



ClearViewIP

# Femtech & IP.

Insights into the patent data  
proves this trend is not a fad  
and is worth the hype

# Femtech.

When products have the potential to impact roughly [51 percent of the world's population](#) can they really be considered niche? For trailblazing innovators and entrepreneurs in the “femtech” space, designing and developing products and apps for women has until very recently, been considered fringe. They have had to fight against the notion that women aren't interested in technology, or eager to track and monitor their personal health data to live more comfortable and fulfilling lives. These notions are fortunately changing and a new technology space, as well as innovation opportunities, are emerging.

2017 was called the year of [vagina-nomics](#) because more products than ever before were introduced into the market and many were brought to market by women. As taboos fade and women's health needs are taken more seriously by the tech and investor communities, it's interesting to look at the innovation trends in this newly defined space. That can the technology trends and patent data tell us?

From our research, we've uncovered interesting details about what makes this space unique and where future potential lies. Overall, femtech products have a higher percentage of female inventors as well as female investors. 35% of femtech patent families have women listed as inventors. This is significantly higher than other technology areas where women only make up about 19% of inventors cited on patents. Also interesting to note is that femtech companies with female CEOs have a better chance of receiving VC funding. Femtech products with at least one patent family outperform those without. Because this is a newly defined space, there is still plenty of room for innovation and competition especially regarding women's health in later life.

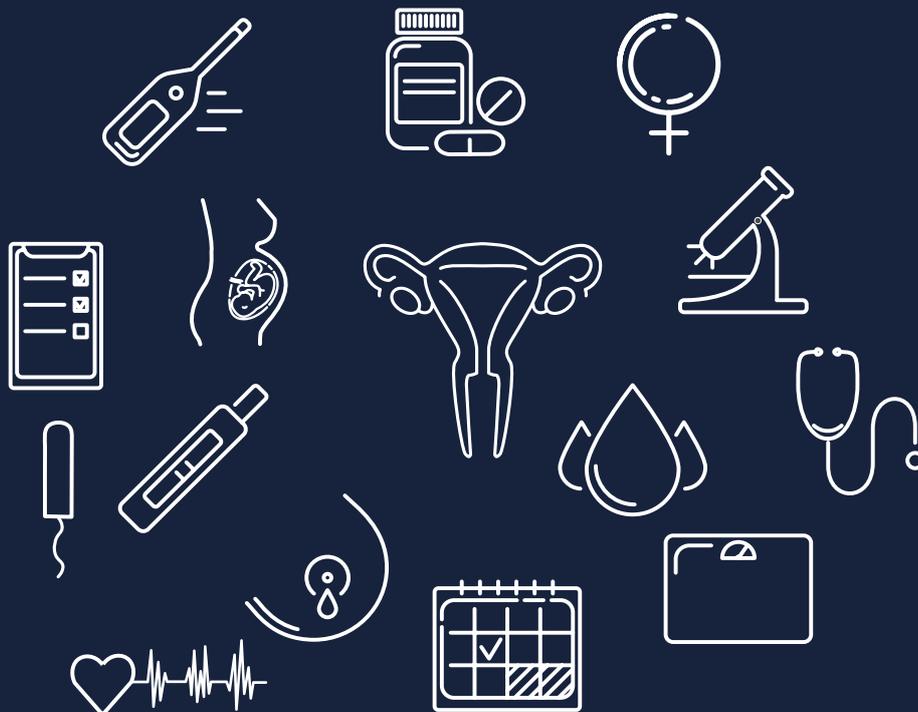
## Defining femtech.

"Femtech" was coined in 2013, by Ida Tin the founder and CEO of the successful period tracking app, Clue, when she needed a better phrase to describe the area of business she was entering. Femtech may be defined as technology products specifically designed to address women's needs. It is not just limited to tracking devices, there are also tampon and feminine hygiene alternatives, breast pumps and pelvic floor trainers among others. In a recent article on the topic, CBInsights provided a category breakdown for femtech:

- Fertility solutions
- Period and fertility tracking mobile apps
- At-home fertility monitoring devices
- Pregnancy and nursing care
- Pelvic healthcare
- General healthcare
- Period care goods
- Women's sexual wellness

These markets are potentially extremely lucrative. For example, the feminine hygiene product market has been valued at US \$30 billion (2015) and until recent years has not seen much innovation since the invention of the tampon in the 1920's. Another big market is fertility, the global fertility services market is estimated to be valued at US \$30-40 billion (2015).

