

Intellectual Property, Jobs & Prosperity in the Nordic Region

2025 Index

Dr. Nima Sanandaji



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Jobs & Prosperity
in the Nordic
Region**

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Förord: Immaterialrätten behöver vara i takt med tiden

Det är omvälvande tider, även för immaterialrätten. Har vi en adekvat lagstiftning som både ger rättighetsinnehavare ett effektivt skydd vid intrång samt möjligheter att få betalt för sitt arbete? Siffrorna i årets rapport visar att vi har en bra bit kvar i Sverige och Norden innan vi är där. Samtidigt är vi i ett nytt teknikskifte i och med utvecklingen av AI, som riskerar att utarma immaterialrätten om den inte hanteras rätt.

Syftet med denna rapport är att kunskapshöja om värdet av immaterialrätten och belysa de stora utmaningar vi har med intrång. Årets rapport visar att intrången leder till utträngning av 193 500 jobb, 246 miljarder svenska kronor i värdeskapande samt 66 miljarder kronor i skatteintäkter i Norden. Bakom rapporten står medlemmar i Nätverket för en modern immaterialrätt, en bred grupp av företag och organisationer inom vitt skilda verksamhetsområden, med en gemensam vilja att fortsätta investera i immaterialrätten. Dagens nivåer av intrång är dock oacceptabla om Sverige ska fortsätta vara ett framgångsland på området.

Vi behöver en modern lagstiftning som ger ett effektivt skydd. De som begår intrång ligger ofta steget före och därför är det avgörande att vi har ett effektivt regelverk som hänger med och att det även upprätthålls.

Inom Nätverket ser vi att fokus särskilt behöver sättas på följande:

- Förbättring av immaterialrätt inom det offentliga, inklusive Patent- och Registreringsverket (PRV) och andra myndigheter samt offentlig upphandling.
- Sporten drabbas hårt av intrång live. Här måste lagstiftningen uppdateras. Det måste bli enklare och mer effektivt att blockera illegala tjänster, därför bör frågan om administrativ blockering utredas.

- Säkerställa resurser inom polis och åklagare. Idag haltar resurserna inom immaterialrättsenheterna betänkligt. Här behövs både kompetens och resursförstärkning.
- Upphovsrätten måste respekteras vid nya teknikskiften. Frågan om hur upphovsrätten ska hanteras inom AI är därför av avgörande betydelse.



Sara Lindbäck, Nätverket för en modern immaterialrätt

Denna rapport har skrivits av Dr Nima Sanandaji, ordförande för tankesmedjan European Centre for Entrepreneurship and Policy Reform (ECEPR), med stöd från följande aktörer genom nätverket En modern immaterialrätt:

Dataspelsbranschen

Film & TV-Producenterna

Läromedelsförfattarna

IFPI Sverige

Medieföretagen

Musikförläggarna

Nordic Content Protection

Rättighetsalliansen

SHL

Stim

Sveriges Författarförbund

Svenska Förläggareföreningen

Sveriges Filmuthyrareförening

Swedish Film

Trä- och Möbelföretagen

TV4

Viaplay

Sammanfattning

- Varumärken, patent, upphovsrätter och designrättigheter spelar en avgörande roll för företag i Norden. Denna studie undersöker hur många jobb och vilket ekonomiskt värde företag med intensivt beroende av immateriella rättigheter skapar. Studien uppskattar också utträngningseffekten orsakat av varumärkesförfalskning och piratkopiering. Förfalskning och piratkopiering i Norden beräknas leda till utträngning av 193 500 jobb, 21,4 miljarder euro (246 miljarder svenska kronor) i värdeskapande samt 5,7 miljarder euro (66 miljarder kronor) i skatteintäkter.
- Studien inkluderar en uppskattning av utträngningseffekten av illegal användning av immateriella rättigheter. Antalet jobb som trängs ut av varumärkesförfalskning och piratkopiering uppskattas till 77 400 i Sverige, 48 200 i Danmark, 33 400 i Finland och 34 400 i Norge. Det ekonomiska värdet som trängs undan uppgår till 7,8 miljarder euro (90 miljarder kronor) i Sverige, 6,4 miljarder euro i Danmark, 2,9 miljarder euro i Finland och 4,3 miljarder euro i Norge.
- Illegal användning av immateriella rättigheter leder även till att skatteintäkter motsvarande 2,1 miljarder euro (24 miljarder kronor) i Sverige trängs undan. Motsvarande summa är 1,7 miljarder euro i Danmark, 760 miljoner euro i Finland och 1,2 miljarder euro i Norge.
- Det finns också betydande utmaningar som behöver mötas med reformer. Ett tydligt exempel är behovet av att bekämpa illegal IPTV, som tränger ut lagliga aktörer och skapar stora intäkter för kriminella organisationer. Illegal IPTV används av cirka 700 000 svenska hushåll, som årligen betalar 1,7 miljarder svenska kronor i prenumerationsavgifter till kriminella nätverk.¹
- Mindre företag behöver bättre möjligheter att försvara sina rättigheter. Domstolsförfaranden och medlingar uppfattas som för långdragna och för dyra. Det behövs enklare och mer kostnadseffektiva sätt att försvara immateriella rättigheter.

¹ Mediavision (2025).

- Idrott påverkas starkt av intrång. Problemen är större i Sverige än i de flesta länder, vilket gör att Sverige förlorar i internationell konkurrens. Forskning har funnit att illegal streaming av sport också kan kopplas till mer illegal sportvadslagning. Detta är ett exempel på hur immateriella rättighetsintrång är en del av ett vidare kriminellt ekosystem.
- Mer resurser behövs för att bekämpa den kriminella ekonomin som bygger på immaterialrättsintrång. Rättsväsendets resurser och kompetenser bör ytterligare stärkas. Förebyggande insatser, till exempel informationskampanjer om piratkopiering i skolorna, är också en viktig del av lösningen.
- Live-sändningar, som shower och sport är särskilt utsatta för intrång. Dagens blockeringsprocess är inte tillräckligt effektiv utan förändring krävs. Administrativ blockering bör utredas.
- Utvecklingen av AI behöver baseras på tydlig respekt för immateriella rättigheter.
- Den offentliga sektorn måste förbättra hanteringen av immateriella rättigheter, särskilt vad gäller offentliga upphandlingar.
- Aktuell forskning visar på viktiga kopplingar mellan immateriella rättigheter, företagens innovationsaktivitet och förmågan att uppnå grön tillväxt.

Varumärkesförfalskning och piratkopiering uppskattas leda till att ett ekonomiskt värdeskapande på 90 miljarder kronor samt 77 400 arbetstillfällen i Sverige trängs undan, samt att skatteintäkterna minskar med 24 miljarder kronor.

Foreword: Intellectual property rights need to keep up with the times

These are turbulent times, also for intellectual property rights. Do we have adequate legislation that both gives rights holders effective protection in the event of infringement and opportunities to get paid for their work? The figures in this year's report show that we have a long way to go in Sweden and the Nordics before we are there. At the same time, we are in a new technological shift with the development of AI, which risks impoverishing intellectual property rights if it is not handled correctly.

This report aims to raise awareness of the value of intellectual property rights and highlight the major challenges we face with infringement. This year's report shows that intellectual property rights infringements lead to the crowding out of 193,500 jobs, 21.4 billion euros in value creation and 5.7 billion euros in tax revenue in the Nordics. Behind the report are members of the Network For a Modern intellectual Property Law, a broad group of companies and organizations in widely different fields of activity, with a common desire to continue investing in intellectual property rights. However, today's levels of infringements are unacceptable if Sweden is to continue to be a successful country in the field.

We need modern legislation that provides effective protection. Those who commit infringements are often one step ahead, and therefore, it is crucial that we have an effective regulatory framework that keeps up and that is also enforced.

Within the Network, we see that focus especially needs to be placed on the following:

- Improvement of intellectual property rights within the public sector, including The Swedish Intellectual Property Office (PRV) and other authorities as well as public procurement.
- Sports are hit hard by illegal live infringements. Here, the legislation must be updated. It must become easier and more effective to block illegal services, therefore administrative site blocking should be investigated.

- Ensure resources within the police and prosecutors. Today, the resources within the intellectual property units are too limited. Both competence and resource reinforcement are needed here.
- Copyright must be respected in the event of new technology shifts. The question of how copyright should be handled within AI is therefore of crucial importance.



Sara Lindbäck, The Network A Modern Intellectual Property Law

This report was written by Dr Nima Sanandaji, President of the think tank European Center for Entrepreneurship and Policy Reform (ECEPR), with support from the following actors through the network A Modern Intellectual Property Law:

Swedish Games Industry
 The Swedish Film & TV Producers
 The Swedish Association of Educational Writers
 IFPI Sweden
 Media Industries Association
 The Swedish Music Publishers Association
 Nordic Content Protection
 Rättighetsalliansen
 The Swedish Hockey League

Stim
 The Swedish Writers' Union
 Svenska Förläggareföreningen
 Swedish Film Institute
 Swedish Film
 The Swedish Federation of Wood
 and Furniture Industry
 TV4
 Viaplay

Summary

- Trademarks, patents, copyrights, and design rights play a decisive role for the companies in the Nordic region. This study examines how many jobs and what economic value companies with an intensive dependence on intellectual property rights create. The study also estimates the crowding out effect caused by counterfeiting and piracy. Counterfeiting and piracy in the Nordics are estimated to lead to crowding out of 193,500 jobs, 21.4 billion euros in value creation, as well as 5.7 billion euros in tax revenues.
- This study includes an estimate of the crowding out effect of illegal use of intellectual property. The number of jobs crowded out by counterfeiting and piracy is estimated at 77,400 in Sweden, 48,200 in Denmark, 33,400 in Finland and 34,400 in Norway. The economic value that is crowded out amounts to 7.8 billion euros in Sweden, 6.4 billion euros in Denmark, 2.9 billion euros in Finland and 4.3 billion euros in Norway.
- The illegal use of intellectual property also leads to the crowding out of tax revenues equivalent to 2.1 billion euros in Sweden. The corresponding sum is 1.7 billion euros in Denmark, 760 million euros in Finland and 1.2 billion euros in Norway.
- There are also significant challenges that need to be met with policy reforms. A clear example is the need to combat illegal IPTV, which are crowding out legal broadcasters and creating large revenues for criminal organizations. Illegal IPTV is used by approximately 700,000 Swedish households, which annually pay 1.7 billion Swedish kroner in subscription fees to criminal networks.²
- Smaller companies need better opportunities to defend their rights. Court proceedings and mediation are perceived as too long and too expensive. Simpler and more cost-effective ways to defend intellectual property rights are needed.
- Sports are strongly affected by infringement. The problems are greater in Sweden than in most countries, which means that Sweden loses out in international competition. Research has found that illegal streaming of sports can also be linked to more illegal sports betting. This is an example of how intellectual property rights infringements are part of a wider criminal eco-system.

