

An aerial photograph of London, featuring the River Thames, the Houses of Parliament, and several bridges. The image is overlaid with a semi-transparent green filter. A vertical line, colored yellow at the top and blue at the bottom, runs through the center of the image.

patsnap

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3D Patent Landscaping

A Guide to Getting Started

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Hope you're enjoying reading – if you want to learn how to apply this knowledge on the PatSnap platform, request a personalised demo.

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An Overview of 3D Patent Landscaping

Landscaping is the most efficient way to assess huge volumes of data relating to the information in patents – by turning this data into a topography that can be visually explored, annotated, and interrogated.

Patent landscaping can help to answer questions on whether your proposed invention – or similar inventions – have already been patented, on the level of patent activity around specific technologies and the key actors in those spaces, as well as to identify new opportunities for innovation.

Landscaping vs Searching

It may seem that many of these questions can be addressed by more traditional methods of patent search and analysis. However, in emerging or competitive technology spaces, by the time a full research project has been completed – from patent search, through normalization, analysis and then write-up, several weeks or more may have elapsed, by which time new patents may have been filed, changing the landscape and rendering your findings already out of date.

By creating 3D landscapes, the time to produce a report is dramatically reduced, and the resulting map is dynamically linked to all of the patents which fit the search criteria. This means that your 3D landscape will constantly evolve and change as new patents are filed, ensuring you always have an accurate reflection of the space being analysed.

In addition, the resulting 3D map is easy to interrogate, by simply clicking through from the map view to the full text of the patent document, including all figures and citations.

The Research Question

Patent searching is most useful when you have one very specific research question to answer, and you expect a finite set of results. For example, *“What are the most recent patent filings within this classification?”* or *“How many patents did company Y file between 2010 and 2015?”* are ideal questions to answer through patent search.

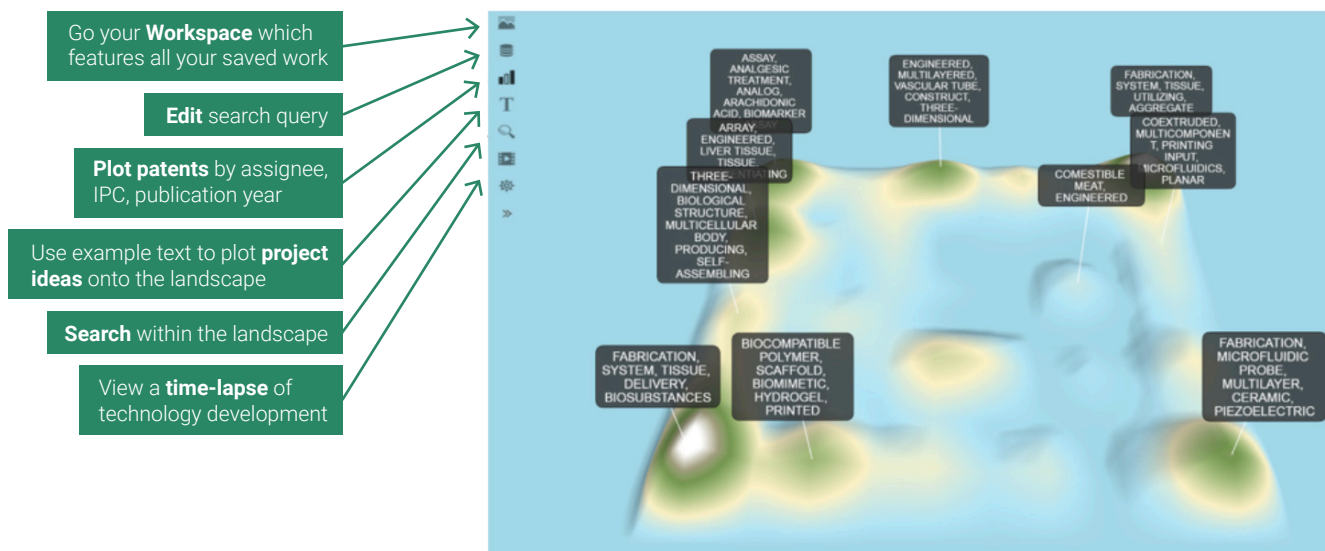
Where the research question is more open ended – *“Should we expand into this technology area?”* potentially subjective, *“Are we likely to have freedom to operate with this proposed invention?”* or comparative *“Would it be more strategic for us to acquire this patent portfolio – or that one?”*, then 3D patent landscaping really comes into its own.

