



TIM Edge



User manual

Joint
Research
Center

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2 What is TIM Edge

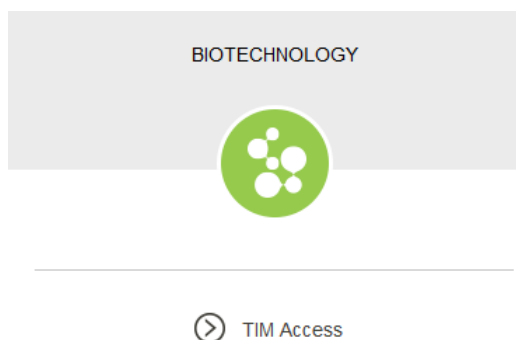
TIM Edge is an information system that maps the scientific and technical landscape of selected emerging technologies. To access it go to http://www.timanalytics.eu/tim_edge.html. The system is organised in fields. Each field can be accessed in TIM and its scientific and technical landscape explored.

The structure of TIM Edge is as follows:

1. Agriculture, forestry and fisheries
2. Biotechnology
3. Energy
4. Environment & Climate Action
5. Health
6. ICT
7. Manufacturing and Engineering
8. Materials
9. Societal Challenges
10. Neuro and cognitive
11. Quantum
12. Space

To explore the scientific and technical landscapes, select one of the fields.

For example choose Biotechnology.



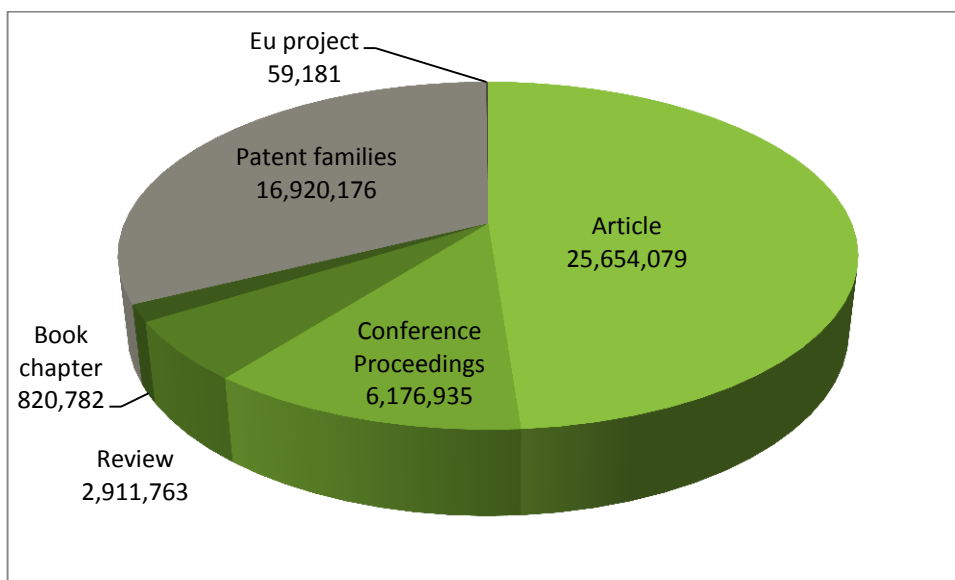
The button TIM acces will take the user to a public instance of the TIM tool that has been populated with technologies relevant for this specific field. In this case, emerging technologies related to Biotechnology.

The landscapes for each technology in each subfield are built using information from documents contained in TIM's database. Additionally, news from major media sites are gathered for each subfield. See section "News" in the present guide.

3 TIM's Database

TIM's database contains documents that are the underlying data for the visualisations in TIM.

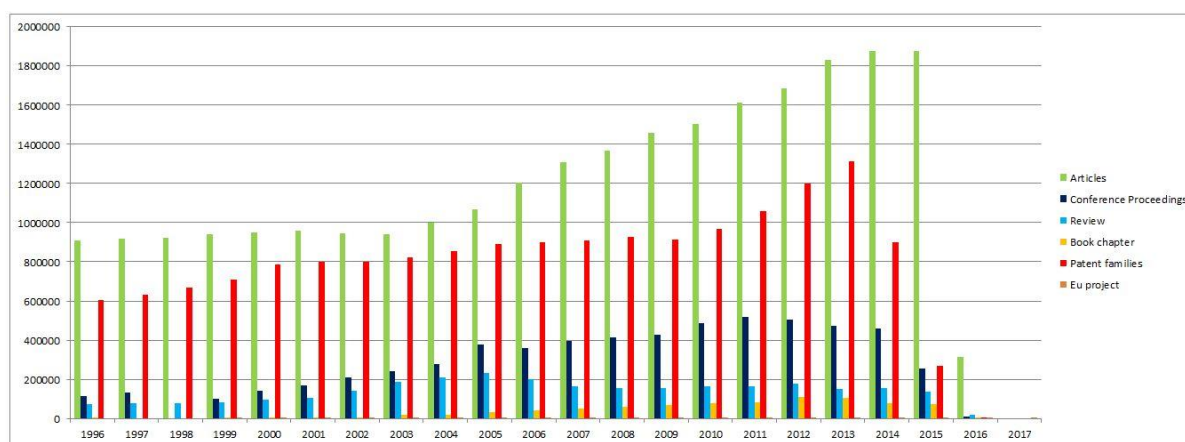
TIM's database contains mainly three types of documents: scientific publications (articles, conference proceedings, reviews and book chapters), patents and EU granted projects.



More than 50 million documents are currently indexed in TIM Technology's database.

