PLUTO ANNUAL PUBLIC REPORT 2011

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Project Overview

The problem addressed by PLuTO is the increasing need for translation given the current Intellectual Property (IP) landscape. Despite the introduction of the London Agreement in Europe, the translation burden when seeking patent validation is still very heavy. When filing in a national patent office in Europe that has yet to accede to the agreement, translation is required in the language of that country. Even then, countries which have joined can still request a translation of the claims in their official language.

These translations come at significant cost, up to €680 per EU patent, and are often prohibitive to individual inventors and Small- and Medium-Size Enterprises (SMEs). This flies in the face of the European Union's initiatives to foster innovation and growth throughout the community and to build stronger knowledge economies.

Additionally, there has been a significant increase in IP activity globally over the last number of years, particularly in Asia. Between 2004 and 2009, over 45% of all patent applications worldwide came from China, Japan, and South Korea. In the same period, China experienced a 16.1% growth in the number of filings. The consequence of this is that greater amounts of prior art now exist in a language foreign to patent searchers and examiners, thus creating additional translation needs.

Objectives

PLuTO is developing an online platform that will provide an automated patent translation capability across multiple patent search systems (e.g. Espacenet, PatBase, USPTO) leveraging integration of advanced Machine Translation and Translation Memory technology with personalised, tailored vocabulary and terminology management for patent professionals. These solutions can increase productivity in patent search processes and will help to significantly reduce translation costs, giving rise to a more inclusive innovation society with diminished language barriers.

1: The PLUTO interface displaying English-French translation

Main Highlights

There have been a number of highlights in PLuTO over the last 12 months in both technical aspects of the project, with the on-going development of our translation platform, as well as with regards to dissemination activities and building awareness of our work.

Highlight: *Software Prototypes*

We have developed a first version of our browser-based patent translation plugin which allows IP professionals to translate patent documents on-the-fly wherever they search. An alpha release of the software, due to be rolled out to select users in December 2011, supports translation between English and French, German, Portuguese, and Japanese.
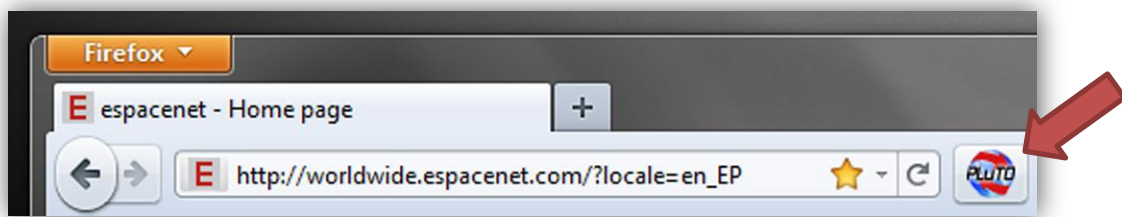
2: PLUTO browser plugin button in Firefox ready to translate patents at the EPO

Highlight: *Translation Quality*

Our translation systems have been subjected to a rigorous quality assurance process and have exceeded state-of-the-art performance for each of the aforementioned language pair. According to both automatic measures and expert human evaluators, our systems outperformed both Google Translate and Systran achieving a level of translation quality suitable for the needs of patent professionals.
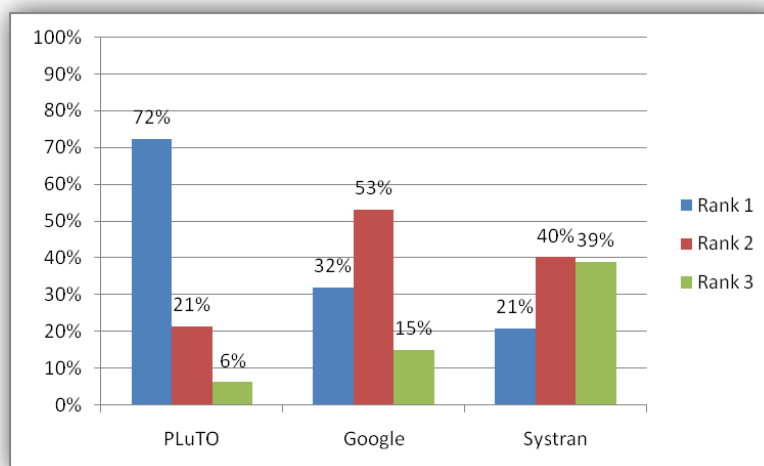
3: PLUTO translations were ranked best 72% of the time for English-French