This is because landscaping essentially puts patents, technologies, and competitors into context within the current market. You can then analyse those data points to understand the impact of several ideas or scenarios at once.

For example, areas of minimal patent density potentially show gaps where you have much more freedom to operate, and should be looking to work towards and exploit. You can also explore more cross-application opportunities. The landscape will show how your new ideas and invention disclosures compare to patents already filed in a particular area.

By visualising patent density and whitespaces, clustered and colour coded by variables such as assignee or classification, you can spot patterns and trends that would not be possible to identify with a narrow research question, and find inspiration from trends and competitor activity to accelerate your own innovations.

How 3D Patent Landscaping Works



3D Landscapes are generated based upon our patent analysis algorithms to create what is essentially a self-organising map. We look at several factors within the patents you have chosen to analyse, and then use these factors to compare the similarity of each document. Once we understand the similarity, we can build a map of the technology spaces that your selected patents cover.

While peaks and troughs show areas of activity, proximity shows levels of similarity between patents. The factors we analyse are the verbal similarity and IPC commonality. Similar patents are positioned closer together, and different patents are spaced further apart.

When a lot of similar patents form a cluster, PatSnap will create a mountain in that space and label that area with the most common keywords found in that space. Therefore, the mountains, where patents will be clustered, represent areas of high activity and the low lying areas represent lower levels of patent activity.

After a landscape has been created, there are multiple ways to manipulate it in order to see the exact data you want or come to a conclusion about a particular company's movement or see the technology spaces which could be exploited.

Additional datasets can be overlaid onto the landscape, such as grids and clusters to define technology areas, assignees, inventors, or litigation and licensing data to identify areas of risk or opportunity. The landscape can then be annotated with custom labels and tags for ease of presentation to your team, clients, or other project stakeholders.

Reducing Innovation Risk

Landscapes aid in reducing innovation risk, and accelerating pipelines by making it easy to understand the viability of potential ideas or innovation that you are working on. For example, when conducting freedom to operate (FTO or infringement) searches, it can be extremely time consuming to analyse every single document which may be similar to your own proposed invention.

This complexity is multiplied when your innovation falls within a highly technical domain such as chemicals or engineering, where technical language can make it difficult to understand the key claims and scope of the patent. When all the patents are placed onto a landscape, the most relevant patents (and those which present the greatest risk of infringement) become immediately obvious, meaning you can prioritize your analysis efforts.

Where freedom to operate is restricted, landscapes can also be used to determine the key players within a technology area and identify potential competitors or collaborators. If you were hoping to work on certain technologies which are already patented, the landscape will identify this and you can leverage them through licensing rather than embarking on a (potentially infringing) new product.