The coverage per year is not homogeneous for each type of data. The coverage in TIM depends on what is available at the time of indexing the data from the providers.

For example, this is the distribution of documents resulting from indexing the data in August 2016.



3.1 Scientific publications

The scientific publications in TIM are subdivided in research articles, conference proceedings, reviews and book chapters. The database contains documents from the database Scopus (Elsevier) published after 1996. The source types covered in Scopus are either serial publications that have an ISSN (International Standard Serial Number) such as journals, book series and some conference series or non-serial publications that have an ISBN (International Standard Book Number) like one-off book publications or one-off conferences. To ensure that coverage, discoverability, profiles and impact measurement for research in all subject fields is accounted for, Scopus covers different source types. The database contains the journals published by Elsevier but also by other publishers (90%).

a) Articles (Research articles)

Articles include Original research or opinion and Article-in-Press.

Original research or opinion consist of articles in peer-reviewed journals and are usually several pages in length, most often subdivided into sections: abstract, introduction, materials & methods, results, conclusions, discussion and references. However, case reports, technical and research notes and short communications are also considered to be articles and may be as short as one page in length. Articles in trade journals are typically shorter than in peer-reviewed journals, and may also be as brief as one page in length. Article-in-Press (AiP) are accepted articles that are made available online before official publication.

b) Conference proceedings

Article reporting data presented at a conference or symposium. Conference papers may range in length and content from full papers and published conference summaries to short items like conference abstract which can be as short as few lines.

c) Reviews

This category includes both reviews and short surveys.

Reviews are usually state-of-play of a given branch or field of science & technology and typically have an extensive bibliography. Educational items that review specific issues within the literature are also considered to be reviews. As non-original articles, reviews lack the most typical sections of original articles such as materials & methods and results.

Short surveys, also called Short or mini-review are similar to reviews, but usually are shorter (not more than a few pages) and with a less extensive bibliography.

d) Book chapters

Complete chapter in a book or book series volume where the item is identified as a chapter by a heading or section indicator.

The list of sources (journals) from where the scientific publications are coming from can be consulted [here](#).

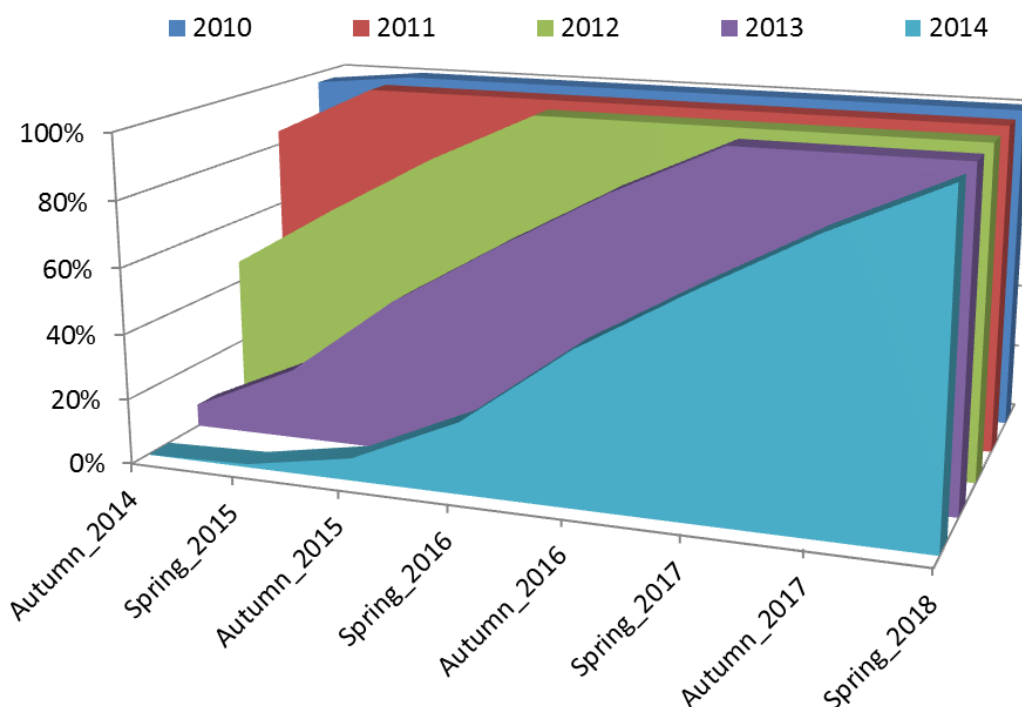
For more information you can also consult the [Scopus Coverage Guide](#).

3.2 Patents

The patent documents are extracted from the database [PATSTAT](#) from the European Patent Office. It contains patents from more than 90 patent authorities including all the major countries. We consider all patent documents in Patstat with priority date from 1996 onwards. The patent documents are then grouped per patent family when at least one of the members of the family is in English. The underlying assumption is that one patent family equals one invention.

A significant lag in the patent data can be observed in Patstat for the three last years (see graph above). The reason for this lag can be explained at least by three reasons: 1. Patent documents are published 18 months after their application 2. Cleaning and processing the data coming from other authorities than EPO 3. The EPO database is released two times a year.

JRC estimates that this coverage is approximately of: 10% for y-1; 40% for y-2; 70% for y-3; and only reaches almost 100% for y-4.

