Cipher Classifiers – Your view of the technology space

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Delivering best in class classification and analysis

**Powerful AI Technology Classification**
Industry leading technology classification through AI. Simplifying and enabling ongoing and high quality patent technology searching

**Intelligent Patent Analytics Platform**
Business-focused analytics engine designed specifically for patent data. Highly processes and cleaned data enabling quick routes to insights.
Why patent classification?
Why PatentSight + Cipher?

**More complex & interconnected technology**
More and more players are stepping out of their traditional markets to leverage their technology in other domains, for example digitation.

**Growing number of patent filings**
As emerging nations develop and more actively adopt a robust patent system more patents are filed, like China. Even in more developed nations filings increase year on year.

**Increasing demands from the business**
The business is becoming more and more knowledgeable about what insights can be derived from IP. Organizations like PDG have also worked hard to develop this.

**No significant growth in IP head count**
IP team head count is not growing inline with these increased demands and complexity.

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**Need to do more with the same**
IP teams need to be able to do more and delivery high quality results with the same or even fewer resources. IP tools need to support teams to realize this.
Classifiers are **supervised machine learning algorithms** trained with positive and negative patent examples that allow you to find all patents relating to specific technologies.
Strategic Patent Intelligence

**Benchmarking**
Compare a patent portfolio to other owners through a technology lens

**Budget Management**
Justify patent budgets to CFOs and others to communicate the impact of an investment

**Portfolio Optimisation**
Ensure the right portfolio to meet strategic patenting objectives

**Competitive Intelligence**
Understand who's doing what by automating patent to technology mapping

**Technology Trends**
Understand, monitor and react to the latest technology trends

**Due Diligence**
Automate manual reviews for efficient execution of M&A and licensing transactions

**Inbound Assertion**
Be prepared with evidence to create a fast and effective threat assessment

**Monetisation**
Identify opportunities to create value through licensing or sale of patent assets

**Cross-licensing**
Combine patent and revenue data to determine rational licensing outcomes

**Risk Mitigation**
Understand, quantify and communicate patent portfolio risk
Loyal customers in both Europe and US
How do Cipher Classifiers work?
Building a Classifier

1. **Training the Classifier with examples**
   User provides positive and negative families to start training the classifier.

2. **Classifier provides feedback**
   Each family receives a relevance score. Engine provides results and suggestions.

3. **Refining results**
   User reviews and refines results and feeds those into the classifier training set.

4. **Iterations until good performance**
   User reviews and refines results and feeds those into the classifier training set.

**Initial TS**

**Providing Results & Feedback**

**Review & Refinement**
Our Classifier Builder enables Cipher Certified

Smart Features: Suggestions & Similar Families analyse meta data to suggest additional patents that improve and diversify the training set.

Tools to test performance and coverage before it is added to client’s taxonomy.

Text searching enables user to find other examples of patents to add to the training set.

Phrase highlighting and classifier confidence scores assist user understanding of the ML algorithm.

Example patents can be marked positive or negative to train the ML classifier.
 Classifier scope notes

Human curated scope notes support transparency and control - guiding the human not the machine
Building classifiers requires high quality training data - Boolean search can deliver an effective starting point.
Developing the training data - Similar Families

Our advanced **Similar Families** algorithm supports exploration of both general and specific areas.
Developing the training data - Suggestions

The **Suggestions** functionality is Cipher prompting the classifier builder to provide the most useful information to the system.
Evaluation - testing and refining the Classifier

Cipher has many tools to assist with the **Evaluation** of a Classifier

This identifies Google and Amazon patents responding to the draft classifier for evaluation
Training data - a more transparent approach

+ive and –ive training sets can be reviewed (and corrected) at any time
Taxonomies and classifiers

Cipher enables set of classifiers to be delivered in structured taxonomies.
Benefits of Classification

Classifiers are **supervised machine learning algorithms** trained with positive and negative patent examples that allow you to find all patents relating to specific technologies.

- **Trained by Human**
  - Humans provide context and direction & ML connects data points.

- **Powered by ML**

- **Smart Features**
  - Smart features help build better training sets and therefore create better results.

- **Transparency**
  - Full transparency in results allows the review of all patents by relevance.

- **Full Control**
  - The Classifier Builder gives full control over what is in and excluded.
Testing the accuracy of machine learning (ML) algorithms

Cipher has tested its ML algorithms using test data generated independently by a third party, achieving 96% accuracy.

**Test methodology**

Cipher has tested its ML algorithm by:

- Taking a test data set generated independently by a third party (Patinformatics)
- Cipher’s classifiers were trained on a portion of the data
- The accuracy was tested against the manually curated test set

**Test results**

From 300 patents, Cipher’s algorithm achieved 96% accuracy.

- **Predicted Positives**
  - 93 true positives
  - 3 false positives

- **Predicted Negatives**
  - 200 true negatives
  - 4 false negatives

Test data shows that Cipher’s ML reaches a stabilised level of accuracy from a relatively small amount of data.

*Note: The test process is described in detail in Cipher’s paper “Construction and evaluation of gold standards for patent classification”, published in World Patent Information.*
Cipher Classifiers - two options

**Cipher**
- Classifiers Built by Cipher

**Cipher Certified**
- Classifier Builder UI & Training Program

Client-defined Classifiers built by the Cipher Team

Training program and support to create inhouse Capabilities for Classifier building
How are Cipher Customers using Cipher Classifiers?
The impact on our clients:
Top down success as a leader and bottom up success as a team

**IP at the heart of the business**

**Top Down:**
Cipher enables our clients to enhance the productivity and efficiency of their teams. Classification automates recurring tasks such as competitor monitoring, so their time can be used on high value tasks.

**Bottom Up:**
Portfolio analytics and robust data give our clients a seat at the table and an ability to justify their decisions, budget requests and a means to change the narrative around the portfolio being a cost centre.

**Automation of processes**
“From cost cutting request to budget increase”

Challenge:
Our client was asked to cut a portfolio by 10% to save on costs. There was little understanding as to the business value the portfolio provided.

Insight:
Competitor benchmarking and risk models in Cipher showed that making these cuts would leave the business open to multi-million dollar assertion risks.

Results:
The GC changed tack and budgets were in fact increased as the process had identified pre-existing gaps in the portfolio.
“Four days per month saved by automation”

Challenge:
Our Client had a team member who cumulatively spent at least one day week running competitor searches, reading through new publications and sorting them.

Solution:
Cipher’s classifiers were implemented and the team member instead received an instant, automated, weekly digest of all new publications within their own business area.

Results:
That team member was then able to use their time to deliver more analytics to their business, including competitor filing strategy analytics and M&A scouting.

The team were able to review, tag and comment on the patents within Cipher before then sharing notable patents to R&D colleagues, all seamlessly within Cipher.
What is the Journey?
Cipher + PatentSight integration plan

**Now**
Leverage PatentSight’s powerful analytics using Cipher ML classifiers
Cipher Certified available using Cipher’s Classifier Builder

**Mid-term**
Additional features and integration – based on customer feedback

**Long-term: Full integration**
Your own custom technology using Cipher industry leading classification engine directly into PatentSight
Questions?
Thank You

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