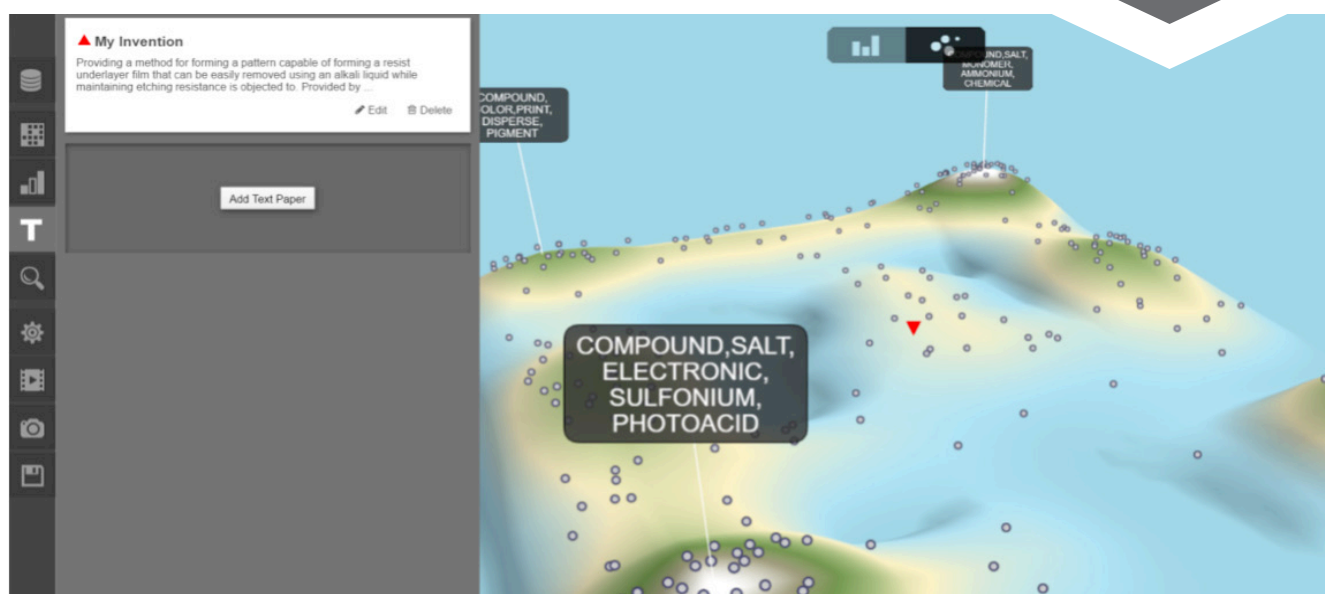
This can surface opportunities for in-licensing or joint ventures as well as identify smaller organisations in niche areas that it may make sense to partner with.

By using landscapes, you are able to scout ideas outside of your core technology areas to learn from other companies and accelerate your own innovations.

Try it:

- Using the Text Tool in PatSnap's Landscape feature, copy and paste in the proposed abstract text for a new or proposed invention
- The tool will analyse the keywords in your abstract and compare it to all the other patents in your dataset, indicating where the new invention is likely to sit within the context of the overall patent landscape
- Within moments, it's easy to identify which patents will need investigation for determining any potential infringement risks

Example: Imagine a company researching freedom to operate in the field of plastic films and sheets. By using the abstract text for a proposed new invention, PatSnap can predict where the patent will land (the red triangle). Within moments, it's easy to identify which patents will need investigation.



White Space Analysis

White space analysis could be considered one of most important processes when using landscapes. Our clients want to know how to find the white spaces which can give them an opportunity to create new intellectual property and secure an advantage over their competitors.

