fundamental principle in calculating an accounting of the infringer's profits is that the "the inventor is only entitled to that portion of the infringer's profit which is causally attributable to the invention."[205] In order to implement this causation requirement, the correct approach to calculating the profits to be disgorged is the "differential profit" approach, in which "[a] comparison is to be made between the defendant's profit attributable to the invention and his profit had he used the best non-infringing option."[206] The profit causally attributable to the infringement is the difference between the infringer's actual profits and the infringer's profits in the "but for" world in which it did not infringe. The differential profit approach was established as the correct approach to an accounting of profits by the Supreme Court of Canada in

[204] *See infra* note 238 and accompanying paragraph of text.

[205] *Monsanto Canada Inc.* v. *Schmeiser* (Sup. Ct. 2004, ¶ 101) (Can.).

[206] *Id.* at ¶ 102; *see* Cotter 2013a, 197 (noting that "the profit attributable to the infringement is, strictly speaking, only the profit the defendant earned over and above what he would have earned from using the next-best available alternative"). *See also Monsanto Canada Inc.* v. *Schmeiser* (Sup. Ct. 2004, ¶ 101) (Can.) (noting that "the inventor is only entitled to that portion of the infringer's profit which is causally attributable to the invention").

*Monsanto Canada Inc.* v. *Schmeiser* (2004) and is now well established in Canadian patent law.[207]

The increased profit due to the invention may take the form of increased sales, increased profits, or reduced costs:

> If the presence of the infringing feature caused the infringer to earn ten sales that it otherwise would not have earned, the proper measure of the benefit derived from the use of the patent is the profit earned on the ten additional sales. Similarly, if the infringer would have made the same number of sales at the same prices, but at higher production costs, the benefit derived from the use of the patent is the cost saving.[208]

The infringer's differential profit is very closely related to the value of the invention over the best noninfringing alternative, which is widely acknowledged to be the social value of the invention.[209] The difference between the two is only that the differential profit represents the profit attributable to the patented technology in the hands of the infringer, which may be less than its true social value (if, for example, the infringer is particularly inefficient at implementing the invention). In many cases, however, the two concepts will coincide.

The differential profit approach to an accounting of profits is the mirror image of the approach we recommend to damages. In *Aro Manufacturing Co.* v. *Convertible Top Replacement Co.*, the Supreme Court of the United States stated that the statutory measure of "damages" is "the difference between [the patentee's] pecuniary condition after the infringement, and what his condition would have been if the infringement had not occurred."[210] Substituting the words "the infringer's" for the bracketed phrase gives the differential profits approach to an accounting. This symmetry arises because the causation inquiry is fundamentally the same in either context. If the patentee is entitled to damages in the form of lost profits, the inquiry is the same, with the only difference being whether the focus is on the patentee's profits or the infringer's profits.

The differential profit approach to an accounting of profits is also closely related to the incremental profit approach we recommend as the appropriate approach to reasonable royalty damages.[211] The hypothetical negotiation approach to a reasonable royalty considers a negotiation between the patentee and the infringer in which the infringer's maximum willingness to pay is determined by its profits if it

[207] *See, e.g.*, *Apotex Inc.* v. *ADIR* (Fed. Ct. 2017) (Can.); *Monsanto Canada Inc.* v. *Rivett* (Fed. Ct. 2010) (Can.); *Frac Shack Inc.* v. *AFD Petroleum Ltd.* (Fed. Ct. 2017) (Can.).

[208] Cotter 2013a, 205.

[209] *See* Chapter 1.

[210] *Aro Mfg. Co.* v. *Convertible Top Replacement Co.* (U.S. 1964, p.507) (U.S.) (plurality opinion) (quoting *Yale Lock Mfg. Co.* v. *Sargent* (U.S. 1886, p.552) (U.S.)); *see also id.* (stating that the primary question is "had the Infringer not infringed, what would Patent Holder-Licensee have made?" (quoting *Livesay Window Co., Inc.* v. *Livesay Indus., Inc.* (5th Cir. 1985, p.471) (U.S.))).

[211] *See* Chapter 1.