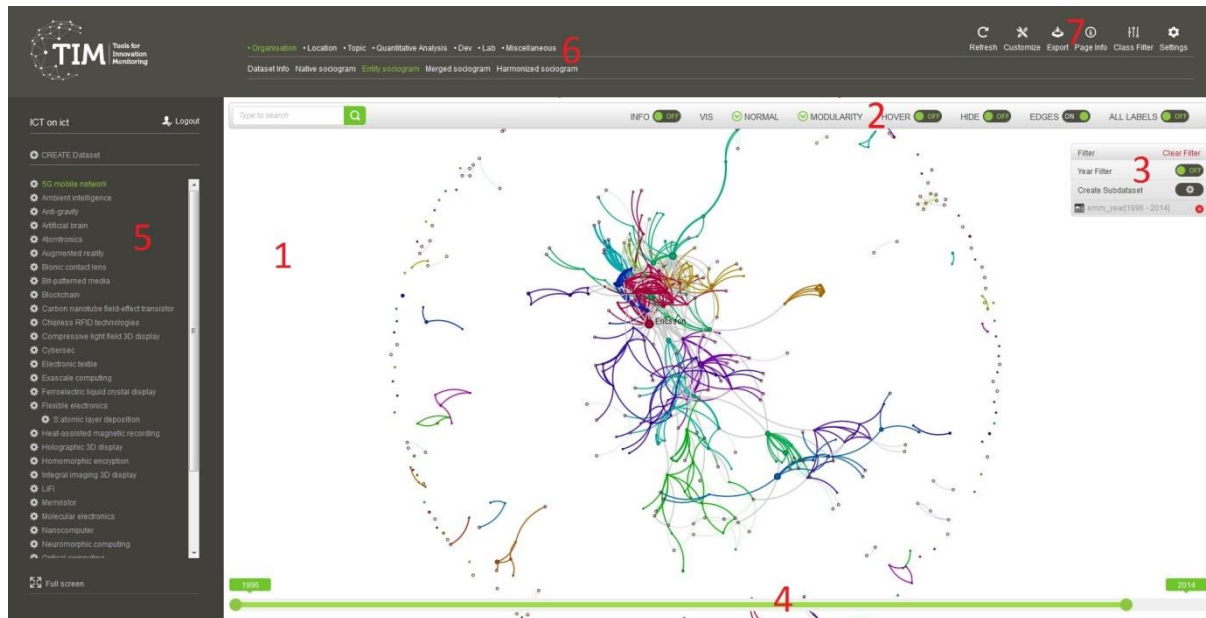


3.3 Granted EU projects

This dataset contains projects funded by the European Union under the fifth framework programme for research and technological development (FP5) from 1998 to 2002, FP6 from 2002 to 2006, FP7 from 2007 to 2013 and the Horizon 2020 framework programme for research and innovation (H2020) from 2014 to date. Grant information is provided for each project, including reference, title, starting date, programmes, participant countries, subjects and objectives. This data is extracted from the Cordis dataset, accessible on the [European Union Open Data Portal](#).

4 Description of TIM Edge

Main page and menus



1. Main Panel
2. Tools panel
3. Filter panel
4. Year selector
5. Navigation Panel
6. Page Selector
7. Options

4.1 Main Panel

The main panel of TIM is used to show an area of the currently active graph. The way in which the active graph is shown depends on the options that have been selected on the tools panel.

4.1.1 Network graphs

TIM massively uses network visualisations to display data. These network visualisations contain nodes and edges. This principle applies to most of the graphs in TIM.

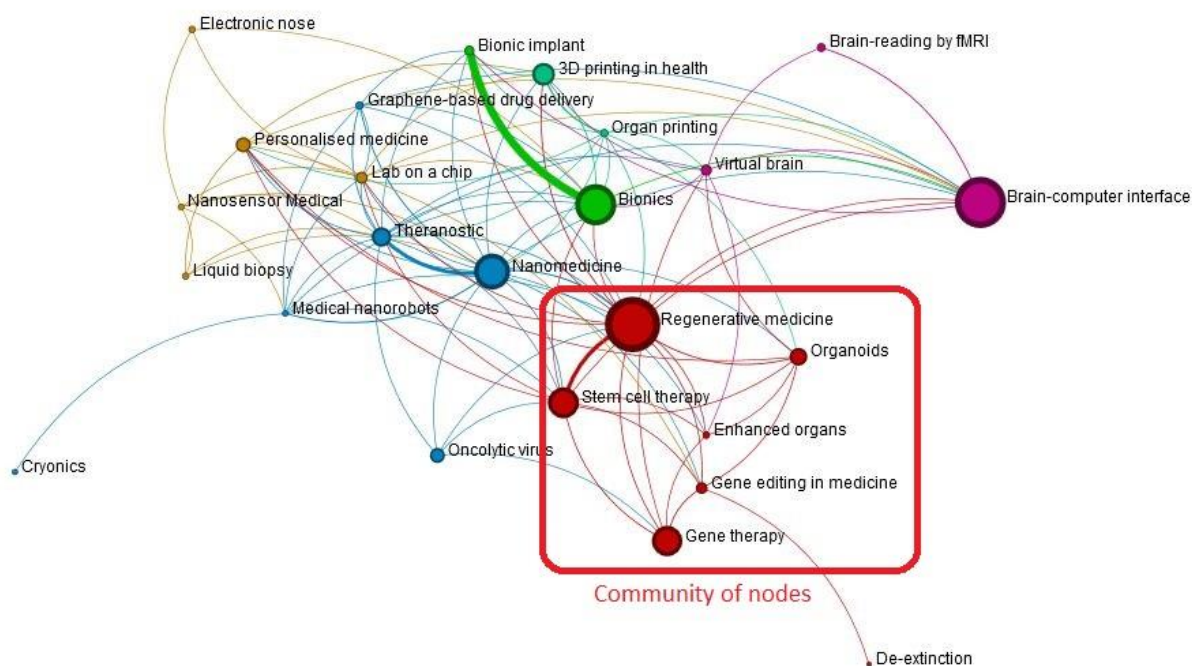
The attribute of nodes will change according to the visualisation that is selected. For example, when visualising the data item "cities", each node will be a city.