Highlight: *User Engagement*

Development in PLUTO has taken a very user-centric approach, with feedback being sought at all stages of the software building process. We have had more than half a dozen meetings with a working group at the Dutch Patent Information User Group

(WON) to help us identify the exact needs of potential consumers through user surveys, usability studies, and software testing. Our platform has been demonstrated at numerous international events, such as the EPO Patent Information Conference and the WIPO Symposium, where invaluable feedback has been received. At these events and others, over 90 IP professionals have subscribed to gain early access to our software. Additionally, we have been in discussion with a variety of commercial entities with a view to closer collaboration.

4: PLUTO Japanese translation demonstrated to an interested user

A Personalised Solution for Patent Translation

A key highlight in the last year – and one of the most important elements of the PLUTO project – was the development of our first software prototype. Consultations were held with our user group, WON, to help us establish the exact needs of IP professionals when it comes to translation. This information, combined with the results from a survey in which more than 100 WON members and contacts participated, helped to contextualise the development of the patent translation platform.

The Translation Bottleneck

As there is no single comprehensive collection of patents, IP specialists – patent searchers, examiners, etc. – must perform searches across multiple databases to ensure that they do not miss that one patent which may be crucial when it comes to their invention. As many of these databases contain patents in a language foreign to the searcher, they will often come across documents that need to be translated in order for them to establish whether it is relevant or not. A typical workflow of a patent searcher is shown in Figure 4 below where we see that, on average, 30% of documents encountered during search need to be translated.
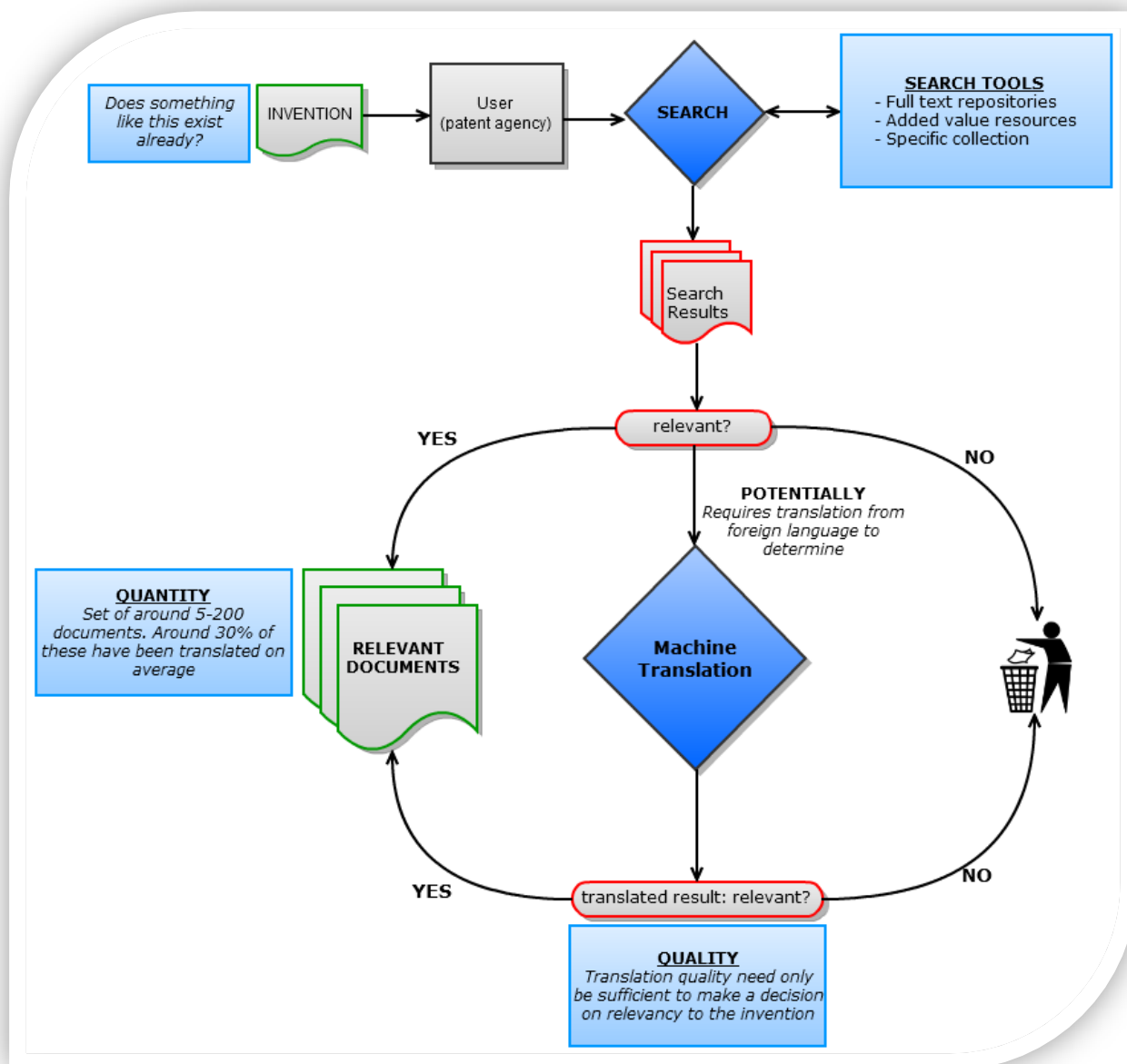
5: Typical workflow during a patentability search