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had used the best noninfringing alternative. The only difference between this and the differential profits approach to an accounting of profits is that an accounting awards all of the value of the invention to the patentee, while reasonable royalty damages splits that value between the parties.[212]

The differential profit approach contrasts with the approach to disgorgement of profits under U.S. law of design patents, in which the infringer is required to disgorge the entire profit made on an infringing "article of manufacture,"[213] even though that profit may be only partially attributable to the invention. This approach, as set out by the Supreme Court in *Samsung* v. *Apple*,[214] turns on the specific wording of the relevant U.S. statutory provision rather than any general principle regarding disgorgement, and consequently we will not explore the reasoning in detail. Suffice it to say that this approach is contrary to the sound economic principle that the plaintiff should recover damages reflecting only the value of the patented feature. The U.S. approach in design patent cases can result in disgorgement of profits that are not causally attributable to the infringement, and thus will put the patentee in a better position than it would have been but for the infringement.[215] Indeed, if, as is common, there is more than one patented design in a product, an infringer might be liable for its entire profits to multiple parties.[216] Consequently we recommend that the U.S. design patents approach to disgorgement of the infringer's profits should not be adopted in patent law.

The differential profit approach also contrasts the accounting profit approach, in which the infringer's profit is calculated as the difference between its revenues and costs attributable to the infringing product, without any consideration of whether some or all of that profit might have been made using a noninfringing alternative. Like the U.S. approach to disgorgement in design patents, the accounting profits approach is contrary to the sound economic principle that the plaintiff should recover damages reflecting only the value of the patented feature, and it will often result in disgorgement of profits that are not causally attributable to the infringement. The U.S. design patents approach ignores value contributed by other aspects of the infringing product, while the accounting profit approach ignores the value that the infringer might have derived from a noninfringing alternative. Consequently, we recommend that the accounting profits approach should not be adopted in patent law.

[212] *See* Taylor 2014, 140 ("[A]warding all of the infringer's profit as a categorical rule governing all awards of reasonable royalties would effectively reinstitute disgorgement of profits as a remedy for patent infringement.").

[213] U.S. Patent Act § 289.

[214] *Samsung Elecs. Co., Ltd.* v. *Apple, Inc.* (U.S. 2016) (U.S.); *see also supra* notes 161–166 and accompanying text (discussing the *Samsung* decision on design patent remedies in more detail).

[215] *See, e.g.*, Lemley 2013, 221 (arguing that disgorgement under § 289 "drastically overcompensates the owners of design patent," in cases involving "a modern, multicomponent product").

[216] *See id.* at 231–32 (explaining that under the U.S. system of design patent remedies, "we may have multiple parties lining up, each entitled to collect the defendant's entire profit . . . ").

In sum, we recommend that the correct approach to calculating an accounting of profits is the differential profit approach, in which the profits to be disgorged by the infringer are equal to the difference between its actual profits, and the profits it would have made had it used the best noninfringing alternative.

B) DIFFICULTY OF ASSESSMENT. As previously explained, disgorgement of the infringer's profits was eliminated from U.S. law as a remedy for infringement of utility patents by the 1946 Patent Act,[217] largely because of the difficulty of apportioning profits in the case of complex products.[218] Two general difficulties arise. One is how to allocate overhead expenses that support both infringing and noninfringing products. The second is the problem of apportionment "where the [infringer's] profits were not attributable solely to the patented invention."[219]

The first problem arises regardless of whether the product is simple or complex. It is also more tractable, both conceptually and practically. The infringer's profits are its revenues less its costs. The direct costs of producing the infringing goods are clearly deductible, but what about general overhead, such as rent, and other fixed costs that would be spent whether or not the infringing product was made? The argument against deducting fixed costs is that they would have been incurred in any event and thus are not costs caused by the infringement. This is reflected in the so-called incremental profits approach,[220] in which the profits are the difference between those actually earned and those that would have been earned but for the infringement in the short run. On the other hand, the functions paid for by overhead are necessary to operation of the business in the longer run, and so those costs, while indirect, must have contributed something to the production of the infringing product.[221] In the long run, a business cannot run profitably without covering its fixed costs; for instance, if the infringer produced five different products, all of which infringed patents held by different patentees, and deduction of fixed costs was not permitted, the infringer would be required to account for far more profit than it actually made.