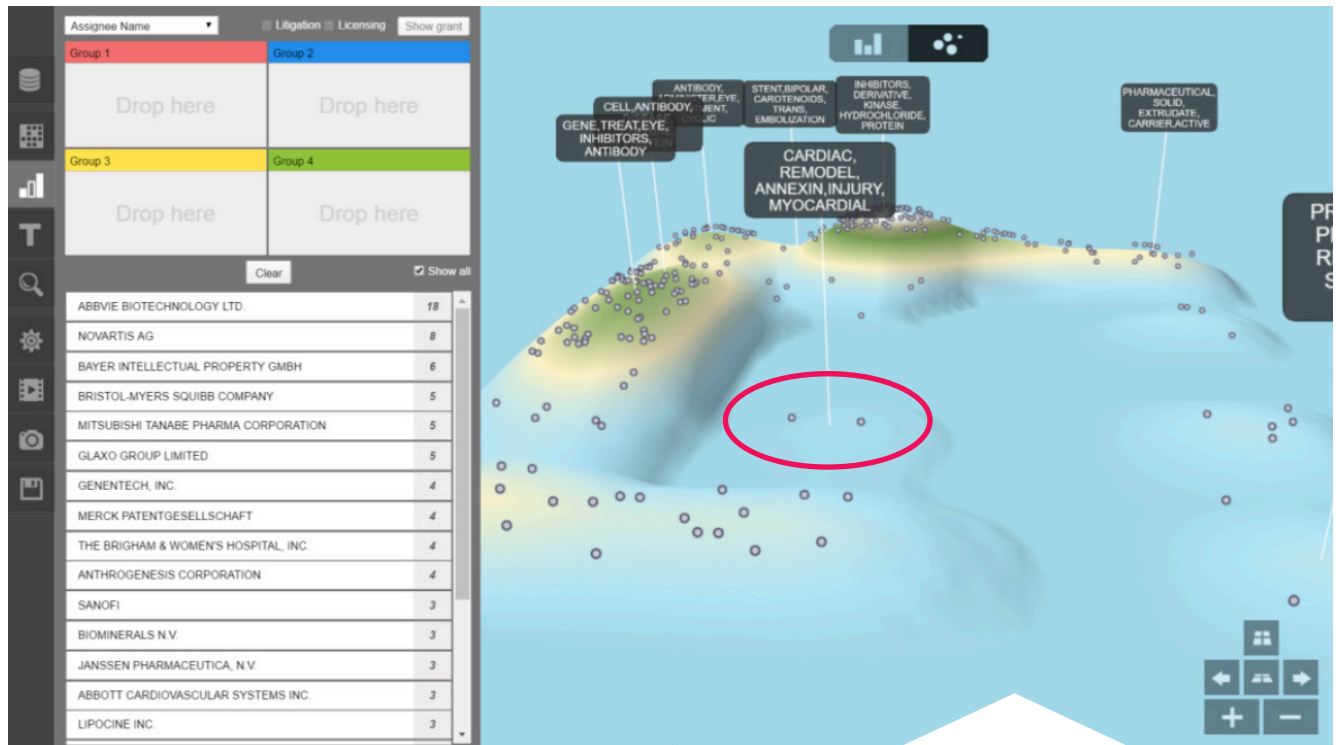
White space analysis can also aid with current product development and the targeting of patent acquisitions. As we cluster patents together based on their verbal similarity and IPC commonality, the gaps that appear will show where minimal activity is taking place.

Try it:

There are a number of processes you can use in order to understand white spaces when using the landscapes:

- Bring your chosen set of patents into a landscape.
- We know that certain patents are going to be clustered on the landscape. A cluster of patents means that there are multiple documents which have a lot in common in terms of their IPCs and their keywords. It's reasonable to say that if a patent has the same IPCs and the same keywords as another, they are referring to very similar concepts.
- Likewise, there will be patents which are not clustered, but loosely grouped, or very isolated. These are patents that have little in common with other patents on the landscape, and are therefore more unique. The ideas within could be considered more novel, less generic.
- Then we have the spaces in between. *"White spaces"*. These are the areas that are hypothetically open to innovation. An area where there is no IP is an area where infringement is unlikely to be an issue.
- So now the question is *"How do I know what is in that white space?"*

White Space Analysis



The difficult answer to that question is that we can't tell you exactly what patents and technology would be there, but we can offer some tools to suggest what might be in that space:

- The Label tool will not only allow you edit the default labels given to certain clusters but it will allow to label all the other areas of the landscape. PatSnap will suggest some keywords that you could use to label the white spaces. These words are taken from surrounding patents and the IPCS are taken into consideration too.
- The Text Paper tool will allow you to enter passages of text and identify a point on the landscape where those words are deemed most relevant. This is useful as you could see where a particular idea fits within a technology area or white space.

Within these gaps you may still find one or two patents appearing. This is common, as just like vacuums in space are still not empty, white spaces will also never truly be empty. Patents which exist on their own can actually be the key to a successful search and we would consider them valuable, as they provide some vital information on what the white space opportunities might be.