For a technology space that has only had a name for the past five years, what can we learn about the technology trends in this category? What patents have been filed for femtech? Finally, with this being a new space for innovation and investment, what additional innovations could be made in this space? Are there areas of women's health in need of innovative solutions?



# Barriers to entry for femtech innovators

Although the femtech market has seen a lot of growth in recent years, it is [in no way saturated](#) and there is still room for new players. Our analysis has shown the menopause market is still largely unexplored and there is room for growth and improvement in terms of digital health products and the data they produce. Although some of the technology being employed by femtech companies has been around for several years, we are just now seeing the growth in applications to women's health.

It is also important to consider and address the barriers to entry for a start-up in this area. As with most industries, a major barrier is funding. However, companies in the femtech space face more challenges when it comes to finding investment for their product or service than other sectors.

There is a need to convince potential investors that the issue the company is trying to solve is real. [VCs aren't going to fund a solution to a problem they don't understand and can't relate to](#). However, [women hold just under 12% of the partner roles at both accelerators and corporate venture capitalist companies](#). It is obvious to see, therefore, how femtech start-ups may struggle to get investors to understand the need for a product. What can a start-up do to increase their chances of obtaining funding?

## Patents increase funding opportunities

Venture capitalists often consider patents when making funding determinations, with start-up managers reporting that [76% of venture capitalists felt that patents were important](#) to their funding decision. Our studies have shown that start-ups with patents are often able to access higher levels of funding than those without. As a requirement for patentability is novelty, the disclosure of an invention on a crowdfunding page or in documents

made publicly available for investors could mean that further down the line it will not be possible to obtain patent protection. Therefore, start-ups should consider protecting aspects of a project with IP protections first or ensuring secrecy is maintained. Although expensive, patents can offer a strong defence against those using the invention and have the additional benefit of encouraging investment and underpinning the uniqueness of the product offering.