The size of the nodes corresponds to the respective weight (the number of documents) of the data items in the dataset.

The edges correspond to documents in common between two nodes.

The thickness of the edge varies with the number of documents actually in common.

In the main panel, when no specific dataset is selected, the graph represents all the datasets listed in the navigation panel. The visualisation principle of TIM applies here: the size of the node represents the number of documents retrieved for that dataset while the edges represent documents in common between two datasets.



4.1.2 Colour of the nodes

Nodes are assigned to communities and the colour of the nodes and edges represents the community to which the nodes belong: nodes of the same colour belong to the same community. The quality and relevance of the communities (which is actually a type of clustering), is measured by their modularity. You can consult the [scientific article](#) on the algorithm used in TIM or also look at the Wikipedia page relating to this so called [Louvain Modularity](#) algorithm. This algorithm is a commonly accepted clustering method of nodes in network graphs and only relies on characteristics of the network, without taking into account any semantic measures of similarity. It can be applied to any network and it does not have to be applied necessarily to documents. This feature comes from the library used to display the network graphs, which is based on [Gephi](#), a well-respected visualisation software. This algorithm has some limitations for detecting communities and TIM will provide to the user other clustering options in the future.

4.1.3 Labels

The labels indicate what the item refers to. By default, not all the labels are visible to optimise the visualisation of the data. Some options are available to modify the display of labels.

4.1.4 Moving and exploring the network visualisation

To facilitate the exploration of the network graphs, the mouse can be used to:

- zoom in by using the mouse wheel. When positioned anywhere on the main panel, turn the wheel up to zoom in and down to zoom out.
- move the graph by moving the mouse while keeping the left mouse button pressed.
- see the label of a node by hovering the nodes with the mouse.
- move a node by left-clicking on the node and move the mouse while keeping the button pressed. This functionality is particularly useful to allow for clear reading or for differentiation of nodes.
- filter by double-clicking on a node to add it to the active filter. Double click again to remove from the filter.
- filter for all the nodes of same community (represented with one same colour) by activating first the hover button (in tool panel) and then double-clicking on any of the nodes of the community. All the nodes of the community will be added to the filter.

Note that several filters can be applied at the same time by double-clicking on all the items you wish to include in the filter, even from different network graphs. For more information on filters see also the section on filter panel.

- see the node/edge size by right-clicking on a node/edge. Also some filtering options appear when right-clicking.

Some other types of visualisation are displayed on the main panel depending on what is chosen in the page selector. Among others there are analytical visualisations, text display and geographical maps visualisations. Each of these will be discussed with its correspondent item in the graph selector.

4.2 Tools panel

The tools panel allows the user to modify the appearance of the network graph displayed in the main panel.



4.2.1 Search

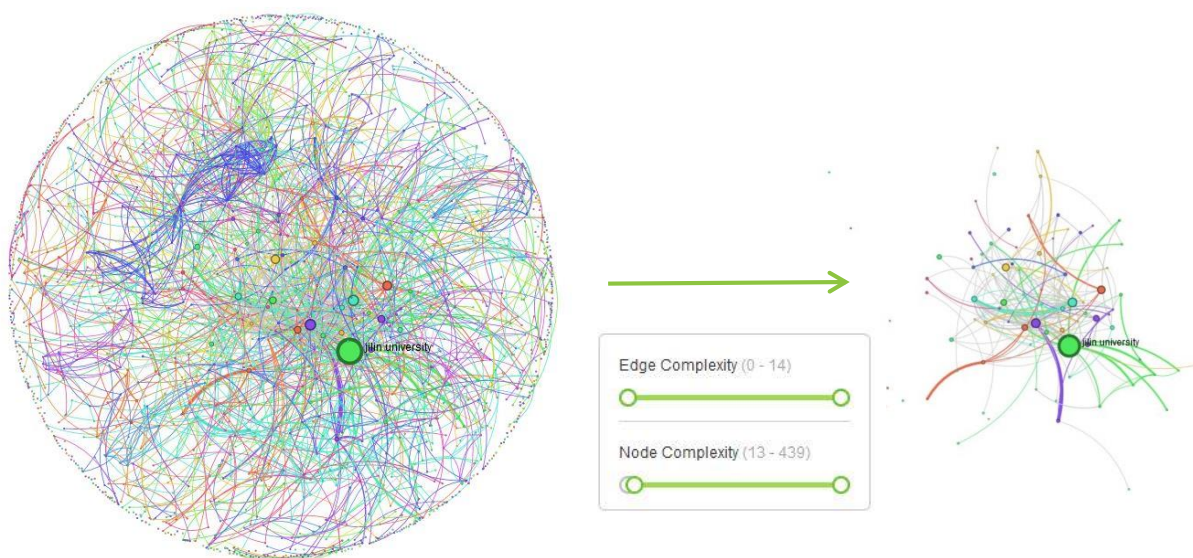
Search allows searching for a node in the graph. After three or more characters are typed, it suggests the labels of the nodes that coincide with the search. Click on the relevant label and the visualisation will automatically zoom in to the relevant node. If no items are listed after typing at least three characters, the search wasn't able to retrieve any results.