Competitive Analysis

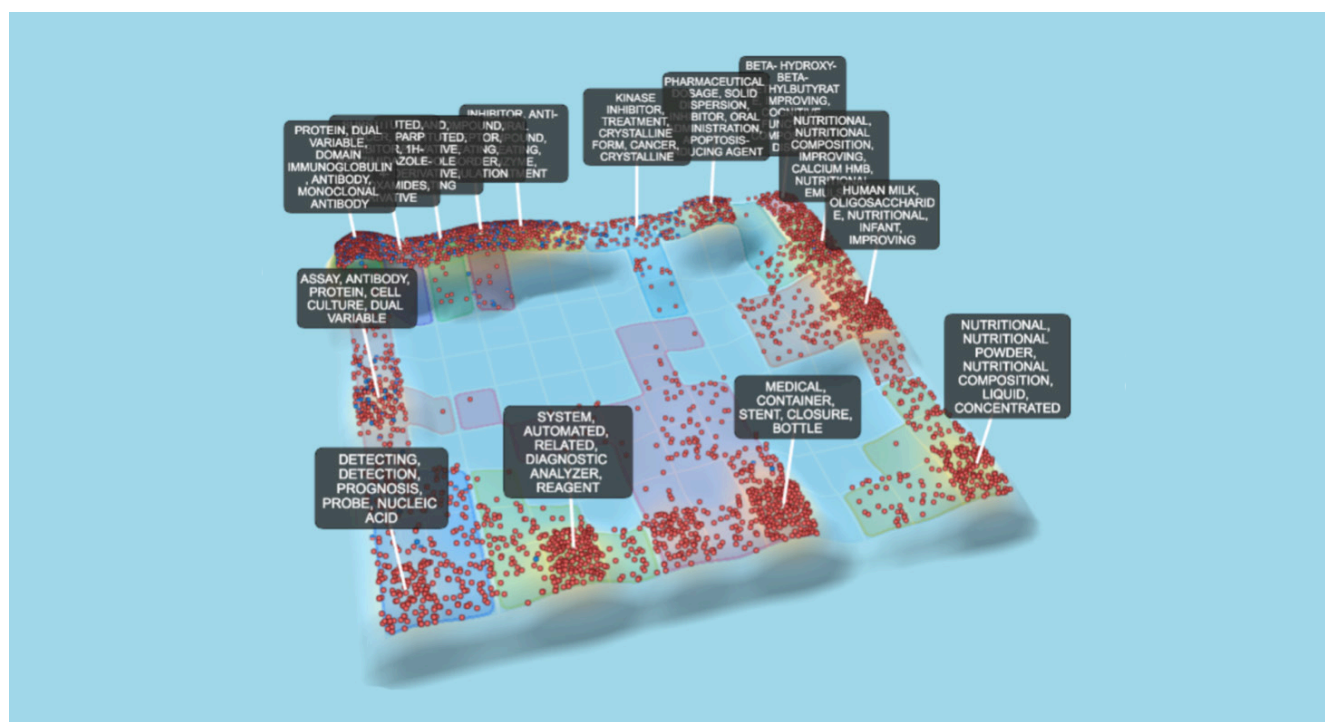
You can analyse your competitor's patent portfolios to identify potential threats or indicators of product strategy. The more clusters of patents a particular company has within a technology space, the more it dominates it.

By identifying what technology areas your competitors are focused on, you can identify where there are gaps to exploit. Once you find a set of patents within the landscape, you can also add them to a workspace. This will allow you to gain automated reports and set up alerts on your competitors' portfolios.

Try it:

There are also a number of processes you can use in order to conduct some competitive analysis within the landscapes:

- Again, you can bring in a set of patents either from a company's portfolio, from a technology space, or both. Using a set of patents from the technology space you are already active in or plan on entering will be useful as you can identify companies that you weren't already aware of.
- Within the Competitive Analysis Chart, you can highlight patents that fall under the same fields, such as Assignee Name or International Classification, and therefore track competitors' portfolios and technologies together.



In this example, the landscape shows the patents of Abbott Laboratories in red and AbbVie in blue. It is clear that there are a number of technology areas in which Abbott Laboratories have patented heavily, swamping specific grids and effectively ring-fencing those areas.

IP teams would have to be particularly careful about their own innovations in this space.