² Mediavision (2025).

- More resources are needed to fight the criminal economy based on intellectual property infringement. The judicial system's resources and competences should be further strengthened. Preventive measures, such as information campaigns about piracy in schools, are also an important part of the solution.
- Live broadcasts, such as shows and sports are particularly vulnerable to intrusion. Today's blocking process is not efficient enough and change is required. Administrative blocking should be investigated.
- The development of AI must respect intellectual property rights.
- The public sector must improve the management of intellectual property rights, especially in relation to public procurement.
- Current research shows important connections between intellectual property rights, companies' innovation activity and the ability to achieve green growth.

Counterfeiting and piracy are estimated to crowd out 21.4 billion euros of economic value creation and 193,500 jobs in the Nordic region, as well as reducing tax revenues by 5.7 billion euros.

About this study

The study *Intellectual Property, Jobs & Prosperity in the Nordic Region* is a recurring index. It measures how much of the jobs, and economic value created, in the Nordic nations, are linked to businesses that are intensely dependent on intellectual property rights. Essentially all law-abiding firms in a modern economy are dependent on intellectual property rights to some degree, for example protection of the trademark of the business. Some businesses are however intensely dependent, which means that their operations could not happen if they did not have protection for trademarks, patents, copyright, and design rights.

The economic contribution of businesses with intense dependence on intellectual property rights is calculated in Sweden, Denmark, Finland, and Norway – on a national as well as regional level. Following this, an estimate is made on how many jobs and how much value creation is crowded out, in each country and region, due to intellectual property rights violations. Thus, the economic burden of counterfeiting and piracy can be estimated. This study also includes results from semi-structured interviews from Swedish industry representatives, on how the challenge of intellectual properties violations have changed during the last year. Based on the interviews and recent development, concrete solutions to reducing the burden of intellectual property rights violations are presented.

Jobs and value creation in different intellectual property rights intensive businesses

Numerous sectors of the Nordic economies are intensely dependent on intellectual property rights. This includes media companies, knowledge intensive industries, knowledge intensive services, IT companies, the fashion industry and trademark dependent trade.

The media companies in the Nordics contribute 193,700 jobs and 17 billion euros in value creation

Media companies operate with the publication and production of books, newspapers, films, computer games, TV and radio. As in other industries, media companies rely heavily on protection for their content and their trademarks. Since the production is focused on intangible value, in the form of music for example, the companies in these industries are also intensely dependent on copyright. There is a total of 193,700 people in the Nordics who work in media companies, of which approximately 75,500 in Sweden, 45,000 in Denmark, 31,300 in Finland and 40,900 in Norway. In total, the media companies contribute with an economic value creation of just under 17 billion euros.

Nordic knowledge intensive industries contribute 976,700 jobs and 114 billion euros in value creation

Knowledge intensive industries are companies in the manufacturing industry that are intensely dependent on various forms of intellectual property rights, especially trademarks, design rights and patents. The group includes many different industrial companies, which operate in the production of everything from pharmaceuticals to motor vehicles, furniture, and food. All the industries are intensely dependent on trademarks. Most also have an intense dependence on patents, to protect various product innovations, as well as process innovations. Many are also intensely dependent on design protection for their products. Knowledge intensive industries

are, on the other hand, not intensely dependent on copyright, since the value created in the industries takes place in the form of physical products. There are a total of just over 976,700 people in the Nordics who work in knowledge intensive industries, of which approximately 402,300 in Sweden, 250,800 in Denmark, 186,500 in Finland and 137,000 in Norway. In total, the companies within knowledge intensive industries contribute with an economic value creation of just under 114 billion euros.

Knowledge intensive services contribute 401,300 jobs and 32.8 billion euros in value creation

Knowledge intensive services include information services, scientific research and development, advertising and market research, travel agencies, leasing, and office administration. These businesses are intensely dependent on trademarks, and to a lesser extent also on design rights, patents, and copyright. Copyright is, for example, important for companies in information services as well as advertising and market research - as the companies produce, for example, advertising films in their operations. Patents are important for knowledge intensive companies in scientific research and development. Design rights are important for companies in advertising and market research, as well as those involved in scientific research and development. There is a total of 410,300 people in the Nordics who work in this part of the economy, of which approximately 167,000 in Sweden, 101,600 in Denmark, 63,600 in Finland and 78,000 in Norway. In total, the Nordic companies within knowledge intensive services contribute with an economic value creation of 32.8 billion euros.

Nordic IT companies contribute 513,500 jobs and 59.6 billion euros in value created

Information technology (IT) firms operate in telecommunications, creation of various programs and computer games, related consulting activities, as well as in the manufacture of computers, electronics, and optical products. These companies are intensely dependent on trademarks, design rights, patents, and copyrights. They all rely heavily on trademarks in their operations. In fact, a prominent pattern is that all industries that have an intense reliance on some forms of intellectual property are also heavily dependent on trademarks. This can be explained by the fact that the companies which develop new designs, new patents, and intellectual property

values protected by copyright, not only have a need to protect these properties, but also to protect their trademarks so that consumers are not deceived by plagiarism. The companies that manufacture computers, electronics and optical products are intensely dependent on design rights, as well as on patents and copyrights. The companies in telecommunications have an intense dependence on patents and copyrights. There is a total of just under 513,500 people in the Nordics who work in IT companies, of which approximately 214,400 in Sweden, 108,000 in Denmark, 100,600 in Finland and 90,600 in Norway. In total, the companies within IT contribute with an economic value creation of 59.6 billion euros, in the Nordic region.

Nordic companies in the [fashion industry](#) contribute 25,300 jobs and 1.9 billion euros in value creation

Fashion companies include manufacture of textiles, clothing, leather, and leather products. In addition to heavy reliance on protection for their trademarks, companies also rely heavily on the design of the clothing, fabrics and other fashion products that are developed. The companies that manufacture textiles are also intensely dependent on patents to protect their production techniques. On the other hand, this part of business life is not intensely dependent on copyright, as the value creation takes place in the form of physical products. There is a total of just under 25,300 people in the Nordics who work in this part of business life, of which approximately 7,100 in Sweden, 5,300 in Denmark, 7,600 in Finland and 5,300 in Norway. In total, the Nordic companies in fashion contribute with an economic value creation of 1.9 billion euro.

The companies in [trademark dependent trade](#) contribute 950,300 jobs and 113.7 billion euros in value creation

Trademark dependent trade firms include businesses in wholesale and retail trade, as well as water transport and air transport. It is the part of trade which is strongly dependent on brands. The companies in this area of business are intensely dependent on trademarks, and to a lesser extent also on patent rights for the various goods that are sold. There is a total of 950,300 people in the Nordics who work in this part of business economy, of which approximately 362,500 in Sweden, 253,400 in Denmark, 140,800 in Finland and 193,600 in Norway. In total, the companies within trademark dependent trade contribute an economic value creation of 113.7 billion euros, in the Nordic region.

In total, companies with intense dependence on intellectual property rights contribute with 339 billion euros in value creation in the Nordics, and with 3.1 million jobs

A review of all industries that have an intense dependence on intellectual property rights shows that they contribute a total of 3.1 million jobs in the Nordics, of which 1.3 million in Sweden, 765 ,000 in Denmark, 530 ,000 in Finland and 545 ,000 in Norway (table 1). In total, the companies contribute with an economic value creation of 339 billion euros in the Nordics, of which 123 billion in Sweden, 102 billion in Denmark, 45 billion in Finland, and 69 billion in Norway (table 2).

Table 1. Number of employees in industries with intense dependence on intellectual property rights, 2022

	Sweden	Denmark	Finland	Norway	All Nordics
Information technology	214,400	108,000	100,600	90,600	513,500
Knowledge intense industries	402,300	250,800	186,500	137,000	976,700
Media	75,500	45,900	31,300	40,900	193,700
Fashion	7,100	5,300	7,600	5,300	25,300
Trademark dependent trade	362,500	253,400	140,800	193,600	950,300
Knowledge intense services	167,000	101,600	63,600	78,000	410,300
Sum	1,228,700	765,100	530,500	545,500	3,069,800

Source: Eurostat, and own calculations.

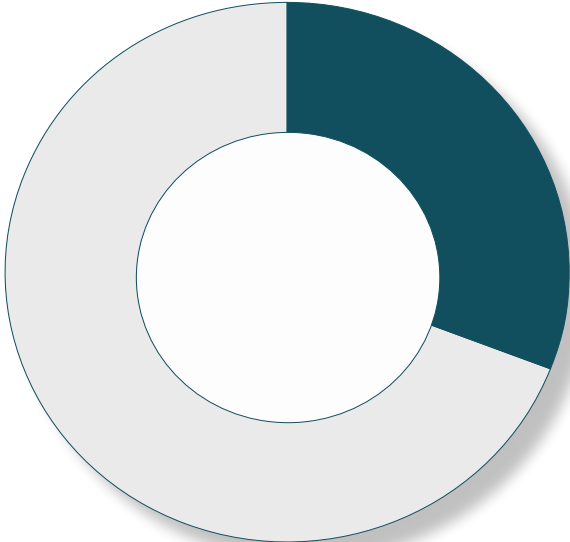
Table 2. Value creation (millions of euros) in industries with intense dependence on intellectual property rights, 2022

	Sweden	Denmark	Finland	Norway	All Nordics
Information technology	24,000	12,100	10,700	12,800	59,600
Knowledge intense industries	46,200	35,300	16,400	16,200	114,000
Media	6,800	3,400	3,300	3,500	17,000
Fashion	500	500	500	400	1,900
Trademark dependent trade	34,300	42,000	10,400	27,000	113,700
Knowledge intense services	11,200	8,600	4,000	8,900	32,800
<u>Sum</u>	123,000	101,900	45,200	68,900	339,000

Source: Eurostat, and own calculations.

Figure 1. Societal benefits of immaterial value creation

31% of the private sector jobs of Sweden, Denmark and Finland exist in businesses with intense dependency on intellectual property rights.



The same businesses create 37% of the value added in the private sector economy, excluding finance, of the three Nordic economies.