The same issue of deducting fixed costs arises in the context of damages in the form of lost profits. In both contexts, deducting fixed costs would benefit the infringer by reducing the profits that the infringer must disgorge, or which the

[217] Act of Aug. 1, 1946, § 70, 778; *see also supra* notes 151–57 and accompanying text.

[218] *See supra* note 152 and accompanying text; *see also* H.R. REP. NO. 79–1587, at 2 (1946) ("Frequently a suit for patent infringement involves the infringement of only an improvement in a complex machine, and it is impossible to apportion profits due to the improvement. In such circumstances the proceedings before masters, which are conducted in accordance with highly technical rules and are always expensive, are often protracted for decades and in many cases result in complete failure of justice.").

[219] Chisum 2017, § 20.02[3].

[220] The "incremental profits" approach must be distinguished from the "differential profits" approach that looks to the value of the invention over the best noninfringing alternative; the incremental profit approach looks to the incremental profit of production.

[221] Cotter 2013a, 206–07.

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patentee claims as damages. In the United States, "[t]he incremental income approach to the computation of lost profits is well established in the law relating to patent damages," and therefore "fixed costs – those costs which do not vary with increases in production, such as management salaries, property taxes, and insurance – are excluded when determining profits."[222] UK and Australian courts, on the other hand, are willing to allow deduction of some part of the overhead if it can be shown on the facts that, but for the infringement, "the infringer would have devoted his capacity to the manufacture and/or marketing of non-infringing products."[223] This essentially amounts to considering fixed costs as opportunity costs, except rather than allowing a deduction for opportunity costs as such, a proportion of the general overhead is allocated to the infringing activity if and only if there was a foregone opportunity.[224] The infringer is not, however, entitled to simply allocate a proportion of general overheads to an infringing activity.[225]

The economic analyses of the question of whether the overhead should be deducted is divided. The argument against deduction is that fixed costs would have been incurred in any event, and so cannot be attributed to the infringement. The argument in favor of deduction is that it is fair to assume that the infringer would have earned something from the use of equipment and other assets that in fact were deployed for infringing purposes.[226] We do not take a position on this debate, as it does not raise issues peculiar to complex products (or even to patent law, as the same question exists in debates over remedies for breach of contract), which is the focus of this project. However, we see no reason in principle why the issue should be treated differently in the two contexts. Consequently, we recommend that the same approach to fixed costs be taken in the context of both lost profits damages and an account of the infringer's profits.

The second major area of difficulty is peculiar to complex products, where the infringing technology contributes only a relatively small part of the overall value of the infringing product. The challenge is to apportion the infringer's profits between the patented invention and the noninfringing aspects of the product.[227] Exactly the same problem arises in the context of damages. In our view, the solution in principle is the same in both contexts, namely the differential profits approach; the profit attributable to the infringing technology is the difference between the profit the infringer actually made and the profit it would have made but for the infringement.

[222] *Paper Converting Mach. Co.* v. *Magna-Graphics Corp.* (Fed. Cir. 1984, p.22) (U.S.); *see also State Indus., Inc.* v. *Mor-Flo Indus., Inc.* (Fed. Cir. 1989, p.1579–80) (U.S.) (approving the award of incremental profits); Chisum 2017, § 20.05[4][b].

[223] *Design & Display Ltd.* v. *OOO Abbott & Anor*, (Civ 2016, ¶ 40) (UK) (citing *Dart Indus. Inc.* v. *Decor Corp. Pty Ltd.* (HCA 1993) (Austl.)).

[224] *Dart Indus. Inc.* v. *Decor Corp. Pty Ltd.* (HCA 1993, p.114–15) (Austl.); *Hollister Inc. & Dansac A/S* v. *Medik Ostomy Supplies Ltd.* (Civ 2012, ¶¶ 82–86) (UK).

[225] *Hollister Inc. & Dansac A/S* v. *Medik Ostomy Supplies Ltd.* (Civ 2012, ¶ 85) (UK).

[226] Cotter 2013a, 206–09.

[227] Chisum 2017, § 20.02[3].