Trend Analysis

One way of conducting some trend analysis would be to use the Animation Tool. This shows you a video of the timeframe when

patents have been published, and can demonstrate how a specific market has changed and grown over time.

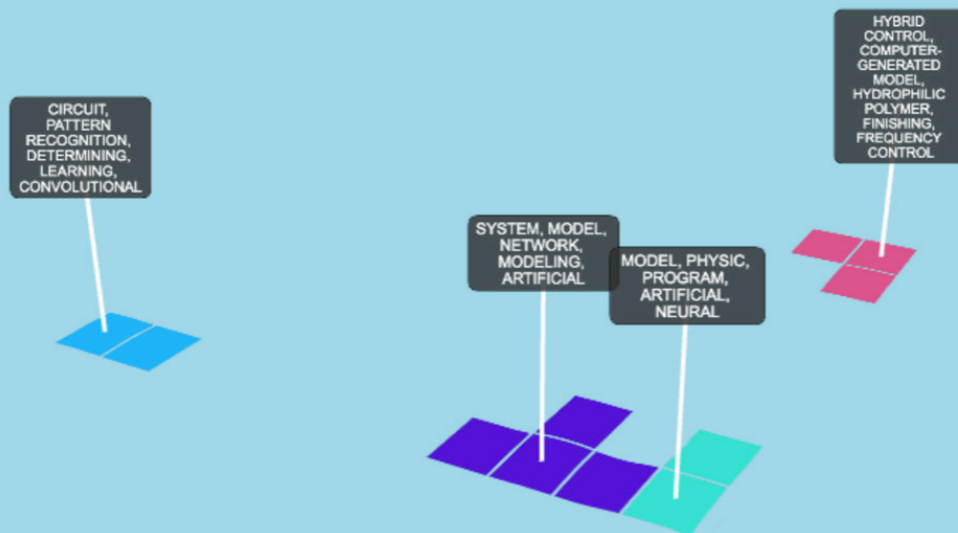
Example:

The three landscapes below represent the patents filed within artificial intelligence in 1995, 2005, and 2015.

As we can clearly see there has always been a patenting presence in 'System, model, network, modelling, artificial'.

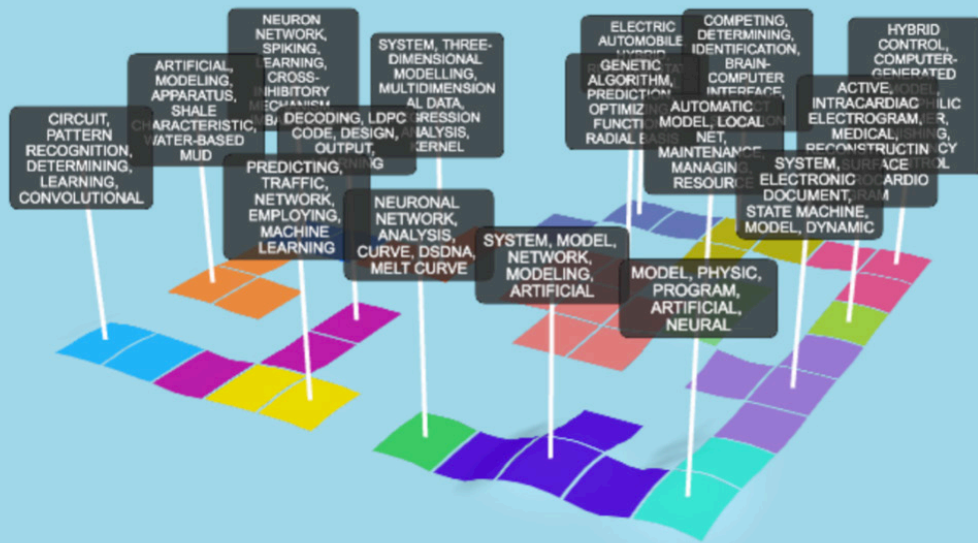
The blue squares, which represent this technology area, expand over time, indicating a growing number of patents in this space, and the number of technology areas impacted by this technology have also diversified by 2015.