Here we have a situation where every time the user needs a translation they have an inconsistent set of options available to them. For instance, a particular search engine might not have any built-in machine translation capability. If it does, translation quality may not be sufficient in which case the user must use an external tool. Either way, the user is faced with different interfaces, differing levels of translation quality, and the entire process is disjointed.

Translation On-The-Fly

In order to overcome this problem, we have developed a translation plugin that sits on the toolbar in the user's web browser (as shown above in Figure 2). The plugin supports all major patent search engines, both free and commercial, and provides the user with a consistency of interface and translation quality regardless of where they have to search. The machine translation systems underpinning the plugin have been specifically adapted to translate patent documents which ensures that the many nuances of patents are preserved.

The plugin has been designed in such a way to provide the user with a personalised experience. Our translation and terminology management interfaces allow the user to maintain a history of their previous translations and to upload their own terminology or translation memories for use in their translations respectively. There is also an editing facility in which the user can correct mistakes found in the translated output, and these are recorded and applied to all future translations. In addition to the translation of web-based content via the plugin, there is also the option to upload documents for translation or to directly input text.

PLUTO in the IP Community

A strong emphasis has been placed on disseminating information about PLUTO in IP circles not only to build awareness of the project but also to create a network of contacts – potential users – who can provide valuable information and feedback on the work being carried out. To that end, we have spoken and exhibited at major events in the field which has considerably bolstered our user base and earned us international press.