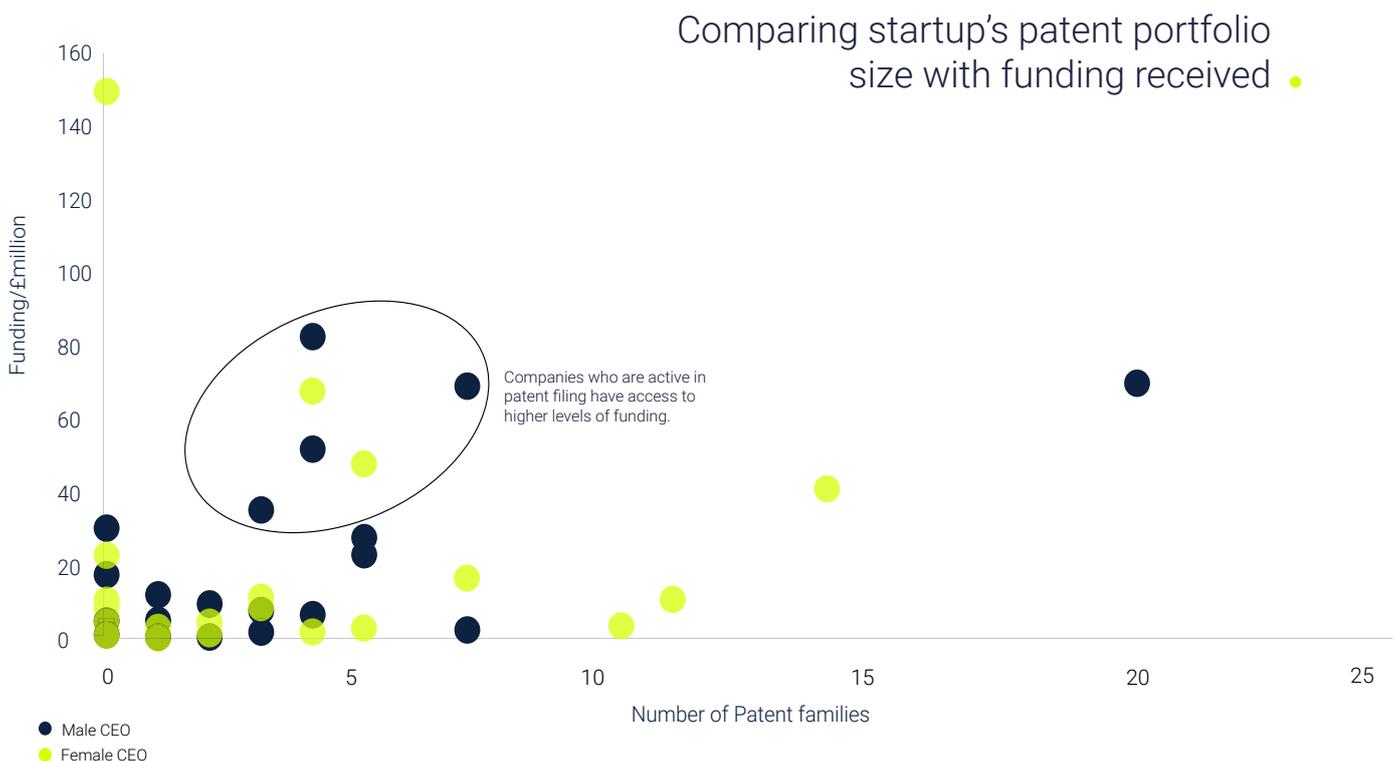


Figure 1: Publicly available funding data for Femtech start-ups compared to the size of their patent portfolio. Data sourced from Crunchbase, RockHealth or companies' own websites.

Figure 1 on the previous page shows the funding data publicly available for a number of start-ups in the Femtech market. The funding data is compared to the number of patent families the company has. This data shows that access to the higher levels of funding occurs for those who are quite active in patent filing. It should be noted that companies may have received more funding than indicated, but the data is not publicly available.

Additionally, the patent families may contain multiple filings across several jurisdictions. This would indicate higher levels of investment in intellectual property and stronger patent portfolios. There are also a number of outliers. For example, Prelude has no patents but a high level of funding. This may be explained by the experience of the co-founder, a male entrepreneur

with extensive experience in start-ups and with a large network of funding parties available to him. Many of these companies have patents which can indicate that companies in the femtech space are creating new and innovative technology targeted at women's issues, not just reapplying old technology.

Companies with no patents, but who have received higher levels of funding are likely to have other intangible assets that add value to their product and attract investment. These could include database rights (especially for health-app start-ups), copyright, know-how, trade secrets as well as trademarks and brand associated goodwill. It is important for companies to put in place policies and practices that safeguard these assets to retain and grow their value.

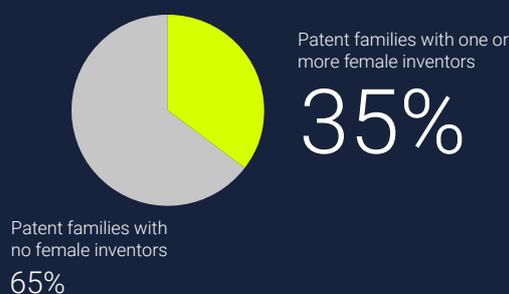
## A closer look at femtech patents

Patents can be indicative of the level of innovation and investment in a particular technology area. Using our patent search expertise, we found at least 11,300 patent families related to femtech in the last 20 year period. The search was constructed to include technology relating to menstruation, fertility, pelvic floor health as well as pregnancy and nursing care.

It is generally known that women are under represented in the sectors of science and technology, with women

making up just 21% of the UK STEM workforce in 2016. Women also currently file far fewer patents than men. A 2016 report by the Institute for Women's Policy Research found that in 2010 only 19% of patent families had one or more female inventors, of these only 8% had women as the primary inventors. However, in our femtech data set, approximately 35% of patent families had at least one female inventor, this is a much higher proportion compared to the average across all technologies.

Femtech patent families, up to 2017  
% female inventors ●



All patent families up to 2010  
% female inventors ●

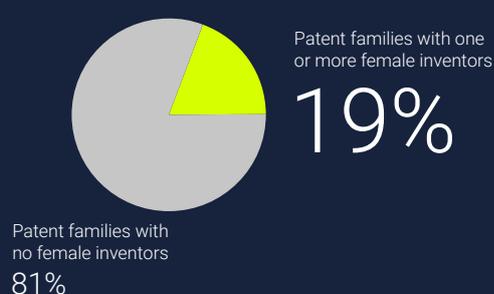


Figure 2: Proportion of patent filings with female inventors for Femtech and all patents. For Femtech, the data was taken from the top 10 patent assignees in the data set. [Source for overall filings data from the Institute for Women's Policy Research.](#)

## Femtech funding

Despite women being listed as inventors on more patents, there is a smaller proportion of female CEOs and founders in general, and thus a smaller percentage of these female-led startups end up receiving funding than their male-led counterparts. In 2017, only 17% of funded start-ups had female founders, and women make up only 6% of digital health CEOs funded in the last four years. However, our analysis of public data from femtech companies indicates that those led by female CEOs may be more likely to receive funding than those led by male CEOs, with 57% of the companies that funding data was found for having female CEOs.