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And, as in the context of damages, actually applying this approach is often extremely difficult,[228] for exactly the same reasons discussed in the damages context.[229]

Given that at least some of the problems that led the United States to eliminate the remedy of an accounting of profits also arise in the context of damages, the question arises as to why the accounting remedy was singled out for abolition. The answer (at least in part) is that damages were also often denied, but on a case-by-case basis, rather than via legislative mandate. Damages had to be proved, not presumed,[230] and in a complex products case, the patentee often cannot establish lost profit damages, as it has difficulty proving causation – i.e., that it lost sales due to the patented technology.[231] In early U.S. law, damages for lost royalties were generally not available in the absence of an established royalty, and consequently a prevailing patentee would commonly receive only nominal damages despite substantial infringement.[232] The harshness of this result was mitigated by the recognition of reasonable royalty damages,[233] which relaxed the standard of proof required to establish entitlement to a royalty.[234] However, in the current understanding of reasonable royalty damages, where the value of the invention over the best non-infringing alternative is split between the patentee and the infringer, even reasonable royalty damages require apportionment of the value between the patented invention and other aspects of a complex product, which has proven very difficult in that context as well.[235] Thus an accounting of the infringer's profits is not in general more (or less) difficult than assessing damages in either the form of lost profits or a reasonable royalty, but any of these may be less difficult than the others on the facts of a particular case. With that said, all will typically be fairly difficult in the context of a complex product.

[228] *See Westinghouse Electric & Mfg. Co.* v. *Wagner Electric & Mfg. Co.* (U.S. 1912, p.615–20) (U.S.) (discussing the difficulty of apportioning profits); *Siddell* v. *Vickers* (Civ 1892, p.162–63) (UK) (same); *see also generally* Chisum 2017, § 20.02[3], and cases cited therein.

[229] *See infra* Section 2.2.2; Chapter 1.

[230] Chisum 2017, § 20.02[2].

[231] Except in relatively rare cases where the patented technology drives market demand for the product. Under U.S. law, the so-called entire market value rule will allow the patentee to recover lost profits on the sale of the entire product in such cases. *See generally* Love 2007; *see also supra* notes 92–94 and accompanying text (further explaining the entire market value rule). A similar rule was applied in early U.S. accounting of profits cases. Chisum 2017, § 20.02[2][c].

[232] Chisum 2017, § 20.02[2].

[233] *Id.* § 20.02[3][c] ("To this general rule, the cases recognized an exception where the sold article derived its entire marketable value from the patented improvement." (citing Robinson 1890, 505–07)).

[234] *See generally* Taylor 2014, 97–99 (describing the development of the law governing reasonable royalties in response to undercompensation associated with nominal damages).

[235] *Glaxosmithkline UK Ltd.* v. *Wyeth Holdings LLC* (Pat 2017, ¶ 34) (UK) (noting "In many cases, when assessing a reasonable royalty for damages, the court considers what profits have been made by the defendant and apportions what it regards as a fair share by way of royalty. Therefore, damages inquiries already involve, to some extent, the complexity that also occurs in the case of accounts of profits."); *see also* Chapter 1.

Other considerations also may have motivated the U.S. decision to abolish the accounting remedy. An accounting, though a monetary remedy, was available to the successful patentee as of right if it brought suit in equity.[236] A successful patentee could use the cost and time of an accounting as a weapon to harass the infringer.[237] There is no symmetry in this respect with damages, where the practical burden of proving its lost profits would fall on the patentee.

This problem was exacerbated because in old U.S. law, the patentee could seek both damages and an accounting at the same time.[238] In other systems derived from English law, including the United Kingdom, Canada, and Australia, the patentee must elect either damages or an accounting. The quantum of lost profit damages will commonly be greater than the infringer's profits that would be disgorged in an accounting because the infringer often prices below the patentee. When a patentee is required to make such an election, the opportunity cost of foregoing damages makes it unpalatable to elect an accounting solely to harass the infringer. We recommend that if an accounting is permitted, the patentee should be required to elect between an accounting and damages, and should not be permitted to pursue both simultaneously.