4.2.2 Info on/off

When the info is ON a panel appears on the left side of the main panel with the list in alphabetical order of all the nodes of the currently displayed graph. The list is clickable and the view will zoom to the selected node.

4.2.3 Vis

This button adjusts the visual complexity of the graph by hiding nodes or edges according to their specific size. Both edge and node size selectors will show in brackets the minimum and maximum sizes of edges or nodes that are currently displayed. These values can be modified by dragging the selector bars. It is possible to adjust both the minimum and the maximum size of edges and nodes. The same can be done to adjust the size of the edges displayed.



Example of Node size selection: Visualisation of the same graph with all the nodes (left) or with the nodes that represent more than 13 data items (right).

4.2.4 Order: Normal / Order by size / Order by year

This drop-down menu allows to choose between a default (normal) visualisation of the graph or to order the nodes by size or by year.

When ordered by size the top left node is the biggest node and the down right one is the smallest.

When ordered by year, the node that appeared most recently is at the left top part and the one that appeared first on the down right.

The meaning of colours and edges remains unchanged.

4.2.5 Colours: Modularity

This drop-down menu allows choosing the meaning of the colouring of the nodes. Modularity is the option by default and displays the communities of nodes.

4.2.6 Hover On/Off

When hover is on, mouseover on a node makes visible only that node and the other nodes and edges of the same community (all nodes of the same colour).

4.2.7 Hide On/Off

Position by default is off. When a filter is active and hide is off, the non-selected items (outfiltered) appear shaded in a very light colour.

When Hide is on, the non-selected items are hidden and therefore do not appear in the visualisation.

4.2.8 Edges On/Off

The position by default is on and the edges are visible. When turned off, the edges disappear from the graph.

4.2.9 All Labels On/Off

The position by default is off. Only the labels of the biggest nodes are visible.

When turned on, all the labels appear.

4.3 Filter panel



The filter panel appears at the right top corner of the main panel only when it is active.

To activate a filter, simply double click on the node you want to filter for.

A filter allows you to work with only a subset of the dataset. Once applied, the filter will hide all the data items that do not meet the criteria of the filter. The filters can be defined with one or multiple criteria. The lower part of the panel indicates the items that are part of the filter.

The example above shows an active filter for documents from [United States + University of Minnesota + Electrical and Electronic engineering].

The filter panel allows the user to manage the (multiple) filter(s) that are applied to the visualisation of the dataset. Every criteria of a filter can be de-activated by pressing the red x button. To clear all filters, press "Clear filter" on the top right of the panel.

The filters work cross-graphs, meaning that a filter that is activated in one of the graphs stays active when changing graph. For example if we filter for a subject, such as Medicine

and then we move to a graph that shows geographic information, we will see only the location(s) of the documents related to the subject Medicine.

The panel can be moved (drag by left-click and keep left button pressed).

4.3.1 Year filter

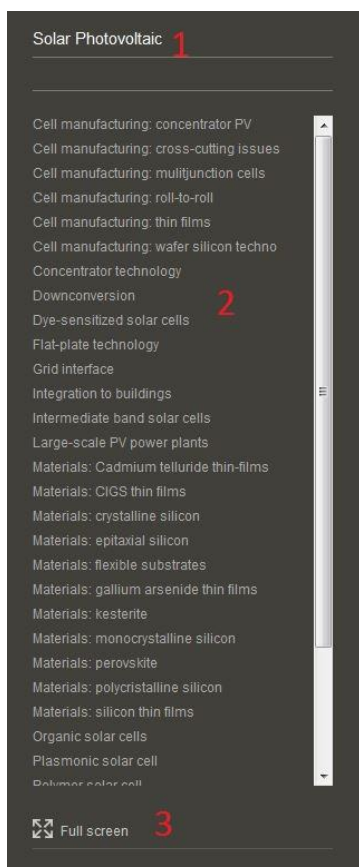
The year filter is used in conjunction with the year selector. Its use is discussed in the paragraph about the year selector.

4.4 Year selector

The year selector allows you to see the relevant data only for a specific time frame. Move the year selector from the right and/or from the left to delimit a specific time window. The graph is recomputed showing only the data items that belong to the time period.

When the command "Year Filter" is on and the year selector is also activated, the graph will be filtered for the new items in that time period.

4.5 Navigation Panel



The navigation panel is used to navigate between the different datasets that have been created. In TIM Edge, for each of the subfields previously described, there is a list of datasets or technologies that can be browsed and explored.

1. User/ space information
2. List of datasets (in alphabetical order)
3. Full screen command

4.6 Page Selector

The page selector allows the user to apply the different visualisations to the datasets. The graphs are ordered by categories. The categories are the following:

- Organisation: Network graph visualizations relating to the organisations/entities that are publishing, patenting and or are beneficiaries of EU projects.
- Location: Network graph visualisations relating to the location of the entities detected in the documents. Different levels of granularity are available, from countries to regions and cities. There is also a geographic projection on a map.
- Topic: Visualisations that relate to the topic of the documents in the dataset.
- News: Direct access to the latest news on the specific emerging technologies and news trends.
- Quantitative analysis: Trends and indicators calculated on the dataset. Filters apply to the data.