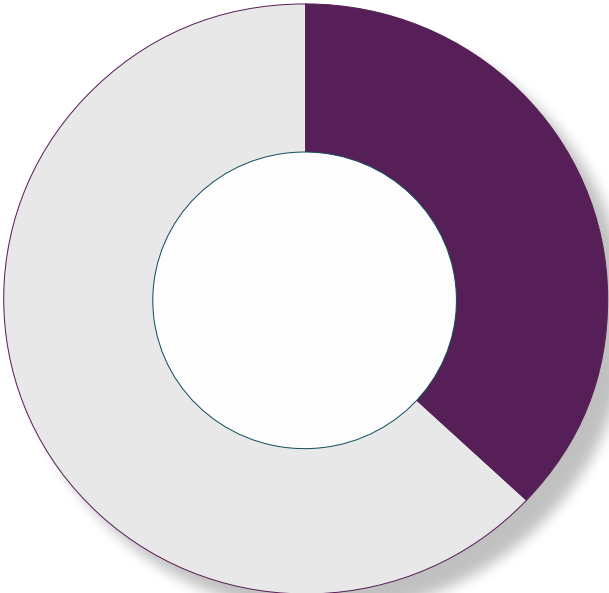
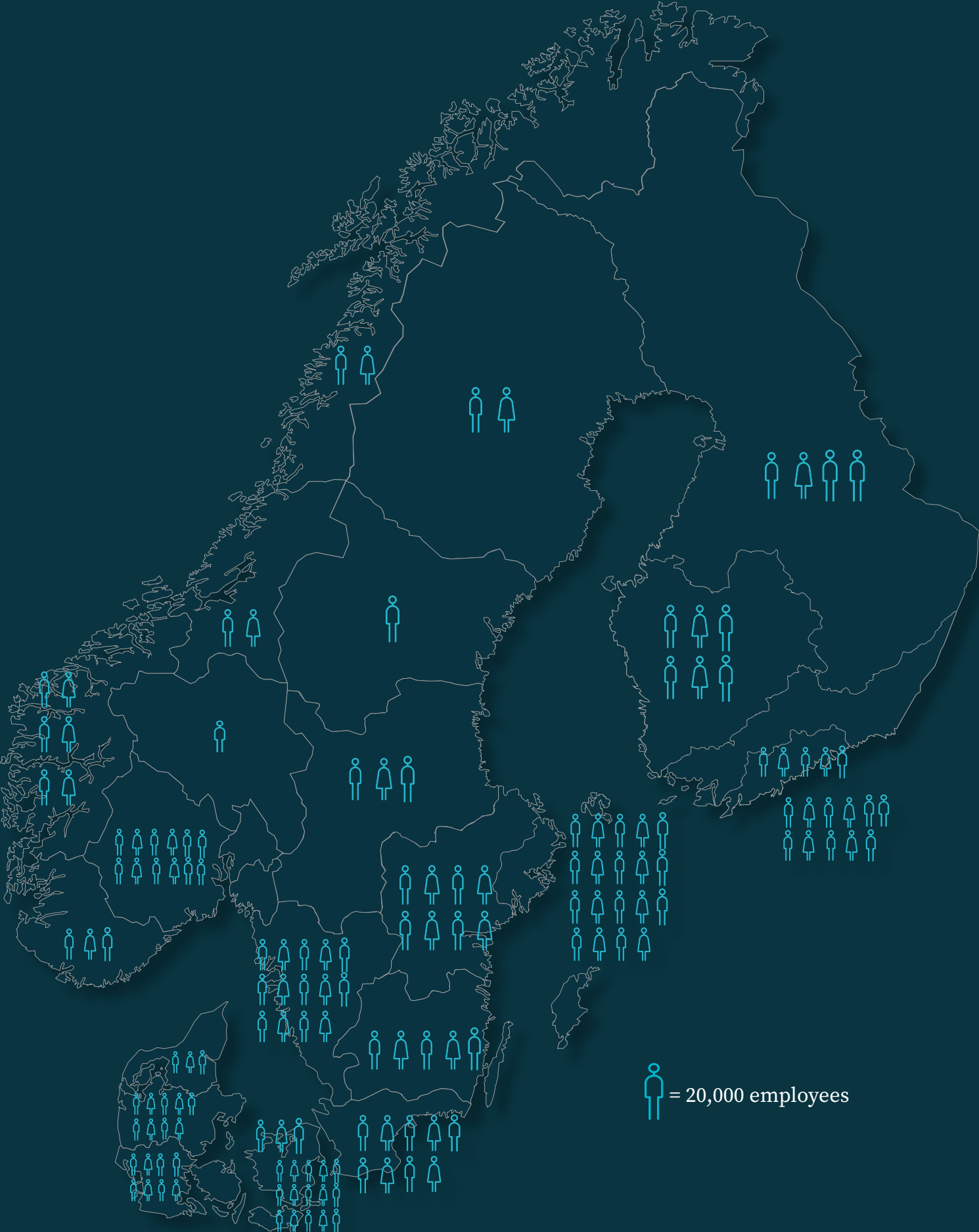
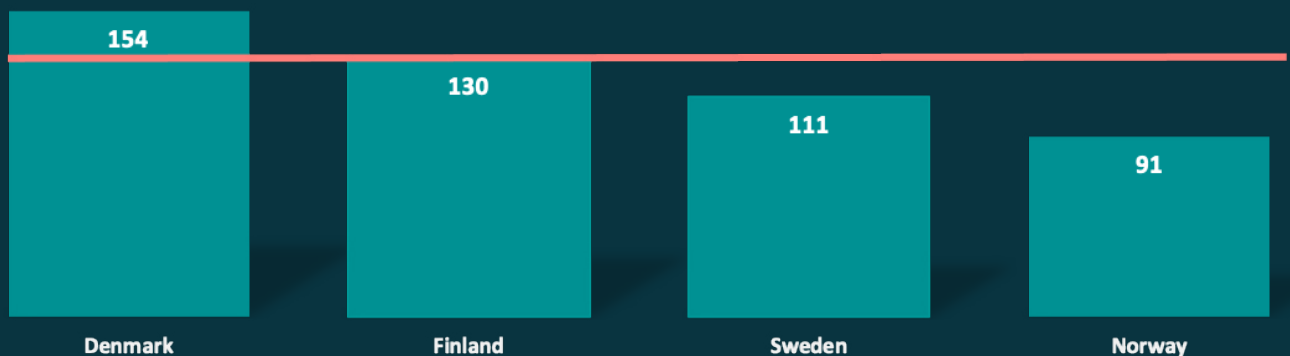


Figure 2. Number of employees in intellectual property-rights intensive businesses across the Nordics



Intellectual property intensive sectors tend to have higher output per employee than other parts of the business sector. In Denmark, the average employee in intellectual property rights intensive occupation creates 54 percent higher economic value compared to the average employee in the rest of the business sector. In Finland the number is 30 percent higher, and in Sweden 11 percent. Only in Norway, where much of national wealth is created in the oil and natural gas sectors, this relationship is the inverse. In Sweden, the relative value creation in businesses with intense intellectual property rights dependency has fallen over time, likely reflecting in part the draining effects of illegal use of intellectual property rights.

Figure 3. Value created per job in businesses with intense dependence on immaterial rights, compared to rest of business sector (rest of business sector = 100)



Illegal use of intellectual property crowds out economic activity

This study includes an estimate of the crowding out effect of illegal use of intellectual property. There are numerous ways in which illegal use of intellectual property harms law-abiding firms: Counterfeiters undermine the investments that firms make in research, development, and for meeting production and safety standards, while using a firm's reputation to compete against it. Businesses and other institutions can also be unwitting purchasers of counterfeit goods and suffer harm from the poor performance of such goods; this has included military contractors who purchased counterfeit goods from suppliers. Governments suffer loss of tax revenue and must spend to thwart counterfeiting and related crimes. Economies are deprived of jobs and innovation when legitimate manufacturers are unable to overcome the losses they suffer from counterfeiting. Societies may suffer risks to public safety and national security through the links of counterfeiting to transnational organized crime, extremism, human trafficking, supply chain infiltration, and still other crimes.³

Businesses that are intensely dependent on intellectual property rights, are also more sensitive to intellectual property rights violations, such as counterfeiting and piracy. Globally counterfeiting and piracy represents a multi-billion-dollar illegal industry, which creates a significant drain on the real economy. Counterfeiting and piracy crowds out legitimate economic activity and facilitate an underground economy, depriving public tax revenues and limiting legitimate private sector growth and job creation.⁴ In 2019 the OECD in co-operation with the Swedish Patent and Registration Office (PRV) published a report, that estimates the total global trade of counterfeit goods, based on violating the intellectual property rights of Swedish enterprises, amounting to two percent of the international sales of goods manufactured in Sweden. It is further estimated that counterfeit and piracy reduced public tax revenues in Sweden by 7.54 billion SEK in 2016.⁵

³ Sullivan et al. (2017).

⁴ Frontier economics, ICC Bascap, International Trademark Association, and TECXIPIO (2016).

⁵ OECD and PRV (2019).

The above estimate is about measuring the direct cost of counterfeiting and piracy, but there are also indirect costs to consider. As an OECD study concluded already in 2005, there are numerous ways through which counterfeiting and piracy disturb the economy: “In addition to the direct impact, counterfeiting and piracy can have significant indirect effects. These would include effects on GDP, employment, tax revenues, foreign investment, trade, and innovation. Most of the work that has been on this has focused on analysing the dynamic effects of reduced investments (caused by profit losses) on GDP, employment, and tax revenues. Other research has focused on the effect of the strength of IPR on economic performance (i.e., economic growth, foreign direct investment, trade, and innovation). Although evidence is mixed, the studies show that strong IPR regimes generally tend to be associated with positive effects in all areas.”⁶

Jeff Hardy, former director of the International Chamber of Commerce, has in a 2017 article published in *World Trademark Review*, published an estimate of how the total economic loss from counterfeiting and piracy relates to the direct trade loss. According to his estimates, each euro loss in international trade corresponds to total loss of 1.73 euro. The reason is that one also needs to account for domestic counterfeiting and piracy, for counterfeiting and piracy of film, music, and software (which are not included in direct trade loss measurements), since private sector activity in intellectual property rights dependent sectors are undermined, jobs are lost, and international investments are limited by counterfeiting and piracy.⁷

“For the Nordic region, there are 193,500 jobs and 21.4 billion euros that are crowded out by counterfeiting and piracy in 2024. The tax loss is approximately 5.7 billion Euros in the four large Nordic countries.”

By factoring in the changes in international trade volume during the period and utilizing the multiplier 1.73 to account for the overall economic impact, the previous OECD and PRV estimates from 2016 can be used to calculate the total economic impact of piracy and counterfeiting on the Swedish economy. The result is as follows:

⁶ Olsen (2005), quote p. 6.

⁷ Hardy (2017).