EPO Patent Information Conference

The European Patent Office's annual patent information conference was held in Kilkenny, Ireland in October 2011. PLUTO had an exhibition stand over the course of the four day event where our browser plugin tool was showcased. The translation platform was also presented to more than 330 participants from over 40 countries during the main conference, which was opened by the Irish Minister for Enterprise, Richard Bruton.
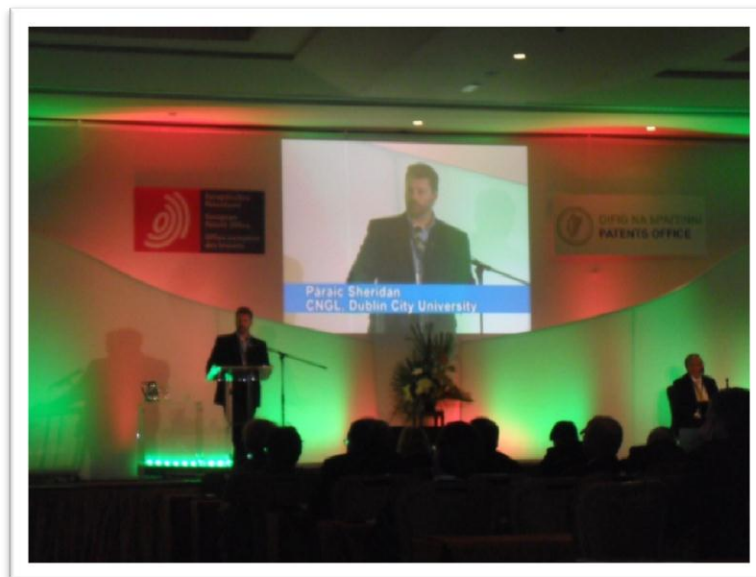
6: Páraic Sheridan presenting PLUTO at the EPO Patent Information Conference

Significant interest was generated in the project during this event. Over 70 new users subscribed to updates and early access to the software via our website. We also received press at the event in the form of the Irish technology website, Silicon Republic, who published news item on patent MT in PLUTO.[1] Furthermore, the Sunday Business Post, an Irish national newspaper, featured the project in an article as shown below.[2]
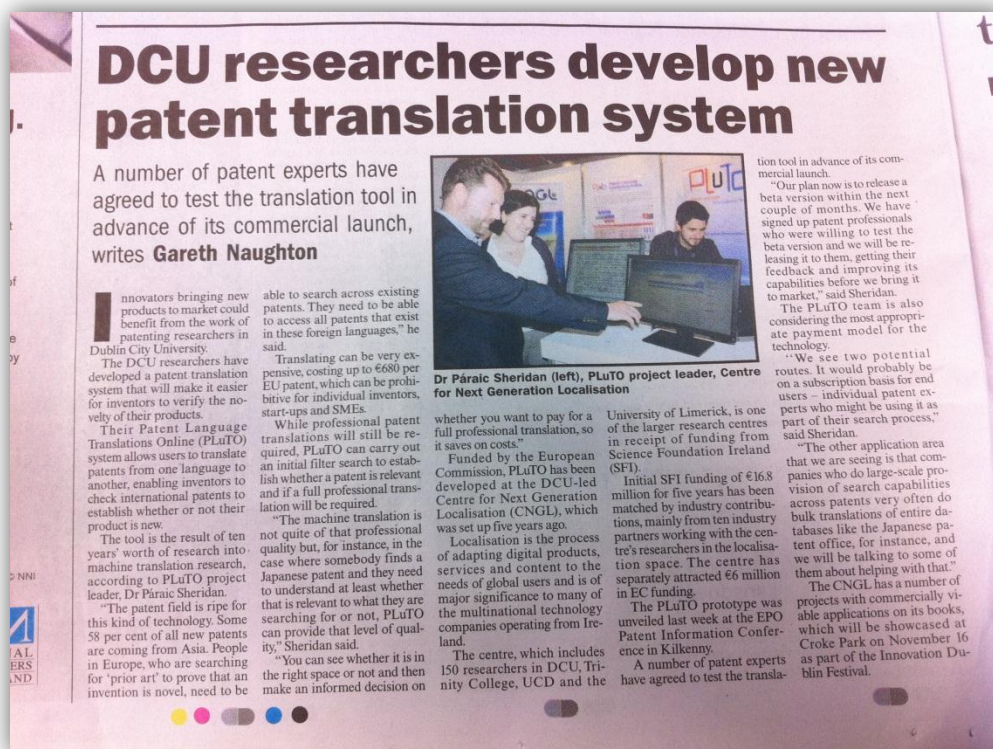
7: PLUTO feature in the Sunday Business Post