1995

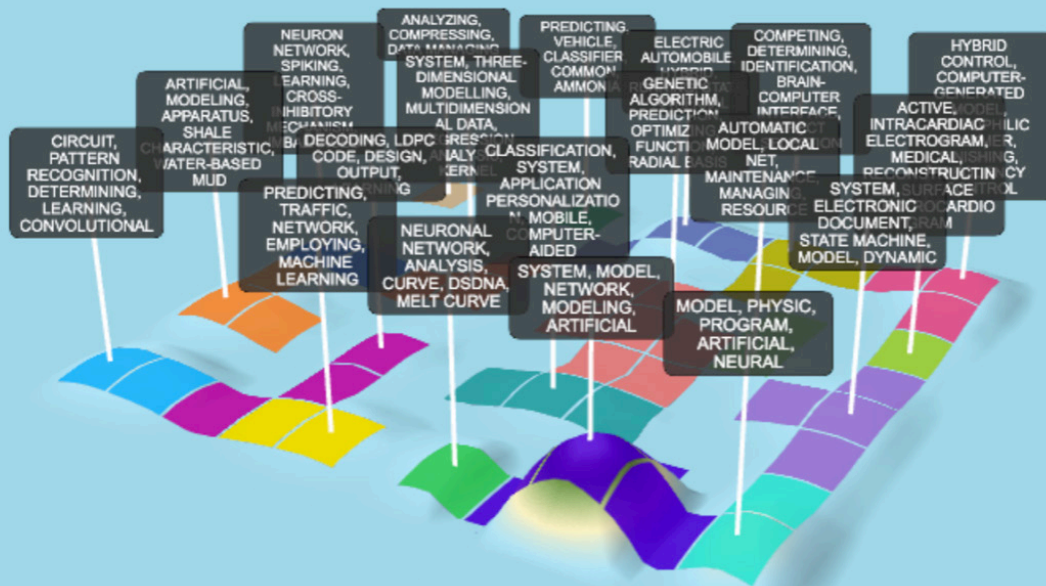


Trend Analysis

2005



2015



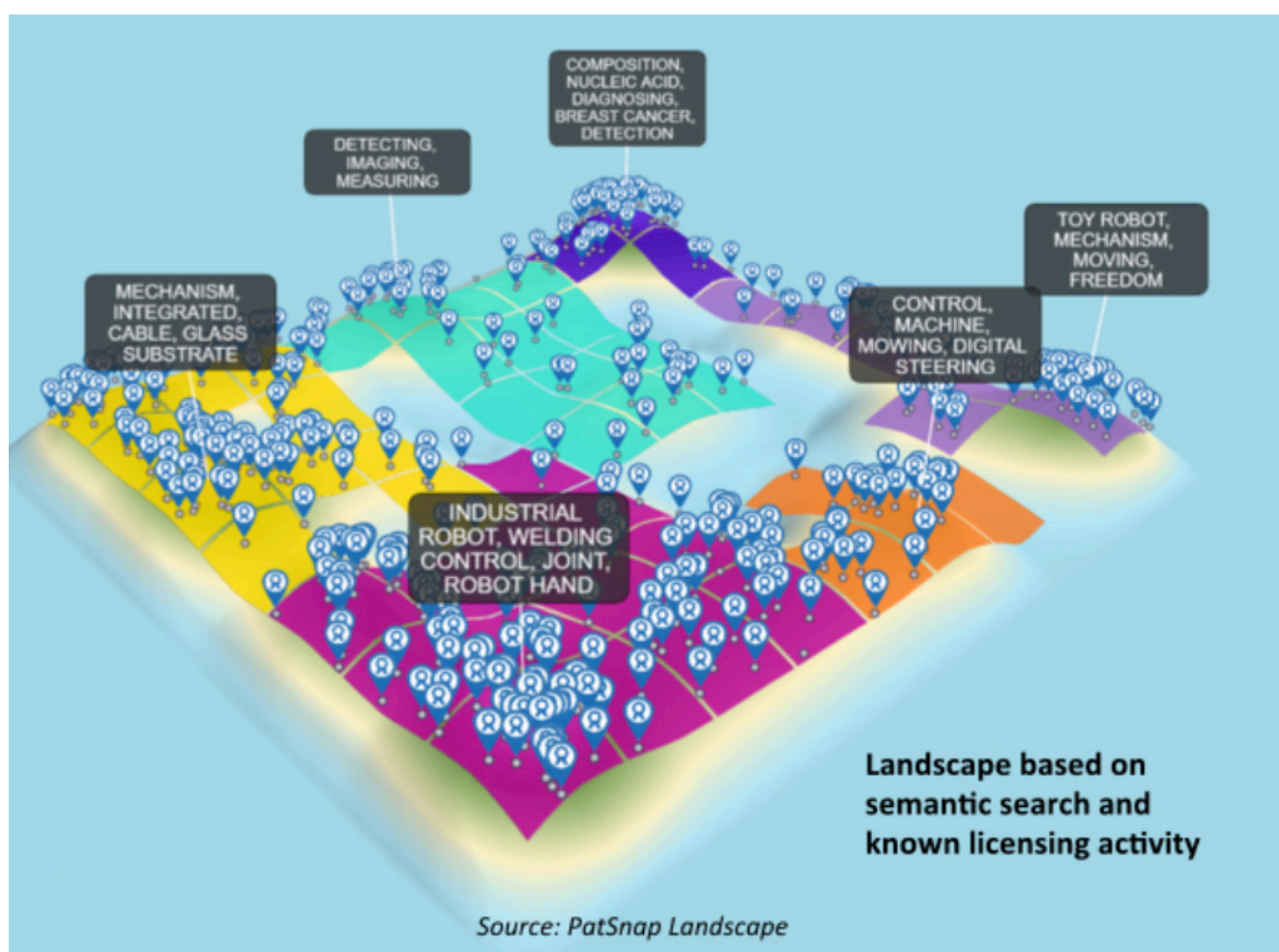
Refining the Landscapes

As well as being able to refine your search queries using the original PatSnap database, you can also use landscapes to zero in on the areas of interest. This would be done via the Grid Tool which will highlight and label all the areas on the landscape where you would find clusters of patents.

You can refine your landscape by erasing the areas that are irrelevant to your search. You can also customise your labels (such as by removing obvious keywords and leaving more unique ones.)

This will enable you to discover the different language used within patents, as well as key research areas which were previously unknown to you.

Some of our clients also use landscapes to overlay additional datasets such as grant information or valuation data, in order to identify technology areas where funding may be available or the chance of delivering higher returns is more likely. The possibilities are endless.



Final Queries

What data should I use in a landscape?

When creating a landscape, the best searches to use will depend on what type of analysis you wish conduct. You may want to only look at a particular company's patents. Or you may find yourself conducting a broader search on a general technology space. Either way, the number of patents you put into the landscape will vary and therefore you do not necessarily have to specify "1000" patents which is usually the default.

How can I share my landscape?

A great feature is our Snapshot tool which allows users to take pictures of their landscapes which can then be inserted directly into reports and presentations. You can also share your landscapes with other PatSnap users, and we recommend doing this to enable your colleagues or clients to keep up to date with how the landscapes change over time.

Finally, with PatSnap you will be able build a rich portfolio of landscapes which will aid you to manage IP intelligence effectively – so please remember to save your work!

You've made it all the way! Now take your business all the way to top by putting your new skills to practice on the PatSnap platform.

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Where will you find your next opportunity?

About PatSnap

PatSnap is the leading provider of Intellectual Property Analytics, for analysing tech trends, driving innovation, market planning, competitor intelligence and maximising return on IP assets. Founded in 2007, PatSnap is used by R&D, business and IP professionals in thousands of commercial and not-for-profit organisations globally, including NASA, the Department of Defense, China Mobile, Goodyear and Vodafone. With a database of over 121 million patents, augmented by economic, legal and company data, we use proprietary machine learning technology to make IP work for all, including those with no IP experience. We have offices in London, Los Angeles, Singapore and China.

Find out more: **patsnap.com**