Sweden lost 90.2 billion SEK by piracy and counterfeiting in 2023, mainly through direct trade loss, but also digital piracy and undermining of private sector activity. With the same method, the total loss of tax revenues amounts to 24.0 billion SEK. These sums amount to circa 7.79 billion euros of lost economic value, and a tax loss of 2.08 billion euros.

The economic loss of counterfeiting and piracy amounts to circa 6.30% of the total value created, in Sweden. This study assumes that the same share is true for the other Nordic countries and the regions within the countries. It is further assumed that same share of jobs as economic activity is lost due to piracy. Based on these assumptions, the total loss of jobs and economic activity due to piracy and counterfeiting is calculated for each country and region. For Sweden, the tax loss due to piracy and counterfeiting is estimated to 1.68% of total economic value created by intellectual property rights intensive businesses. This share is assumed to be same in the different countries and regions of the Nordic region.

The calculations are used, to estimate the crowding out of jobs and value added in businesses with intense reliance on intellectual property rights, based on the 2024 data presented in this study. The results are shown in table 3.

Table 3. Economic loss due to counterfeiting and piracy (millions of Euros), estimates for 2022					
	Sverige	Denmark	Finland	Norway	All Nordics
Crowding out number of jobs	77,400	48,200	33,400	34,400	193,500
Crowding out value creation (millions of euros)	7,800	6,400	2,900	4,300	21,400
Crowding out tax revenues (millions of euros)	2,100	1,700	760	1,200	5,700

Source: Eurostat, SCB and own calculations.

Counterfeiting and piracy in the Nordics crowds out 193,500 jobs, 21.4 billion euros in value creation, and 5.7 billion euros in tax revenue

In **Sweden**, counterfeiting and piracy are estimated to lead to reduced value creation of 7.8 billion euros annually and the displacement of 77,400 jobs in industries with intense dependence on intellectual property rights (table 3). Tax revenues are also affected, with 2.1 billion euros in tax revenue lost due to legal businesses being crowded out by counterfeiting and piracy.

For **Denmark**, counterfeiting and piracy are estimated to lead to reduced value creation of 6.4 billion euros annually and to the crowding out of 48,200 jobs from industries that are intensely dependent on intellectual property rights. The loss of tax revenue amounts to around 1.7 billion euros annually in Denmark.

Value creation in **Finland** is reduced by approximately 2.9 billion euros due to counterfeiting and piracy. In addition, close to 33,400 jobs are crowded out, while the tax revenue that is lost corresponds to 760 million euros.

In **Norway**, counterfeiting and piracy lead to the crowding out of 34,400 jobs, an economic value creation loss of 4.3 billion euros, and to a tax loss of 1.2 billion euros. For the entire Nordic region, counterfeiting and piracy lead to the crowding out of 193,500 jobs. The loss in the form of value creation corresponds to 21.4 billion euros, while it is approximately 5.7 billion euros in tax revenue that is lost.

The evolving challenge of intellectual property rights infringements

Businesses with intense reliance on intellectual property rights play a key role in job and value creation throughout the Nordic nations. At the same time, the total economic loss and the tax revenue loss of piracy and counterfeiting amounts to significant figures. Combating piracy and counterfeiting and stimulating business growth in firms with intense dependence on intellectual property rights, is an important and integral part of economic policy. Interviews with representatives for different intellectual property rights intensive industries in Sweden have been conducted, during October and November 2024, to better understand the challenges faced by different parts of the economy, as a result of infringement.

“Over 700 000 households in Sweden subscribe to illegal IPTV services. Given that a typical subscription fee is 200 Kronor a month, this means that 1,7 billion Swedish Kronor are generated as subscription fees to criminal actors annually.”

TV piracy in Sweden alone creates billion kronor in revenue for criminals

A study by EUIPO (European Union Intellectual Property Office) looks at intellectual property rights infringements in films, music, publications, programs and TV during the period between 2017 and 2021, in the EU-countries. It is found that piracy of tv-material accounted for nearly half (48 percent) of the infringements, followed by books (28 percent), films (11 percent), computer programs (7 percent), and music (6 percent). Additionally, infringements are increasingly occurring in live events, such as sports broadcasts.⁸ Significant revenues are created by TV-piracy for criminal organizations.⁹ As much as 2.2 million individuals in Sweden have used an illegal

⁸ EUIPO (2023).

⁹ Swedish Tax Authority (2023).

service to watch film and TV-content in the past month. Over 700 000 households in Sweden subscribe to illegal IPTV services.¹⁰ Given that a typical subscription fee is 200 Kronor a month, this means that 1,7 billion Swedish Kronor are generated as subscription fees to criminal actors annually. It is important that legislation more clearly expresses that those who uses illegal IPTV services, are indeed committing a criminal offence. On the 24th of January the Swedish government initiated an investigation about how to combat illegal IPTV.¹¹

Quicker and more efficient blocking of illegal services are needed

A key challenge is that sports events or other live events such as shows are hacked. Criminal networks currently have the techniques needed for routinely being able to hack into broadcasts, circumvent the protection measures, and stream illegally the content. What would otherwise have been revenues created in the legal ecosystem – benefiting the broadcaster, the organizations organizing sports and the athletes – instead, turns into revenues for criminal groups. Sweden currently allows dynamic blocking injunctions. However, the courts procedures are both time and resource consuming. It should therefore be investigated whether administrative blocking should be introduced in Sweden, and it should be ensured that the legislation is updated to also be effective against intrusions into live broadcasts. Administrative blocking means that an authority with the right expertise is given the mandate to make decisions regarding the blocking of websites.

“Merely 39 percent of youth in answer that they only or mainly have legal sourcing of live sports events – compared to 32 percent who admit to streaming illegally. It has almost become norm to stream illegally – a dangerous development undermining the funding of sports.”

<https://skatteverket.se/omoss/pressochmedia/pressV%C3%A4rldsomsp%C3%A4nnande%20kriminella%20n%C3%A4tverk%20bakom%20illegal%20f%C3%B6rs%C3%A4ljning%20av%20tv-kanalmeddelanden/2023/2023/varldsomspannandekriminellanetverkbakomillegalforsaljningavtvkanaler.5.7da1d2e118be03f8e4f674.html>

¹⁰ Mediavision (2025).

¹¹ Kulturdepartementet & Socialdepartementet (2025).

According to an EUIPO study of 22 000 youth in the EU-member states found that 32 percent of youth (15-24 years old) in the EU relied on illegal sourcing of live sports events. While 15 percent explained that they only or mainly sourced through illegal sources, a further 17 percent said that they relied on a mix of legal and illegal content. Merely 39 percent of youth in answer that they only or mainly have legal sourcing of live sports events – compared to 32 percent who admit to streaming illegally.¹² It has almost become norm to stream illegally – a dangerous development undermining the funding of sports.

Public procurement should not encourage counterfeits

A relevant problem that can affect various goods and services with intellectual property rights relates to public procurement of furniture by municipalities. A municipality in Sweden or other parts of the Nordics might have a public procurement which calls for a specific brand or design of furniture, or an equivalent alternative at lower cost. This, however, can be an encouragement of counterfeits. If a municipality wants to procure a particular brand of furniture and decides that it does not want to pay for the original, the order should go to another pre-existing product, not to a close copy of the original furniture produced by a counterfeiting company. If the latter occurs, then the public procurement is directly encouraging the counterfeiting industry to grow. Information and policy updates are needed so that public tenders stop inviting infringements of intellectual property rights.

“If a municipality wants to procure a particular brand of furniture and decides that it does not want to pay for the original, the order should go to another pre-existing product, not to a close copy of the original furniture produced by a counterfeiting company.”

¹² EUIPO (2022b).

Course literature infringement is undermining Sweden as a knowledge nation

Sweden has a situation currently where even some students with good grades who are admitted to universities struggle, since they are not capable of reading academic coursebooks. This is a major issue and relates to the fact that many students, instead of coursebooks paid for legally rely on illegally uploaded PDF files. Using artificial intelligence and digital illegal uploads, students can go through courses without gaining the knowledge and grit that comes from reading the correct course literature. This undermines the market for producing quality course literature. Other European nations, with more reliance on traditional education including respecting course literature, are catching up and surpassing Sweden in various metrics of knowledge economy. This is a clear example of how IP infringements hinder societal development, in this case the ability of the education system to pass on needed knowledge and abilities.

Reducing piracy in computer games, is a way of promoting green growth

Another sector that is affected by piracy is the computer games developers. There are numerous forms of intellectual property infringement in computer games. Stolen games can be downloaded, cracked or stolen keys to games can be sold, or entire illegal servers can be set up for pirated games. There is also plagiarism, where a game is produced that imitates an original, and where consumers looking for the original can be tricked into paying for the plagiarized game instead. Creation and consumption of computer games is an example of an economic activity which is creating a limited environmental impact. This form of green growth and consumption should be promoted, which is possible through actions against piracy.

Reforms need to lower the threshold for defending intellectual property rights

In order to strengthen the conditions for the parts of business that are intensively dependent on intellectual property rights, political reforms and measures are required. As technology and society changes, so also intellectual property rights need to adapt. The key challenge for reformers is to lower the threshold for defending intellectual property rights, making it easier for the law-abiding creators to claim their rights.

“The key challenge for reformers is to lower the threshold for defending intellectual property rights, making it easier for the law-abiding creators to claim their rights.”

AI development must be based on respect for intellectual property

One important policy reform area is about basing AI development on respect for intellectual property. Artificial intelligence solutions, such as ChatGPT, are becoming increasingly popular and will in the coming years play a key role in the economy. These programs are trained in knowledge through texts, books, movies, pictures, music and program code.

The technological companies that developed these solutions have in many cases used copyrighted material without either approval from or compensation to the rights holders who produced the material. Saliltorn Thongmeensuk notes the following in a study published in *The Journal of World Intellectual Property*: “The inherent reliance of AI on large quantities of data, often encompassing copyrighted materials, results in multifaceted legal quandaries. Issues surface from the unfeasible task of securing permission from each copyright holder for AI training, further muddled by ambiguities in interpreting copyright laws and fair use provisions. Adding to the conundrum, the clandestine practices of data collection in proprietary AI systems

obstruct copyright owners from detecting unauthorized use of their materials.”¹³ Adding to this, there is a risk that artificial intelligence can be used as a tool to willingly undermine the intellectual rights of creators.¹⁴

Jiahao Ni, a UK sociology researcher, notes in a recent study: “It is crucial to ensure that the legal framework stimulates innovation in the field of AI while also safeguarding the legitimate rights of creators and inventors, taking into account public interests and societal well-being. Generative AI technology presents unprecedented challenges to the intellectual property legal system. Addressing these challenges requires not only the collective efforts of legal drafters and practitioners but also interdisciplinary collaboration and international cooperation. Through continuous research and practice, we can better understand and respond to the impact of this emerging technology on intellectual property law, thereby promoting technological innovation while protecting intellectual property and maintaining a fair and just legal environment.”¹⁵

That the first steps of AI development have been largely based on data that has been collected without respecting intellectual property rights is alarming – change is needed so that the development of AI does not undermine intellectual property rights.