WIPO Symposium on IP Authorities

PLUTO was invited to give a presentation at the World Intellectual Property Organisation (WIPO) Symposium in Geneva in September 2011. The meeting was attended by representatives from many patent offices around the world including the Director of the US Patent and Trademark Office, the Commissioner of the Japanese Patent Office, and

8: John Tinsley (far right) on the panel at the WIPO Symposium

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[1] http://www.siliconrepublic.com/start-ups/item/24094-patent-translation-system/
[2] Larger version can be read here - http://www.pluto-patenttranslation.eu/sites/default/files/bizpost.jpg

the Principal Director of the European Patent Office. PLUTO was presented during a panel discussion entitled *"How far can Machine Translation overcome language barriers?"*. Other panellists included Johnny Chen from the Google Translate team and Philipp Koehn, creator of the Moses MT system.

Other Activities

PLUTO partners have participated in a number of other events throughout Europe in the IP and language technology areas over the past year. These are summarised below:

⇒ Software demonstration at METAFORUM 2011 in Hungary
⇒ Scientific presentation at EAMT 2011 in France
⇒ Presentation at IRF Symposium in Austria
⇒ Exhibition at Microsoft Ireland Industry Showcase in Ireland
⇒ Presentation at the IPWare Summit in Italy
⇒ Software demonstration at Innovation Dublin Festival in Ireland

9: PLUTO members at the METAFORUM

Consortium Meetings

In addition to activities in the wider community, the PLUTO consortium met on a number of occasions throughout the year to hold technical workshops, brainstorm new ideas, and plan future activities. One meeting of particular importance was our AGM which was held in Amsterdam in April 2010. At this time, the consortium met with the four members of our advisory board – Stephen Adams, Greg Grefenstette, Viggo Hansen, and Fred Hollowood – for the first time. Attended also by WON members, the meeting was a source of valuable information from experts who were casting a fresh eye on project developments. This served as good preparation for our annual review the following month, which we successfully passed. The review was held at the CNGL offices in Dublin, as was a previous meeting in 2010.

10: The PLUTO consortium with the advisory board at our AGM in Amsterdam

Other gatherings were held again in Amsterdam, as well as in Greece.

Outlook

As we enter the second half of the project, we have a very strong foundation from which we can continue to build. A large proportion of the backend software development work has been done which puts us in a better position to engage and listen to users on the implementation features and components that they find useful. Our approach from this point onwards going to bring us down three key roads: languages, software, and commercialisation.

Language Coverage

To date we provide translation between four language pairs: English to and from German, French, Portuguese, and Japanese. Our language focus will be driven by demand. User surveys have indicated that Asian languages are of particular importance, and this is backed up by statistics which show that 45% of all patent filings worldwide come from China, Japan, and Korea. Given this, our focus in the short- to medium-term will be the development of translation systems for these languages and two other strategic languages: Spanish and Russian.

Software: Development and Testing

As mentioned previously, one of our philosophies in PLUTO is continuous engagement with users. Towards the end of 2011 we plan to roll out a beta version of our browser plugin tool to the users who have subscribed. We will also continue to collaborate with our working group at WON where we will hold more focused sessions including observational studies when using the software, usability evaluation of the adequacy of translation output and continued dialogue on ways in which to improve our tools for the benefit of the patent professional.

Commercial Opportunities

One of the main aims of PLUTO has always been to consider the possible commercial exploitation of a patent translation service. To that end, we will continue to explore viable business models that will allow us to provide a solution that will increase the efficiency and reduce the costs of IP professional. Again, this will be facilitated through consultations with our user group and wider contact based.

Needless to say, we are pleased with our progress to date and very excited about future developments and prospects.

For more information…

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