These are the pages (graphs) that are available in TIM Edge:

Page	SubPage	Visualisation	Description
Landing Page	Datasetgram	Graph	Graph of all datasets
	Growth indicators	Charts	Trends in number of articles and other indicators for all datasets
	News Trends	Charts	News trends for all datasets
Organisation	Dataset Info	Text	Information about the dataset (name, search string, creation and modification date and more)
	Organisations	Graph	Normalised name of the organisation that is affiliation of an author, applicant of a patent or beneficiary of an EU project
Location	Dataset Info	Text	<i>See above</i>
	Cities	Graph	City of the normalised organisation
	Countries	Graph	Country of the normalised organisation
	EU/World	Graph	Country of the normalised organisation or belonging to the EU.
	EU Countries	Graph	Country of the normalised organisation that belong to the EU.
	NUTS2	Graph	Territorial unit for statistics level 2 of the normalised organisation
	NUTS3	Graph	Territorial unit for statistics level 3 of the normalised organisation
	Map	Map	Location of the normalised organisations

Topic	Dataset Info	Text	<i>See above</i>
	Journal categories	Graph	Scientific articles are published in journals that are assigned to different categories.
	Patent class	Graph	Cooperative Patent Classification (CPC) attributed to patents indicating the subject to which the invention relates.
	Author Keywords	Graph	Author keywords are the keywords attributed by the authors to their publications (not available for other types of documents)
	Automatic keywords	Graph	Automatic keywords are keywords calculated on all types of documents
	Relevant Keywords	Text	Most relevant keywords in the dataset
	Dataset Info	Text	<i>See above</i>
Quantitative Analysis	Technology Trends	Chart	Trends in the number of documents and other indicators
	Histogram	Chart	Trends in the number of each type of document
	Dataset Info	Text	<i>See above</i>
News	News	Text	Latest news for the EMM category assigned to the dataset
	News Trends	Chart	Trends in the number of news
	Dataset Info	Text	<i>See above</i>
Miscellaneous	Years	Graph	Publication year of the publication, priority year of the patent or starting year of the EU project
	Type of documents	Graph	article: Research article conf: Conference proceedings boch: Book chapters review :Review patent: Patent euproject: EU project
	Data source	Graph	Original database from where the documents come from (Scopus or Patstat).
	Documents list	Text	List of documents in (filtered) dataset

More information on each type of page will be provided in the following sections.

4.7 Options

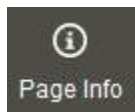
The options available can vary depending of the type of user.

4.7.1 Refresh



To recalculate the graph or chart in case of problems.

4.7.2 Page info

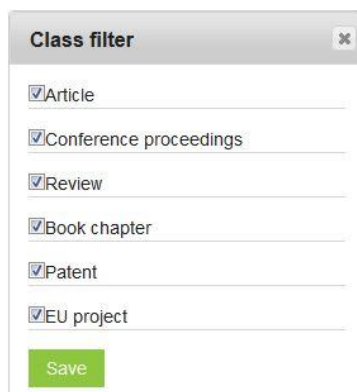


Page info contains technical information the displayed page.

4.7.3 Class Filter



Class filter allows you to select which types of documents you want to take into account for your analysis.



Class filter [X]

☒ Article

☒ Conference proceedings

☒ Review

☒ Book chapter

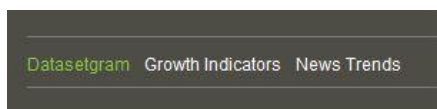
☒ Patent

☒ EU project

Save

5 TIM Edge Pages

5.1 Landing Page – Analysis on all datasets

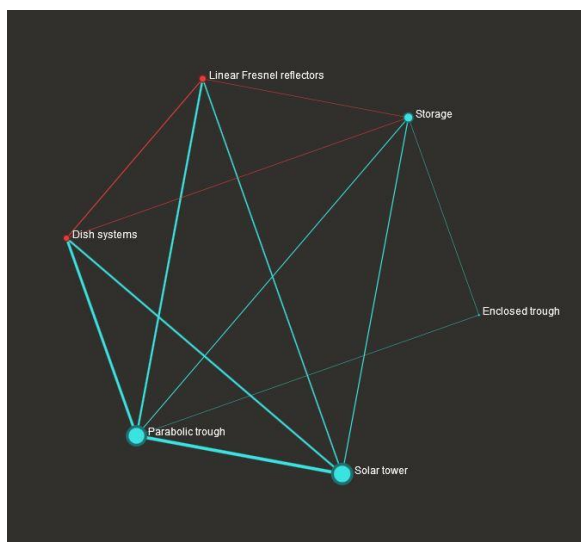


When no dataset is selected, the landing page is displayed. The default page presents data that is relative to all the datasets.

To go back to the default page once a dataset has been selected, simply click on the TIM logo to deselect any active dataset.

5.1.1 Datasetgram

The datasetgram is a network graph with all the datasets that have been created.



In this visualisation, each node is a technology (or dataset). The size of the nodes corresponds to the number of documents retrieved for each dataset. The edges between the nodes are documents in common in between the two datasets. The thicker the edge, more documents are in common. The colours show the communities of nodes, i.e. datasets that tend to have more data in common among each other than the nodes of a different colour.