Funding status for femtech companies  
male v female CEOs ●

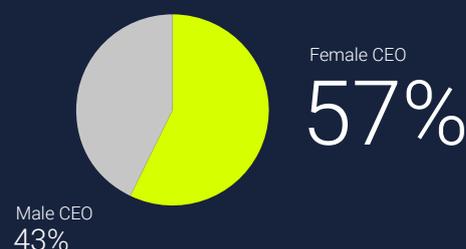


Figure 3: Funded startups male v female led comparing public funding data

# Feminine hygiene tech

The topic of periods and period care products has long been taboo. As a result, there has been a lack of innovation in the industry for many years. There have been relatively few major developments in the feminine care industry since the [applicator tampon](#) in the 1930s and the [self-adhesive pantyliner in 1970s](#). Patents and 'innovations' have mostly focused on increasing the absorbency of sanitary products rather than introducing new solutions. However, patent filings in recent years have increased in this field and several new innovative products have been released.

Using our patent search tools, we found 8,250 patent families related to tampons and sanitary towels. Figure 4 below shows the filing timeline for these patents (the data for 2016 and 2017 is incomplete as some patents filed in that time have yet to publish, but still shows a significant upward trend). There is a rise in the early 1990s that can be linked to the emergence of winged sanitary towels, which although offered a welcome improvement, were not an entirely new product. However, there is a second rise in filings that started in 2013 and is much more significant. This corresponds to many of the new products that are now reaching the market and shows a renewed push for innovation in the market space.

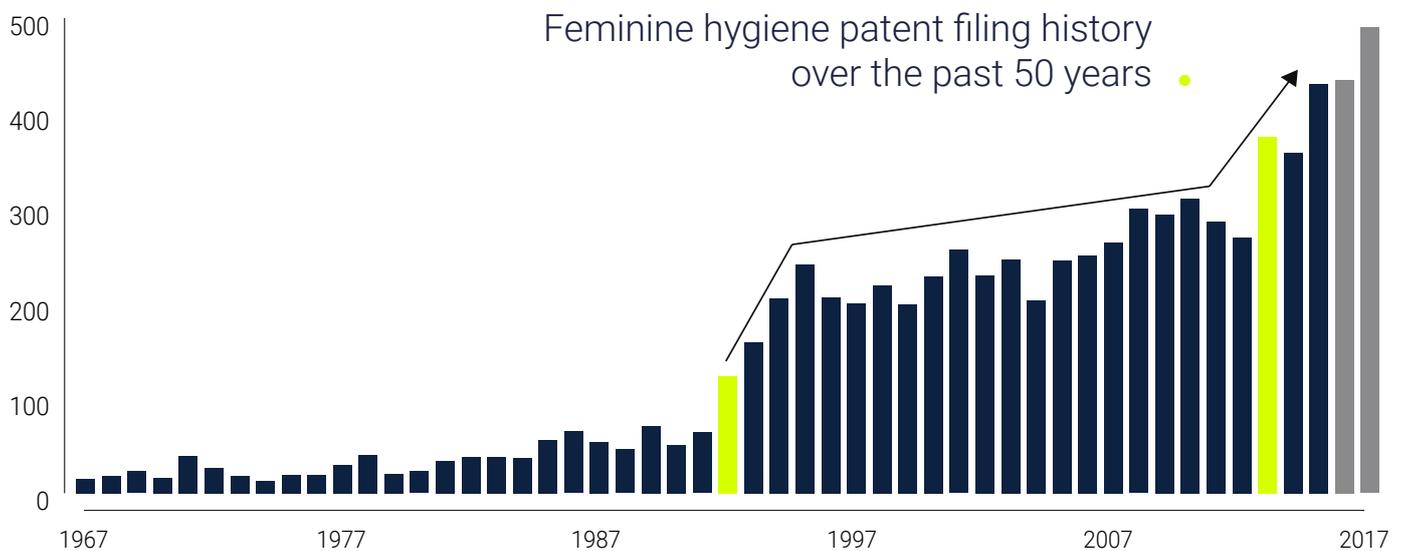


Figure 4 Filing timeline for feminine hygiene products over the last 50 years. The data for 2016 and 2017 is incomplete as some patents filed in that time have yet to publish, but still shows a significant upward trend)