Defending intellectual property rights needs to be made easier

It is often the smaller companies that are hit hardest because they do not have the same opportunities to defend their intellectual property rights, and because the larger players rely on multiple sources of income. Individual smaller companies exposed to intellectual property infringement can have their entire business undermined, leading to fewer people engaging in the creative process. According to the Intellectual Property SME Scoreboard 2022, a significant share of SMEs in the EU that have various forms of intellectual property rights are exposed to infringements of intellectual property rights, especially trademark infringements are widespread. The study notes:

”Among the SMEs that own a registered IP right, 15 % have experienced infringement of their IPR. In most cases, the victim of infringement tried to resolve the issue by

¹³ Thongmeensuk (2024), p. 278.

¹⁴ Faraq & Moussa (2024).

¹⁵ Ni. (2024), p. 858.

entering into negotiations with the infringer (43 %) or by sending a takedown notice (31 %). Measures such as court procedures, mediation, or procedures before the IP office were used less frequently, indicating that such procedures are perceived by SMEs as being too lengthy and too expensive. Therefore, in addition to improved access to the registration system, SMEs also need streamlined and cost-effective IPR enforcement.”¹⁶

While infringement of intellectual property rights for the industries as a whole leads to a part of the value creation being crowded out, for individual entrepreneurs there can be the risk that a fundamentally profitable business is turned into unprofitable. Infringement of intellectual property rights means that new entrepreneurship, expansion, and innovation are associated not only with risk, but also with uncertainty. The combination of risk and uncertainty is difficult to manage, especially for smaller and growing companies. The result is that piracy and counterfeits create an indirect, dynamic, loss in the form of the industry’s overall development being inhibited.

“Preventive measures, for example information campaigns about piracy in schools, are an important part of the solution. An increased understanding needs to be created in society that intellectual property crime undermines the power of development in the Nordics.”

The EU needs to prioritize intellectual property rights issues higher

The EU is one of the world’s leading economies and should act jointly to put pressure on China and other countries with widespread occurrences of illegal plagiarism and the spread of material protected by intellectual property rights, such as Türkiye. International cooperation and consensus are needed to reduce the occurrence of intellectual property infringements, and the issue needs to be high on the agenda for international trade talks, so that efforts are made together with the EU’s important trading partners.

¹⁶ EUIPO (2022a), p. 83-4.

Resources need to be allocated to the legal system to fight intellectual property infringements, and that it should be easier and associated with lower financial risk to defend against infringements. The police, prosecutor and court's resources and competences should be further strengthened. Preventive measures, for example information campaigns about piracy in schools, are an important part of the solution. An increased understanding needs to be created in society that intellectual property crime undermines the power of development in the Nordics.

Illegal sports broadcasts can promote criminal gambling

Sport is a good example of how the economy in the entire value chain is affected by infringement of intellectual property rights. Substantial income for the athletes, the sports organizations and the media that broadcast the sporting events comes from intellectual property rights. The problem of illegal streaming of sports, particularly amongst the young generation, has also been topical in the USA.¹⁷

The problem of these intrusions draining revenue flows is greater in Sweden than in most countries, which means that Swedish associational life is affected at all levels, from elite investments to children's activities. The higher proportion of infringements affecting Swedish rights holders is also a competitive disadvantage in an international context. For Swedish film and TV, Swedish literature and Swedish furniture, this means that they lose out in international competition.

It is important to be aware that illegal sports broadcasters are criminal actors, who often engage in or promote other criminal activities, such as illegal sports gambling. Bora Jeong, Gunwoong Lee and Keongtae Kim have shown in a study that as viewers of sport shift to illegal broadcasts, illegal sports-betting also rises.¹⁸ Legal value chains where the athletes, trainers, stadiums, arrangers, production companies, sponsors and broadcasters are rewarded are crowded out by illegal broadcasts. Instead, criminal value chains, including more people gambling illegally, are promoted. Illegal gambling in turn creates more revenue for criminal gangs, leads to gambling addiction and crowds out tax revenues from the legal alternative.

Effective blocking measures are needed. It must become easier, faster and more cost-effective for rights holders to be able to stop ongoing infringements online. Sweden is in particular need to address the rising issue of illegal broadcasts. It should

¹⁷ BNN Bloomberg (2024).

¹⁸ Jeong, Lee & Kim (2024).

therefore be investigated whether administrative blocking should be introduced in Sweden, and it should be ensured that the legislation is updated to also be effective against intrusions into live broadcasts.

Knowledge-raising initiatives are needed both in the public sector and for the public

The public sector needs to improve the handling of intellectual property rights. Authorities must, in their public procurement, stop specifying a particular product and then requiring equivalent alternatives as this may lead to infringement. For example, if a municipality wants to procure a particular brand of furniture and is unwilling/unable to pay for the original, the order should go to another existing product rather than a plagiarizing company producing a close copy of the original furniture in response to the procurement. A clearer regulatory framework is needed so that public procurement ceases to, in practice, encourage infringement of intellectual property rights. The cooperation of the authorities with rights holders is crucial to create improvement in practice.

At the universities today, it has become routine for many students not to buy the necessary course literature, but instead to use PDF files that have been illegally uploaded to the internet. At the same time, universities are sounding the alarm that many are no longer able to read books. These are examples of how intellectual property violations undermine the functions of society, in this case the ability of universities and schools to provide education.

In society, an increased understanding is required that intellectual property crime undermines the power of development in Sweden. Consequences of, for example, using illegal services need to be known to the public. Information needs to be disseminated about both short-term consequences (for example, where money paid to illegal services ends up) and long-term consequences (for example, reduced innovation). Preventive measures, such as information campaigns about piracy in schools, are an important part of the solution.

Schools, municipalities and public agencies can support intellectual property rights

Several policy options exist for strengthening intellectual property rights, on the international and national level. The EU can for example put pressure on countries such as China to stop infringement and piracy against European firms, during trade negotiations and other diplomatic contacts. National policymakers can strengthen the legal protection for intellectual property rights by updating legislation, and by providing better funding for the legal system so that for example the police, prosecutors and courts have greater resources for following up intellectual property rights infringements quick and effectively. However, there is also an important role that municipal business offices can play.

Municipal business offices and government agencies play key role for intellectual property rights

Municipal business offices have a role in supporting local businesses with advice, and this advising role can be expanded so that each municipal business office has one or more staff who themselves are educated in providing advice related to protection of intellectual property rights. Additionally, municipalities carry out public procurement and can in this process include conditions about excluding companies that violate intellectual property rights. This is not least relevant in procurement of educational material for schools. Another aspect relates to how municipalities and government agencies interact with intellectual property rights relates to ownership rights during procurement.

During 2022, the Confederation of Swedish Enterprise carried out an analysis of 197 randomly selected public procurements advertised by Swedish municipalities and government agencies, based on procurements containing the heading “intellectual property rights”. It was found that the municipalities and government agencies asked for the ownership of the intellectual property rights in 94 percent of the cases.¹⁹ While in some circumstances this can be a relevant request, overall, the role

¹⁹ Confederation of Swedish Enterprise (2022).

of municipalities and government agencies is not to themselves conduct business activities. Routinely asking for the intellectual property rights to be transferred during public procurements signals that municipalities and government agencies have a limited understanding of how the issue should be handled. These requests can be difficult for many firms, who wish to provide various solutions and services, while retaining their intellectual property rights.

Municipal business offices need to increase their own competency about intellectual property rights. This would fill the dual role of supporting local businesses with knowledge and supporting the municipalities themselves to find ways of procuring services and solutions, without typically requiring providing firms to give up ownership of their intellectual properties. Government agencies similarly would need better education on intellectual property rights amongst their staff, so that their own public procurements can be more aligned with the ability of businesses to retain their intellectual properties.

“Municipal business offices need to increase their own competency about intellectual property rights.”

Information campaigns needed in schools, to raise awareness

One way of combating crime is to carry out public awareness campaigns. Some people mentally justify their own theft, for example shop lifting, by convincing themselves that this is not an actual relevant crime. Information campaigns on the effect that shoplifting has on the local business, that in total it comprises a significant societal cost, might change the attitude of the individual. Information campaigns also signal to the individual that society is acting to reduce crime, which might impact the behaviour of the individual. While information campaigns in themselves are not the solution to solving crime, together with actions from the police and law authorities, they can lead to positive results.²⁰ Anti-piracy educational deterrence efforts similarly can reach a positive result, by increasing awareness of the problems caused to society by individuals engaging in piracy.²¹ Previously, Swedish schools

²⁰ McGuire et.al. (2021).

²¹ Jeong, Yoon, & Khan (2020).

had anti-piracy lectures. This is again needed, to further a societal understanding of the problems caused by intellectual properties theft.

“Previously, Swedish schools had anti-piracy lectures. This is again needed, to further a societal understanding of the problems caused by intellectual properties theft.”

Intellectual property rights are the foundation of economic progress

Current studies shed light on the important role that intellectual property rights intensive businesses play in economic progress, in our modern economies. A historical expose furthers the understanding on how intellectual property rights have developed and why they are an institutional backbone of the modern knowledge economy.

Role of intellectual property rights in economic progress

Knowledge is, together with capital, labour, and natural resources, a cornerstone of economic activity.²² A combination of technological innovations, new ways of organizing work processes, organizational changes and service innovations drive long-term progress.²³ Immaterial value creation in the form of business ideas, technological innovation and digital content is a key part of many modern businesses. Immaterial values can result from investments in organized knowledge, made over a long period. In some businesses, such as film, music, programming, and computer game design, all value created is in immaterial form since the output is digital content. Intellectual property rights additionally play a key role in technology transfer between firms, and between countries.²⁴

“Immaterial value creation in the form of business ideas, technological innovation and digital content is a key part of many modern businesses.”

²² Drucker (2011, originally published in 1969); Klenow & Rodríguez-Clare (1997); Latzer, Matsuyama, & Parenti (2019).

²³ See for example Grossman and Helpman (1993), Hasan & Tucci (2010), Soete (2011) and Tamura et al. (2019)

²⁴ Sundaram, Rajavenkatesan Prema (2020).