5.1.2 Growth Indicators

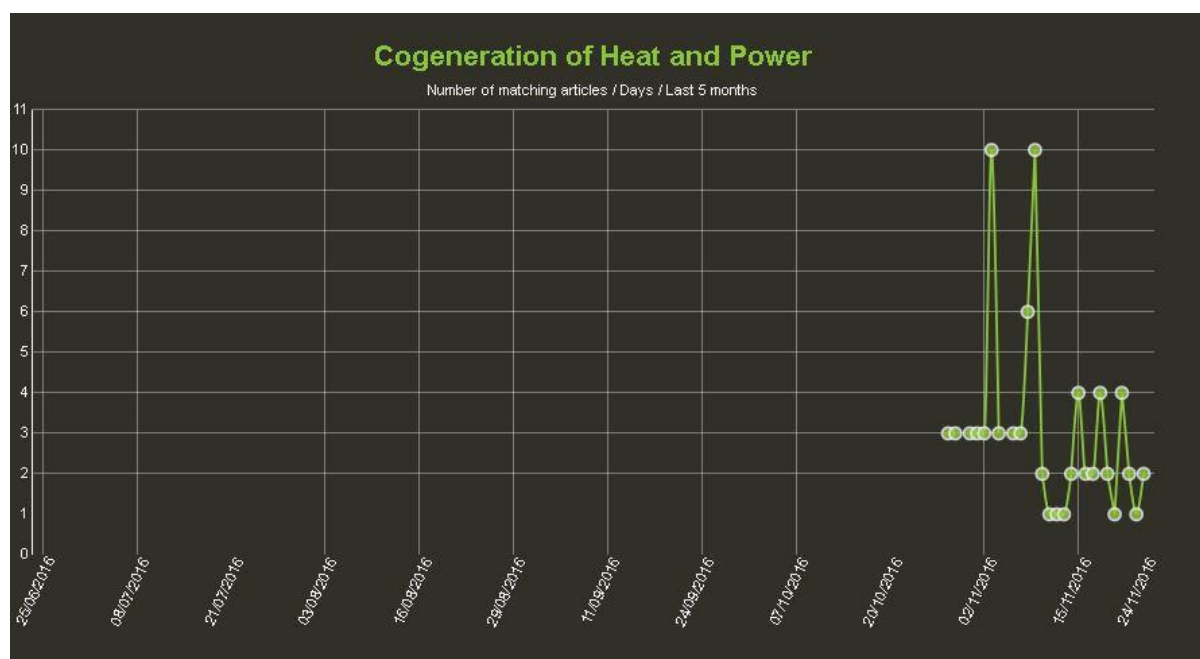
Datasetgram Growth Indicators Indicator(activeness)

The table below represents the trends for all the datasets in the current space for the last full year

Dataset	Articles		Patents	
	Number	New Categories	Number	New Classification
B cell regeneration	↘	↗	↘	↗
CRISPR	↗	↗	↘	↘
Families	↗	↗	↗	↗
fracking	↗	↗	↘	↘
fuel	↗	↗	↗	↗
gene editing	↗	↗	↘	↘
gene editing 3	↗	↗	↗	↘
genediting12	↘	↘	↘	↘
JRC	↗	↗	↗	↗
JRC 13-14	↘	↘	↗	↗
Ketamine for depression	↗	↗	↘	↗
light storage	↗	↗	↘	↘

The Growth Indicators page shows trends in the number of articles and patents for all the datasets. This allows the user to quickly compare the status of each of the technologies in the system. For more indicators on each specific dataset, check the page Quantitative Analysis.

5.1.3 News Trends



News trends shows the numerical trends in number of news articles. The plot represents the dates in the X axis and the number of news articles in the Y. In TIM Edge the news are associated to each individual dataset.

For all the other pages to be displayed, choose first a dataset from the Navigation Panel on the left.

5.2 Dataset Info

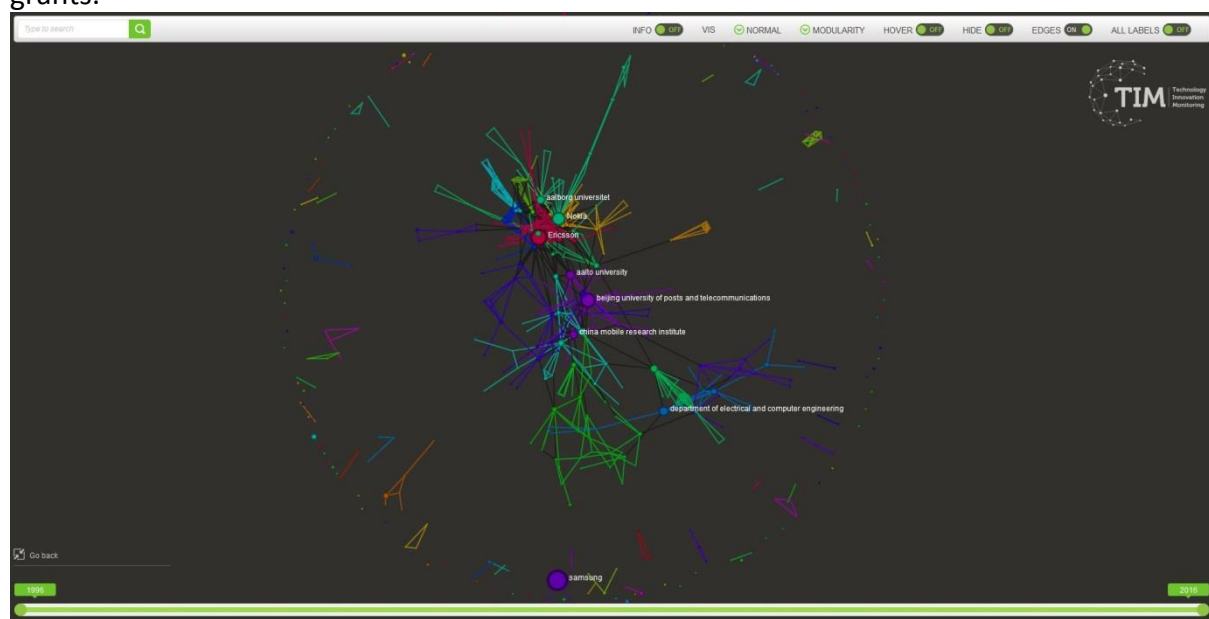
Dataset info is visible for any of the pages selected. It gives information to the user on the dataset selected.