In line with the increase in filings, several new products have been released. For example, [Flex](#) makes a disposable menstrual disc and [Callaly](#) has designed a new product altogether – the tampon-pad hybrid 'tampliner'. The topic of periods and period care products is becoming more publicly acceptable. It's also interesting to see the first (but only) advert to represent a period using the colour red, rather than the commonly used blue liquid, was aired by [Bodyform](#) in 2017.

In addition to innovation in design and product options, women are increasingly demanding higher standards for the materials used in their tampons, with several start-ups selling organic tampons and liners such as [L.](#), [Cora](#) and a handful of others. For women, concerns over [toxic-shock-syndrome \(TSS\)](#) linked to chemicals found in tampons is part of this demand to know what is in feminine hygiene products. Many of these brands also run a [buy-one-donate-one scheme](#), where for every tampon sold, money or products are donated to charities in developing countries providing feminine care products to women.



Callaly launched the Tampliner® in 2017

*"It's inspiring to lead the development of a new product that solves problems traditional disposable products did not. Tampliners are a one-product alternative to the tampon and liner combination. They also significantly improve the cleanliness of insertion and removal of the tampon without using a traditional applicator. We've been developing this product for years but there hadn't been true product innovation in the feminine hygiene space for decades, so it's welcome and refreshing to see so many startups providing women with more choice than the traditional product offering."*

Ewa Radziwon - Head of Product Callaly

# Wearables, femtech and additional opportunities for innovation.

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*“Give it a few years and I think that people will start understanding that having this longitude data-set of your health is going to be an incredibly valuable thing to have – almost like life insurance. Because we will learn to pick up early signals of disease that currently we have no ways to detect early enough – ovarian cancer would be one of them. Which is totally treatable if you catch it early, but it’s hard to catch it early. And I think there will be many more things like this where people will learn to know that collecting data for your health is just a really, really smart thing to do”.*

*Ida Tin, CEO of period tracking app Clue  
2017 TechCrunch event in Berlin*

In the current age of apps and wearables, tracking and monitoring menstrual cycles seems like an obvious application for health tracking technology. Interestingly, this hasn’t been the case. For example, as recently as 2015, [Apple was heavily criticised for not including a period tracking feature in their HealthKit app](#), something they have since rectified.

While femtech includes more than health monitoring technology, this shift towards women’s health aligns well with the next phase of wearable technology applications. The landscape for wearables is changing. In recent years, use of wearables has been on a decline with one study showing that a third of people [stop using a wearable within six months](#) of receiving it. [Jawbone](#) was liquidated in 2017 and [Fitbit also reported a financial loss](#) and announced it would be laying off 6% of its staff. Arguably, [the first phase of wearables is ending](#), and the next phase of data discovery through the use of wearables is taking place. Simply tracking activity is not enough for users anymore, devices that just track activity may get people moving, but they don’t lead to any discovery about what is happening within the body.

Wearable makers are currently creating integrated wearables for trainers, clothes and even beds. There are a lot of health data applications that exist within this technology space. For example, [Fitbit’s Ionic sport watch](#) has a new oxygen sensor that they hope will enable them to gather data in order to address sleep apnea. This next

phase of wearables is proving to be an ideal opportunity for [women’s health tracking products](#) like the Clue app and [Bellabeat’s leaf](#).

A new [collaboration between Clue and Fitbit announced in late February 2018](#) will allow women to start collecting their health data on their wrists. The availability of Clue on Fitbit’s Ionic sport watch is the first period tracking app to be compatible with the Fitbit OS. Based on the internal pilot study, [Clue has already been able to spot a correlation with spikes in heart rate and ovulation](#).

This is highly relevant when you consider the historical context and the lack of female-specific health data available to researchers and medical professionals. [Women were not included in medical trials until 1993](#) as it was thought they may get pregnant during a study and drugs testing could harm a foetus. Even once the ban had been lifted, [many studies continued to use all male participants](#). We, therefore, have far more information on how drugs and diseases affect men than we do for women. The data currently being collected by femtech products could start to address this data void. As many of the discoveries in femtech revolve around tracking and monitoring female health, the data collected could be used to aid medical research. There would be a need to ensure that the data is accurate and reliable, so there is further space for developments in data processing and data science.