There are two dominant viewpoints on intellectual property rights protection within the research literature. The first is that intellectual property rights protect important values and that without such protection innovation would be less rewarding and thus much rarer. The other perspective is that excessive utilization of, for example, patents can hinder growth. A study by Richard Gold, Jean-Frédéric Morin and Erica Shadeed actualizes the issue by studying the level of intellectual property rights protection in 124 economies during the period between 1995 and 2011. The study finds that higher level of intellectual property rights protection is indeed associated with higher rates of economic growth. The results are consistent with two causal pathways explored in other literature, namely that intellectual property leads to greater degree of technology transfer and increased domestic innovation activity.²⁵

Pedro Cunha Neves and co-authors have in a study published in 2021 conducted a literature review and meta-analysis. Their finding is that while the empirical evidence of the effects on intellectual property rights on innovation and growth is mixed, overall intellectual property rights have a positive effect on innovation and growth. This effect is stronger in developed economies compared to developing economies.²⁶ Modern research supports the idea that intellectual property rights strengthen economic growth and innovation. Intellectual property rights need to be balanced, rewarding investments in ideas and digital content are protected, as well as allowing new innovators to enter the market.

In 2021 the European Union Intellectual Property Office (EUIPO) and the European Patent Office (EPO) in cooperation published a study, based on analysing a sample of over 127,000 European firms, to compare the economic performance of firms that did own intellectual property rights. The intellectual property rights included in the study were patents, designs, trademarks, or any combination of the three. It found that firms that do own intellectual property rights generate on average 20 percent higher revenue per employee, compared to their counterparts without a portfolio of intellectual property. Additionally, the firms with intellectual property rights paid on average 19 percent higher wages, compared to firms without intellectual property portfolio.²⁷

To understand intellectual property rights and why they matter to the modern economy, a brief overview of the evolution of market-based economics is useful.

²⁵ Gold, Morin & Shadeed (2019).

²⁶ Neves et al. (2021).

²⁷ EPO & EUIPO (2021).

Intellectual property rights are the foundation of the knowledge economy

Enterprise and market economy evolved already 4,000 years ago in ancient Babylonia and Assyria. This ancient market tradition however lacked intellectual property rights. The first intellectual property rights, in the forms of patents, evolved much later in the renaissance cities of Italy. Historically, it was not before the market economy was combined with intellectual property rights that the knowledge economy could emerge.²⁸ Throughout history, advanced technologies have been created that were either lost or not improved on, since they existed in economies without intellectual property rights. A couple of examples are carbon nanotubes incorporated in the structure of steel and clay and early galvanic cells (batteries). While often believed to be modern age discoveries, both technologies in earlier form existed already some two thousand years ago.²⁹ Yet while these technologies in early form have existed for long, they did not evolve for long and were rediscovered in the modern era. The same is also true of other technologies, including mechanical computing devices.

These early developments occurred in economic systems with strong protection for physical property rights, but where intellectual property rights did not yet exist. The first known patent was awarded in 1421 by the Republic of Florence. The receiver was the architect Filippo Brunelleschi, who had invented a barge with hoisting gear, which made it possible to carry marble along the Arno River. Brunelleschi was granted exclusive rights to the fruits of his invention for a three-year period.³⁰ In 1665, the British and French simultaneously launched the first scientific journals of the world, the French *Journal des sçavans* and the British *Philosophical Transactions of the Royal Society*.³¹ The scientific journal and the patent right were crucial to the scientific and industrial revolution of the Western world. They granted property rights to ideas and can thus be seen as an extension of market institutions from the area of material values to the area of immaterial values.

Copyright, design rights and trademarks are other intellectual property rights innovations that paved way for the modern knowledge economy. When the European industrial revolution occurred, patents were in place and those who had invented new technologies encouraged them to be spread since they gained from that as

²⁸ Sanandaji (2018).

²⁹ Reibold et.al (2006); Keyser (1993).

³⁰ MacLeod (2002).

³¹ Kronick (1976)

patent holders. Music could evolve as a business in Europe, once copyright existed, and the intellectual property rights protection that evolved for protecting music notes would later be important for laying the groundworks for intellectual property rights protection of computer code.³² Since intellectual property rights existed and evolved, the European market model, as well as the US market model, could push for systematic innovation.

Thomas Edison revolutionized innovation and played a key role in laying the ground for much of the digital revolution, by establishing the first industrial research laboratories in the late 19th century USA, which also included the world's first film studio. This was possible because the business model was not about making one invention, manufacture and sell it, but to create value through the invention process itself, via patents. This form of broad-scale innovation was simply not possible before intellectual property rights existed, which explains why two millennia before Thomas Edison the technology to make batteries existed, but not the framework for developing the concept of electrification. Some 150 years have passed since Edison founded the first industrial research laboratories in Menlo Park, in the Santa Clara Valley. The same valley has since been nicknamed Silicon Valley and is, by wide margin, the most important centre for technological progress in the world.

“Example of immaterial values include innovations, business ideas, designs, program codes and digital content in the form of film and music – which are protected by intellectual property rights.”

Immaterial values differ from physical values simply in that they lack physical form. Earlier in history the great part of economic value was created in physical form—for example agriculture, manufacture of tools to work farms with and construction of buildings. Today the economy relies on a mixture of material and immaterial value creation. Example of immaterial values include innovations, business ideas, designs, program codes and digital content in the form of film and music – which are protected by intellectual property rights.

³² Sanandaji (2021).

Intellectual property rights, innovation and green growth

Current research highlights some important links between intellectual property rights, the innovation activity of firms, and the ability to achieve green growth.

Cracking down on intellectual rights infringement fosters innovation

China is a country where many actors that infringe intellectual property rights exist. This is creating a limitation on economic progress in China itself. In a recent 2023 paper, Chinese economists Jianqiang Chen, Pei-Fang Hsieh, and Kun Wang, utilize a quasi-natural experiment to investigate the effects of government crackdown on intellectual rights infringement and counterfeiting. They found that patent counts and citations increased significantly for companies in industries with a high risk of intellectual property violations, following the government crackdowns. The result was more research and development investments, and firms focusing more on innovation patents.³³ Recent research thus confirms that firms with strong reliance on intellectual property rights play a key role in economic development. Protecting intellectual property rights are an essential ingredient in economic policy, not least for fostering growth of knowledge intensive jobs high up in the value chain, which drive economic progress and exports.

Knowledge-based capital is a driver for green growth

Knowledge-based capital is a term for business investments in assets that are non-physical, such as research and development, software and other data, patents, new organizational processes, designs, and firm-specific skills. In a study from 2021, Mattia Di Ubaldo and Iulia Siedschlag examine investments in knowledge-based capital in Ireland, during the period 2006-2012. It is shown that investments in knowledge-based capital are positively associated with firm productivity, with a ten percent increase in investments in knowledge-based capital being associated with a three percent productivity gain on average.³⁴

³³ Chen, Hsieh, & Wang (2023).

³⁴ Di Ubaldo & Siedschlag.

Qiuqin He, Maria Guijarro-Garcia, and Juan Costa-Climent, examine in a study from 2022 the productivity effect of knowledge-based capital in China, with data from a panel of Chinese companies during the period 2013-2018. Knowledge-based capital, particularly computerised information, and economic competency, is shown to contribute significantly to firm productivity.³⁵ Marie Le Mouel and Alexander Schiersch further show in a study published in 2020, that frontier firms that lead economic development within their industries, rely strongly on knowledge-based capital.³⁶

In a recent study, Dong Chen and Shi Chen show with data from China that juridical protection of intellectual property rights fosters firm innovation. Establishment of intellectual property courts in Chinese cities is shown to be followed by enhancement of the independent innovation capacity of companies. Juridical intellectual property rights protection, the study finds, increases the generation of patents as well as trade secrets.³⁷

“Establishment of intellectual property courts in Chinese cities is shown to be followed by enhancement of the independent innovation capacity of companies. Juridical intellectual property rights protection, the study finds, increases the generation of patents as well as trade secrets”

While knowledge-based capital plays a key role in economic growth, there is typically only a small environmental footprint associated with growth based on knowledge-based capital. If for example an industry firm shifts production to a new patent, the value produced can increase significantly, while production based on the new patent does not need to lead to a higher environmental footprint. New organizational processes, computer code used for a new popular computer game, and implementations of new designs, similarly have limited environmental footprint,

³⁵ He, Guijarro-Garcia, & Costa-Climent.

³⁶ Le Mouel & Schiersch (2020).

³⁷ Chen & Chen (2024).

while contributing to economic progress. Fostering knowledge-based capital thus is not only central for economic progress, but also to achieve the goal of green growth.

Jobs and value creation in Sweden

In Sweden, firms with an intense dependency on intellectual property rights during 2024 created an added value of 123 billion euros in total and employed over 1,2 million persons. Tables 4 and 5 show the breakdown of these jobs, and economic value creation, in the different regions of the country. The tables also show estimates of how illegal use of intellectual property crowds out jobs and economic value. In the Stockholm capital region, for example, approximately 23,800 jobs and an economic value of 2.3 billion euros is crowded out due to violations of intellectual property rights.

Table 4. Number of people employed in businesses with intense dependence intellectual property rights, regions of Sweden 2024

	IT	Knowledge intensive industry	Knowledge intensive services	Media	Fashion	Trademark dependent trade	Total estimate crowded out by piracy & counterfeiting
Stockholm	98,500	63,100	63,300	38,500	600	114,100	23,800
Östra Mellansverige	22,900	65,900	19,400	6,700	1,200	46,200	10,200
Småland med öarna	8,900	50,500	10,900	4,100	650	27,800	6,500
Sydsverige	26,500	62,600	23,000	9,500	600	54,600	11,100
Västsverige	38,100	115,500	29,700	10,000	2,900	78,600	17,300
Norra Mellansverige	7,900	20,500	9,300	3,200	500	21,400	4,000
Mellersta Norrland	5,000	9,400	5,300	1,000	400	8,400	1,900
Övre Norrland	6,600	14,700	6,200	2,700	200	11,400	2,600

Table 5. Value added (millions of euros) in businesses with intense dependence intellectual property rights, regions of Sweden 2024

	IT	Knowledge intensive industry	Knowledge intensive services	Media	Fashion	Trademark dependent trade	Total estimate crowded out by piracy & counterfeiting
Stockholm	11,000	7,200	4,300	3,500	40	10,800	2,300
Östra Mellansverige	2,600	7,600	1,300	600	90	4,400	1,040
Småland med öarna	1,000	5,800	700	400	50	2,600	670
Sydsverige	2,700	7,200	1,500	900	40	5,200	1,100
Västsverige	4,300	13,300	2,000	900	200	7,400	1,800
Norra Mellansverige	900	2,499	600	300	30	2,000	390
Mellersta Norrland	600	1,100	400	100	30	8000	180
Övre Norrland	700	1,700	400	200	10	1,100	260

Jobs and value creation in Denmark

In Denmark, firms with an intense dependency on intellectual property rights during 2024 created an added value of 101.9 billion euros in total and employed 765,100 persons. Tables 6 and 7 show the breakdown of these jobs, and economic value creation, in the different regions of the country. The tables also show estimates of how illegal use of intellectual property crowds out jobs and economic value. In the Copenhagen capital region, for example, approximately 19,300 jobs and an economic value of 2.4 billion euros is crowded out due to violations of intellectual property rights.