In summary, the concerns that led the United States to entirely eliminate the accounting remedy are shared by the damages remedy, and these concerns were exacerbated by the unique ability of patentees to harass infringers by requesting both damages and an accounting of profits under the U.S. regime that existed prior to 1946. U.S. history does not support the view that an accounting of profits, by itself, is a uniquely problematic remedy.

c) BURDEN OF PROOF. The final issue to consider is the burden of proof regarding the proper amount of disgorgement. The difficulty of apportioning the infringer's profits to the patented technology in complex product cases means that the burden of proof is of the utmost importance. As with apportionment, there is no easy solution to this problem.

[236] *See, e.g.*, *Tilghman* v. *Proctor* (U.S. 1888, p.144) (U.S.) ("But upon a bill in equity by the owner against infringers of a patent, the plaintiff is entitled to recover the amount of gains and profits that the defendants have made by the use of his invention."); *Stevens* v. *Gladding* (U.S. 1854, p.455) (U.S.) ("The right to an account for profits is incident to the right to an injunction, in copy and patent-right cases."). This right was confirmed by the Patent Act of 1870. *See* Act of July 8, 1870, § 55, 206 (providing that a successful patentee "shall be entitled to recover, in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby . . .").

[237] *See Kori Corp.* v. *Wilco Marsh Buggies & Draglines, Inc.* (Fed. Cir. 1985, p.654) (U.S.) ("The legislative history of the 1946 amendments clearly indicates that one of its purposes was to eliminate the necessity of the traditional accounting to determine the infringer's profits in all damages determinations, and to deter the use of such proceedings by successful patentees to harass the infringer.").

[238] Act of July 8, 1870. Double recovery, however, was not permitted, as the patentee's actual damages were recoverable only to the extent that they exceeded the infringer's profits. *See Rite-Hite Corp.* v. *Kelley Co.* (Fed. Cir. 1995, p.1561) (U.S.) (Nies, J., dissenting-in-part).

One possible approach is to put the burden of apportionment on the infringer, on the view that the patentee should not be restricted to a nominal award because of the difficulty of apportionment.[239] On the other hand, in cases where it is clear that the patented technology contributes only a small part of the value of the product, awarding the entire profit to the patentee because of the difficulty of apportionment will unjustly overcompensate the patentee.[240] It is possible to further parse the burden according to particular considerations, such as whether the difficulty of apportionment was the fault of the infringer (e.g., by not keeping adequate books), or whether the patent is for the whole product, or only for an improvement, and so on. The question of the burden of proof was extensively debated in U.S. law when the disgorgement remedy was available, but no fully satisfactory solution was ever developed.[241] Nor has the question been resolved in other jurisdictions in which disgorgement is still permitted, in part because the issue is pressing in only complex product cases, and relatively few of these have been decided so far.[242] Consequently, if an accounting of profits is to be permitted as a remedy in the context of complex products, further research is required on the issue of the burden of proof of apportionment.

We note that the issue of the burden of proving apportionment is distinct from the burden of proving the availability of a noninfringing alternative.[243] As previously discussed in the lost profits section, further research would be helpful on this issue.

[239] *See Westinghouse Electric & Mfg. Co.* v. *Wagner Electric & Mfg. Co.* (U.S. 1912, p.615, 618–19) (U.S.) (noting that if the difficulty of an apportionment "could only be converted into an impossibility, the defendant retained all of the gains, because the injured patentee could not separate what the guilty infringer had made impossible of separation," and that "[t]he inseparable profit must be given to the patentee or infringer. The loss had to fall on the innocent or the guilty. In such an alternative the law places the loss on the wrongdoer.").

[240] *Dowagiac Mfg. Co.* v. *Minn. Moline Plow Co.* (U.S. 1915, p.647) (U.S.).

[241] Chisum 2017, § 20.02[3][d][iii] (discussing lower court cases interpreting the Supreme Court of the United States cases in *Westinghouse* and *Dowagiac*).

[242] An accounting is regularly granted in Canada, but usually in the context of pharmaceuticals, where the entire value of the product is normally attributable to the patented invention. *Celanese Int'l Corp.* v. *BP Chemicals Ltd.* (Pat 1999) (UK) is a UK case in which apportionment was addressed in some detail, but not in a very satisfactory manner, and without discussing the burden of proof issue. *See* Cotter 2013a, 201–02.

[243] *See supra* notes 88–89 and accompanying text.