# Menopause is an open opportunity for femtech

There are still areas of innovation open in the femtech space and menopause is one of them. At the December 2017 TechCrunch event in Berlin, [Ida Tin also identified menopause as an area where technology is lacking](#). While Clue has plans to expand into this area in [“months and years”](#), a look into the market shows that there really is nothing much out there for menopausal women.

All women will experience menopause at some point, whether naturally or surgically. [Symptoms include hot flashes, mood changes, weight gain and, sleep problems](#). Current treatments available include hormone replacement therapy and supplements, but there is not much to allow women to track these symptoms other than analogue charts. There is also very little technology for treating symptoms. This is an area where innovation could potentially be very lucrative, one estimate put the [global menopause market at US\\$3.77 billion](#) in 2014 and expected that growth would continue.

## Takeaways .

There are thousands of patent filings in femtech and a higher number of these patents feature at least one female inventor. [In general, women typically receive less funding than their male counterparts](#) but our data shows that over 50% of femtech start-ups that have obtained funding have female CEOs, which is much higher than the overall average for female-led companies.

An area which has seen a recent surge of innovation is feminine hygiene. Our patent data shows that there has been a large rise from 10s to 100s of filings per year in the last 25 years. There have also been new products reaching the market, with Callaly's tampliner and Flex's disposable menstrual disk just two of many examples.

The rise of Femtech has coincided with a “second phase” of wearables with more focus on the integration of wearables and health data. The question that remains is what to do with this data, the answer may lie in long-term health tracking. For example, medical trials have only

been allowed to include women since 1993, so there is a lack of female health data that could be improved using femtech wearables. We have also looked at barriers to entry in the femtech market; our funding research shows that companies receiving high levels of funding almost always have multiple patent families.

Femtech is still very much a growing space, with companies such as [Elvie](#), the developer of a pelvic floor strengthening product, [posting growth of 50 percent quarter-over-quarter](#) and hinting at new product launches. There is space for new innovations and start-ups to grow in years to come. One area that we have identified having a need for innovation is products aimed at menopausal and post-menopausal women. There is still plenty of opportunity for growth and innovation in femtech. Considering what we're already seeing from our clients in this space, there will be many more interesting and life-improving products coming to market soon.

*“In 2016 I commented that investors don't take women's tech as seriously as they need to. But given that the consumer need is so big, it is going to hit them on the head at some point and I feel this is starting to happen. We're still at the beginning of changing the conversation, but it is happening and there is plenty of room for innovation in this space which means more innovative products and investment opportunity.”*

*Tania Boler, co-founder and CEO of Elvie*



The Elvie trainer was brought to market in 2015 and has seen 50% quarter-over-quarter growth since its launch.

## About the author

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### Harriet Forsyth

Harriet is an analyst at ClearViewIP. She has a master's degree in Chemistry and Physics from Durham University. Her final year research focused on micro-emulsion crystallization and other topics of interest included computational chemistry. Harriet also has a master's degree in Management of Intellectual Property from Queen Mary, University of London where her thesis focused on how current IP law deals with look-a-like products and their impact on brand owners and consumers. Whilst studying at Queen Mary, University of London, Harriet also achieved a Postgraduate Certificate in Intellectual Property Law.

Harriet is involved in a range of ClearViewIP services such as IP auditing, patent acquisition and licensing. She has been able to combine her technical background with her patent, trademark and copyright knowledge to assist clients across multiple industries.

## About ClearViewIP

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ClearViewIP delivers outstanding commercial results by applying our unique blend of strategic IP advice, powerful market & IP analytics capability, and transaction experience.

### What we do

ClearViewIP is the leading European Intellectual Property Consulting and Brokerage firm providing IP strategy, management and transactional services across a wide range of market and technology sectors. We help clients globally to implement effective IP processes, build and strengthen their patent portfolios, assess, value and monetize intellectual property. We assist companies to understand their competitive position, build value, manage risks, and unlock additional income streams.

### Experience

Founded in 2007, the internationally-recognised expertise of our directors, consultants and analysts provides a unique blend of real commercial and IP experience that carries with it a highly competitive track record of delivering value to businesses. ClearViewIP's team includes CIPOs, business builders, licensing executives & technologists with decades of experience, working with multinational FTSE and Fortune 100 companies, as well as SMEs and academic institutions.

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