Table 6. Number of people employed in businesses with intense dependence intellectual property rights, regions of Denmark 2024

	IT	Knowledge intensive industry	Knowledge intensive services	Media	Fashion	Trademark dependent trade	Total estimate crowded out by piracy & counterfeiting
Copenhagen	63,700	59,400	54,600	30,200	600	98,300	19,300
Sjælland	3,700	26,500	6,200	1,600	200	22,800	3,800
South Denmark	9,500	69,100	12,000	5,400	1,100	53,100	9,500
Midtjylland	24,100	68,200	23,100	6,400	2,700	59,500	11,600
Nordjylland	7,000	27,700	5,800	2,300	800	19,700	4,000

Table 7. Value added (millions of euros) in businesses with intense dependence intellectual property rights, regions of Denmark 2024

	IT	Knowledge intensive industry	Knowledge intensive services	Media	Fashion	Trademark dependent trade	Total estimate crowded out by piracy & counterfeiting
Copenhagen	7,100	8,400	4,600	2,200	50	16,300	2,400
Sjælland	400	3,700	500	100	20	3,800	540
South Denmark	1,100	9,700	1,000	400	100	8,800	1,300
Midtjylland	2,700	9,600	2,000	500	250	9,900	1,600
Nordjylland	800	3,900	500	200	80	3,300	550

Jobs and value creation in Finland

In Finland, firms with an intense dependency on intellectual property rights during 2024 created an added value of 45.2 billion euros in total and employed 530,500 persons. Tables 8 and 9 show the breakdown of these jobs, and economic value creation, in the different regions of the country. The tables also show estimates of how illegal use of intellectual property crowds out jobs and economic value. In the Helsinki capital region, for example, approximately 14,400 jobs and an economic value of 1.2 billion euros is crowded out due to violations of intellectual property rights.

Table 8. Number of people employed in businesses with intense dependence intellectual property rights, regions of Finland 2024

	IT	Knowledge intensive industry	Knowledge intensive services	Media	Fashion	Trademark dependent trade	Total estimate crowded out by piracy & counterfeiting
Helsinki	54,700	45,700	34,800	19,500	1,900	72,100	14,400
Länsi-Suomi	18,300	66,000	11,000	4,900	2,400	26,000	8,100
Etelä-Suomi	9,800	47,400	8,500	3,000	1,300	23,900	5,900
Pohjois- ja Itä-Suomi	17,100	26,800	9,300	3,700	2,000	18,300	4,900
Åland	600	700	150	130	10	500	130

Table 9. Value added (millions of euros) in businesses with intense dependence intellectual property rights, regions of Finland 2024

	IT	Knowledge intensive industry	Knowledge intensive services	Media	Fashion	Trademark dependent trade	Total estimate crowded out by piracy & counterfeiting
Helsinki	5,800	4,000	2,200	2,100	110	5,300	1,200
Länsi-Suomi	2,000	5,800	700	500	140	1,900	690
Etelä-Suomi	1,100	4,200	500	300	70	1,800	500
Pohjois- ja Itä-Suomi	1,800	2,400	600	400	120	1,400	420
Åland	60	60	10	10	0	40	12

Jobs and value creation in Norway

In Norway, firms with an intense dependency on intellectual property rights during 2024 created an added value of 68.9 billion euros in total and employed 545,500 persons. Tables 10 and 11 show the breakdown of these jobs, and economic value creation, in the different regions of the country. The tables also show estimates of how illegal use of intellectual property crowds out jobs and economic value. In the Oslo capital region, for example, approximately 15,600 jobs and an economic value of 1.9 billion euros is crowded out due to violations of intellectual property rights.

Table 10. Number of people employed in businesses with intense dependence intellectual property rights, regions of Norway 2024

	IT	Knowledge intensive industry	Knowledge intensive services	Media	Fashion	Trademark dependent trade	Total estimate crowded out by piracy & counterfeiting
Oslo	55,800	35,200	42,000	22,400	1,200	91,200	15,600
Innlandet	1,600	8,300	2,800	900	250	9,700	1,500
Trøndelag	7,000	13,100	8,100	2,700	500	12,800	2,800
North Norway	1,600	12,000	4,100	1,800	400	14,800	2,200
Agder og Sør-Østlandet	8,800	19,400	6,700	2,600	500	20910	3,700
Vestlandet	15,700	48,900	14,200	4,300	2,500	44,100	8,200
Jan Mayen and Svalbard	70	20	180	10	0	110	25

Table 11. Value added (millions of euros) in businesses with intense dependence intellectual property rights, regions of Norway 2024

	IT	Knowledge intensive industry	Knowledge intensive services	Media	Fashion	Trademark dependent trade	Total estimate crowded out by piracy & counterfeiting
Oslo	7,900	4,200	4,800	1,900	90	12,700	1,900
Innlandet	200	1,000	300	70	20	1,400	190
Trøndelag	1,000	1,600	900	200	40	1,800	350
North Norway	200	1,400	500	150	30	2,100	280
Agder og Sør-Østlandet	1,200	2,300	800	200	40	2,900	470
Vestlandet	2,200	5,800	1,600	400	200	6,200	1,030
Jan Mayen and Svalbard	10	0	20	0	0	20	3

Methodology

This study examines detailed structural business statistics, coupled with quarterly indicators of recent development, to estimate the role that industries with intense dependence on intellectual property right have in the Nordic economies. A study published by EUIPO, the *European Union Intellectual Property Office*, has concluded that essentially all business sectors utilize intellectual property to a certain extent and that some can be categorized as intensely dependent on intellectual property. The study, which was originally published in 2011 and later updated in 2016, divides the business sector in two groups: sectors that are intensely dependent on intellectual property and sectors that are not.³⁸ This study utilizes the EUIPO classification of business sectors, together with the latest available structural business information coupled with short-term business statistics for recent years, in order to examine the size of the share of the business sector in the Nordic countries and their regions that are intensely dependent on intellectual property.³⁹

Table 12 shows the division of the private sector in businesses that are intensely dependent on various forms of intellectual property rights and those that are not. Structural business information has been gathered from the European Union's statistical agency Eurostat. An analysis of what share of economic activity occurs in firms with intense dependency on intellectual property rights has been carried out for the business sector of each Nordic country excluding agriculture, forestry, fishing, and welfare services. On regional basis the same analysis has been done with regards to employment. The value added regionally has been calculated based on the assumption that the value added per job is the same for the different regions that make up the various countries. Table 13 shows the division of economic activity, in six different intellectual property rights intensive group of industries, that is used in this study.

³⁸ See EUIPO (2013, 2016).

³⁹ The analysis has been limited to four forms of intellectual property: trademarks, patents, design rights and copy right. The other two intellectual property in the EUIPO studies, geographical indicators, and plant rights, are specific cases whose importance mainly concerns parts of the food industry and are not included in this study.

Table 12. Intense dependency on various forms of intellectual property rights

	Trademark	Design	Patents	Copyright	No intense intellectual property rights dependency
Manufacture of textiles	X	X	X		
Manufacture of basic pharmaceutical products & preparations	X	X	X		
Manufacture of rubber & plastic products	X	X	X		
Manufacture of other non-metallic mineral products	X	X	X		
Manufacture of computer, electronic & optical products	X	X	X	X	
Manufacture of motor vehicles	X	X	X		
Manufacture of other transport equipment	X	X	X		
Manufacture of electrical equipment	X	X	X		
Manufacture of machinery & equipment	X	X	X		
Manufacture of furniture	X	X	X		

	Trademark	Design	Patents	Copyright	No intense intellectual property rights dependency
Manufacture of tobacco products	X	X	X		
Other manufacturing	X	X	X		
Scientific research and development	X	X	X		
Manufacture of wearing apparel	X	X			
Manufacture of leather & related products	X	X			
Advertising and market research	X	X		X	
Other professional, scientific and technical activities	X	X	X		
Telecommunications	X		X	X	

	Trademark	Design	Patents	Copyright	No intense intellectual property rights dependency
Wholesale trade, except of motor vehicles and motorcycles	X		X		
Manufacture of chemicals & chemical products	X		X		
Manufacture of food products	X		X		
Motion picture, video and television programme production, sound recording and music publishing activities	X			X	
Computer programming & consultancy	X			X	
Renting and leasing	X			X	
Information services	X			X	
Programming & broadcasting	X			X	

	Trademark	Design	Patents	Copyright	No intense intellectual property rights dependency
Printing and reproduction of recorded media	X			X	
Publishing	X			X	
Manufacture of beverages	X				
Office administrative, office support and other business support activities	X				
Air transport	X				
Wholesale and retail trade and repair of motor vehicles and motorcycles	X				
Travel agency, tour operator reservation service & related activity	X				
Water transport	X				

	Trademark	Design	Patents	Copyright	No intense intellectual property rights dependency
Remediation activities & other waste management services					X
Employment activities					X
Architectural and engineering activities; technical testing and analysis					X
Waste collection, treatment & recycling					X
Sewerage					X
Civil engineering					X
Retail trade, except of motor vehicles and motorcycles					X
Electricity, gas, steam & air conditioning supply					X

	Trademark	Design	Patents	Copyright	No intense intellectual property rights dependency
Real Estate					X
Mining					X
Accommodation					X
Legal and accounting activities					X
Construction of residential & non-residential buildings					X
Land transport and transport via pipelines					X
Food and beverage service activities					X
Postal and courier activities					X

	Trademark	Design	Patents	Copyright	No intense intellectual property rights dependency
Repair of computers and personal and household goods					X
Security & investigation activities					X
Specialised construction					X
Manufacture of fabricated metal products, except machinery & equipment					X
Manufacture of metals					X
Manufacture of paper & paper products					X
Manufacture of wood products except furniture					X
Services to buildings & landscape activities					X

	Trademark	Design	Patents	Copyright	No intense intellectual property rights dependency
Warehousing and support activities for transportation					X
Water supply; sewerage, waste management and remediation activities					X
Activities of head offices; management consultancy activities					X
Veterinary activities					X

Table 13. Division of economic activity in intellectual property rights intensive group of industries

Intellectual property rights intensive group of industries	Economic activity (NUTS2 classification)
IT/technology	Manufacture of computer, electronic and optical products
IT/technology	Telecommunications
IT/technology	Computer programming, consultancy and related activities
Knowledge intensive industry	Manufacture of food products
Knowledge intensive industry	Manufacture of beverages
Knowledge intensive industry	Manufacture of chemicals and chemical products
Knowledge intensive industry	Manufacture of basic pharmaceutical products and pharmaceutical preparations
Knowledge intensive industry	Manufacture of rubber and plastic products
Knowledge intensive industry	Manufacture of other non-metallic mineral products
Knowledge intensive industry	Manufacture of motor vehicles, trailers and semi-trailers
Knowledge intensive industry	Manufacture of other transport equipment
Media/entertainment	Printing and reproduction of recorded media

Media/entertainment	Publishing activities
Media/entertainment	Motion picture, video and television programme production, sound recording and music publishing activities
Media/entertainment	Programming and broadcasting activities
Fashion/design	Manufacture of textiles
Fashion/design	Manufacture of wearing apparel
Fashion/design	Manufacture of leather and related products
Trademark dependent trade	Wholesale and retail trade and repair of motor vehicles and motorcycles
Trademark dependent trade	Wholesale trade, except of motor vehicles and motorcycles
Trademark dependent trade	Manufacture of tobacco products
Trademark dependent trade	Water transport
Trademark dependent trade	Air transport
Knowledge intensive services	Information service activities
Knowledge intensive services	Scientific research and development
Knowledge intensive services	Advertising and market research

Knowledge intensive services	Other professional, scientific and technical activities
Knowledge intensive services	Rental and leasing activities
Knowledge intensive services	Travel agency, tour operator reservation service and related activities
Knowledge intensive services	Office administrative, office support and other business support activities

Sources

BNN Bloomberg (2024). “Illegal Streaming of Live Sports Has Gone Mainstream. Can Anything Be Done”, 2024.09-23.

Chen, J., Hsieh, P. F., & Wang, K. (2023). “Cracking down on the infringement and counterfeiting: Intellectual property rights and corporate innovation in China”, *Finance Research Letters*, 103846.

Chen, D., & Chen, S. (2024). Promoting corporate independent innovation through judicial protection of intellectual property rights. *China Economic Quarterly International*, 4(3), 167-181.

Confederation of Swedish Enterprise (Svenskt Näringsliv) (2022). ”Kommunal kunskapslucka om immaterialrätten”, news, 2022-12-08.

Dagens Juridik (2023). “Skatteverket: Kriminella nätverk bakom illegal försäljning av tv-kanaler”, 2023-11-23.

Di Ubaldo, M., & Siedschlag, I. (2021). “Investment in Knowledge-Based Capital and Productivity: Firm-Level Evidence from a Small Open Economy”, *Review of Income and Wealth*, 67;2:363-393.

Drucker, P.F. (2011). “The age of discontinuity: Guidelines to our changing society”, Transaction Publishers, Piscataway, USA. Ninth edition of the book originally published in 1969.

ECEPR (2022). “The Geography of Europe’s Brain Business Jobs: 202” Index”.

EUIPO, European Union Intellectual Property Office (2013). “Intellectual property rights intensive industries: contribution to economic performance and employment”.

EUIPO, European Union Intellectual Property Office (2016). “Intellectual property rights intensive industries and economic performance in the European Union”.

EPO & EUIPO (2021). “Intellectual property rights and firm performance in the European Union – Firm-level analysis report, February 2021”.

EUIPO (2022a). “2022 Intellectual Property SME Scoreboard”. P. 83-4.

EUIPO (2022b). “Intellectual Property and Youth Scoreboard 2022 Executive Summary.”

EUIPO (2023). “Online copyright infringement in the European Union – Films, music, publications, software and TV (2017-2022)”.

European Commission, “Counterfeit, piracy and other IPR violations”.

https://ec.europa.eu/taxation_customs/business/customs-controls/counterfeit-piracy-other-ipr-violations/a-serious-problem-everyone_en

European Commission (2022). “European Innovation Scoreboard 2022.”

Eurostat databases, regional and national structural business data, and quarterly labour input in industry data.

Fang, L.H., J. Lerner & C. Wu (2017). ”Intellectual property rights protection, ownership, and innovation: Evidence from China”, *The Review of Financial Studies* 30;7:2446-2477.

Frontier economics, ICC Bascap, International Trademark Association, and TECXIPIO (2016). "The economic impacts of counterfeiting and piracy".

Gold, E.R., J.-F. Morin & E. Shadeed (2019). "Does intellectual property lead to economic growth? insights from a novel ip dataset", *Regulation & Governance* 13;1:107-124.

Grossman, G.M. & E. Helpman (1993). "Endogenous innovation in the theory of growth", NBER Working Paper nr. 4527, National Bureau of Economic Research.

Hardy, J. (2017). "Estimating the global economic and social impacts of counterfeiting and piracy", *World Trademark Review*, 18 may 2017.

Hasan, I. & C.L. Tucci (2010). "The innovation–economic growth nexus: Global evidence", *Research Policy*, 39;10:1264-1276.

He, Q., Guijarro-Garcia, M., & Costa-Climent, J. (2022). "Impact of knowledge-based capital on firm productivity: The contingent effect of ownership", *Journal of Business Research*, 140: 85-94.

Jeong, B. K., Yoon, T., & Khan, S. S. (2020). "Improving the effectiveness of anti-piracy educational deterrence efforts: the role of message frame, issue involvement, risk perception, and message evidence on perceived message effectiveness", *Journal of Theoretical and Applied Electronic Commerce Research*, 16;3:298-319.

Jeong, B., Lee, G., & Kim, K. (2024). "The Impact of Live Sports Broadcasting on Digital Piracy and its Societal Consequences".

Keyser, P. T. (1993). "The purpose of the Parthian galvanic cells: a first-century AD electric battery used for analgesia", *Journal of Near Eastern Studies*, 52;2:81-98.

Klenow, P.J. & A. Rodríguez-Clare (1997). "The neoclassical revival in growth economics; Has it gone too far?", pp. 73-103 in Bernanke B. and J. Rotemberg (Ed.) "NBER Macroeconomics Annual", MIT Press.

Kronick, D. A. (1976). "History of Scientific and Technical Periodicals", Bulletin of the Medical Library Association, 64;4:441-449.

Kulturdepartementet & Socialdepartementet (2025). "Filmutredningen ska undersöka hur illegal ip-tv kan motverkas", 2025-01-24.

Latzer, H., K. Matsuyama, & M. Parenti (2019). "Reconsidering the Market Size Effect in Innovation and Growth", Global Poverty Research Lab Working Paper, (19-106).

Le Mouel, M. & Schiersch, A. (2020). "Knowledge-Based Capital and Productivity Divergence", DIW Berlin Discussion Paper No. 1868

MacLeod, C. (2002). "Inventing the Industrial Revolution: The English Patent System, 1660-1800", Cambridge University Press.

McGuire, J., Evans, E., Kane, E., McGuire, J., Evans, E., & Kane, E. (2021). What works in public awareness campaigns? A scoping review. Evidence-based policing and community crime prevention, 417-433

Neves, P.C., O. Afonso, D. Silva & E. Sochirca (2021). "The link between intellectual property rights, innovation, and growth: A meta-analysis", Economic Modelling, 97:196-209.

Ni, J. (2024). "Intellectual Property Protection Dilemmas and Legal Response Strategies Under the Perspective of Generative Artificial Intelligence", Journal of Education, Humanities and Social Sciences, 28: 854-859.

Nordic Council of Ministers (2018). "State of the Nordic Region 2018, Theme 3: Economy".

OECD and PRV (2019). "Counterfeiting and Piracy and the Swedish Economy: Making sure 'Made in Sweden' always is".

Olsen, K. (2005). "Counterfeiting and Piracy: Measurement Issues", Background report for the WIPO/OECD Expert Meeting on Measurement and Statistical Issues Geneva, 17-18 October 2005.

Mediavision (2025). "Över 700 000 hushåll har nu tillgång till illegal IPTV", pressmeddelande 2025-01-29.

Reibold, M., P. Paufler, A. A. Levin, W. Kochmann, N. Pätzke, & D. C. Meyer (2006). "Materials: Carbon nanotubes in an ancient Damascus sabre." *Nature* 444;7117: 286-286.

SCB database. "Sveriges export".

Saleh Farag, S. A., & Azzab Moussa, A. M. (2024). "Protecting the Intellectual Rights of Creators from Attack Using Artificial Intelligence between Jurisprudence and Law: A Descriptive Comparative Study", *Journal of International Crisis & Risk Communication Research (JICRCR)*, 7:200-210.

Sanandaji, N. (2018). "The Birthplace of Capitalism: The Middle East", Timbro, Stockholm.

Sanandaji, N. (2021). "Immaterialrättens roll för välståndsskapande inom musiken", in "Upphovsrättens roll för skapandet – Fundamentet för ett kreativt samhälle", STIM.

Soete, L. (2011). "Regions and innovation policies: the way forward", in "Regions and Innovation Policy", OECD Reviews of Regional Innovation, OECD.

Sullivan, B. A., Chermak, S. M., Wilson, J. M., & Freilich, J. D. (2017). "The nexus between terrorism and product counterfeiting in the United States", in *Criminals and Terrorists in Partnership* (pp. 155-176), Routledge.

Sundaram, A.S., D.P. Rajavenkatesan & D.E. Prema (2020). "The role of intellectual property rights in technology transfer in the context of engineering sector", *International Journal of Advanced Research in Engineering and Technology (IJARET)* 11;4.

Swedish Tax Authority (2023). "Skatteverkets rapport avseende kontrollen av illegal IPTV", study 8-2648435, 2023-11-22.

Tamura, R., J. Dwyer, J. Devereux & S. Baier (2019). "Economic growth in the long run. *Journal of Development Economics*", 137:1-35.

Thongmeensuk, S. (2024). "Rethinking copyright exceptions in the era of generative AI: Balancing innovation and intellectual property protection", *The Journal of World Intellectual Property*, 27;2: 278-295.

Wilson, Jeremy M. (Ed.). (2022). *Brand Protection and the Global Risk of Product Counterfeits: A Total Business Solution Approach*. Cheltenham, UK: Edward Elgar.



Graphic design & layout: Andreea-Ioana Sutac

Photo of Sara Lindbäck is taken by photographer Anders Nilsson