Among others, the information that can be found in dataset info relates to the name of the dataset, the search query that was used to define the technology, the date of creation of the dataset. A short description of the technology mapped might also be available. TIM also gives information on the types of documents that were retrieved from the database. The number of articles, conference proceedings (conf), reviews, book chapters (boch), patent and EU projects retrieved for each specific dataset is displayed in dataset info.

5.3 Organisation Page



Organisations are the institutions or companies that are affiliations of the authors of scientific publications, applicants of patents or beneficiaries of EU Framework programme grants.



The graphs in this category are also called sociograms, i.e. graphs that represent the "social network" of the organisations. In a sociogram each node represents an organisation. The links between organisations represent a collaboration between two organisations. They correspond to documents where the two organisations appear. Therefore the links represent co-publishing, co-patenting or co-granting of EU projects.

The thicker the node, the more intense the collaboration (in terms of common number of documents) is.

For groups of organisations of the same colour, the graph suggests that those tend to collaborate more among themselves than with the others. (Read more about communities of nodes in the specific section).

This type of graphs allows studying the collaboration patterns between organisations that are active in publishing, patenting or beneficiaries of EU projects.

Because the names of the organisations come from different sources, a process of cleaning and harmonization is necessary. The tool used for processing and cleaning of organisation names is in continuous development and is not a 100% accurate: not all organisations are recognised and some errors may be done when attributing a unique identifier to variants of an organisation.

In TIM, the process of harmonising names of organisations is called Entity Matching. The Entity Matcher groups all the organisations and their different spellings with a predefined list of organisations. One of the main limitations of this approach is that if an organisation is not recognised then the node is not shown in the graph.

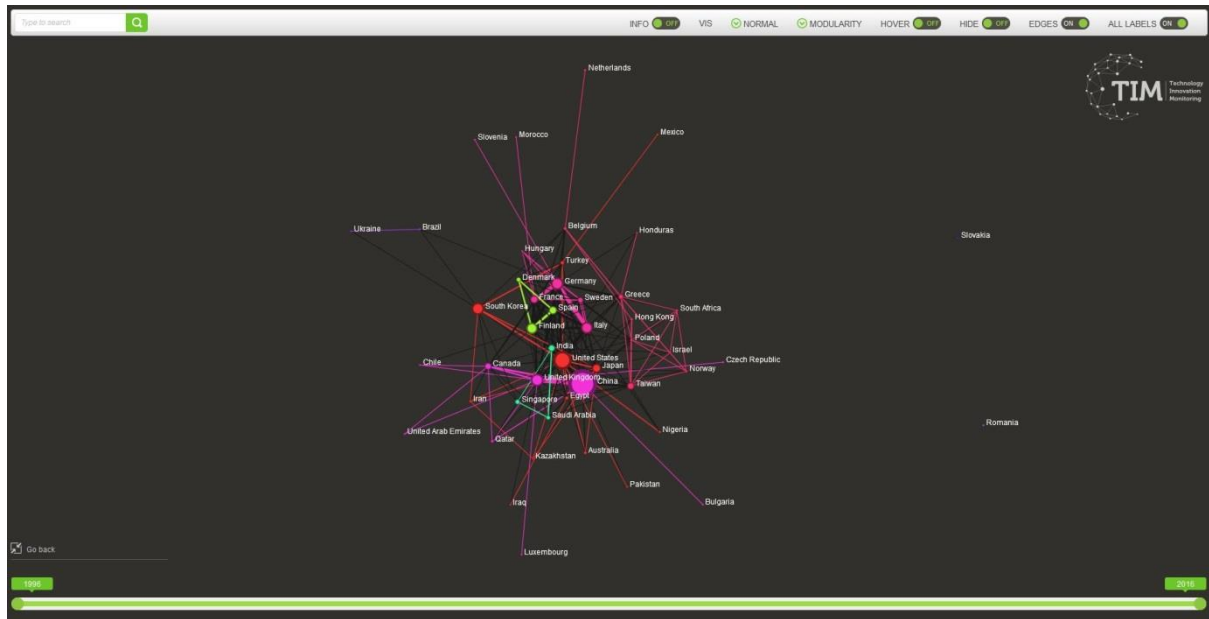
5.4 Location Page

The location tab in TIM gives access to all the graphs relating to the location of the organisations.



The location is subdivided in different levels, from cities to countries.

The correct attribution of the location of an organisation depends in the first place in a correct identification of the organisation and therefore depends on the process of cleaning and harmonization of the organisations.



In this type of graphs, each node represents a location (city, region, country...)

The links between locations represent collaboration between two organisations in the different locations. They correspond to documents where the two locations appear. Therefore the links represent co-publishing, co-patenting or co-granting of EU projects between different geographical locations. The thicker the node, the more intense the collaboration (in terms of common number of documents) is. For groups of locations of the same colour, the graph suggests that those tend to collaborate more among themselves than with the others (read more about communities of nodes [here](#))

5.4.1 Countries

The countrygrams show the countries where organisations are located.

This visualisation is based on the country of the organisations that have been processed by the Entity Matcher.

5.4.2

EU/World

The worldgrams are countrygrams where all the EU countries are gathered in one node.

This visualisation is based on the country of the organisations that have been processed by the Entity Matcher.

5.4.3 EU countries

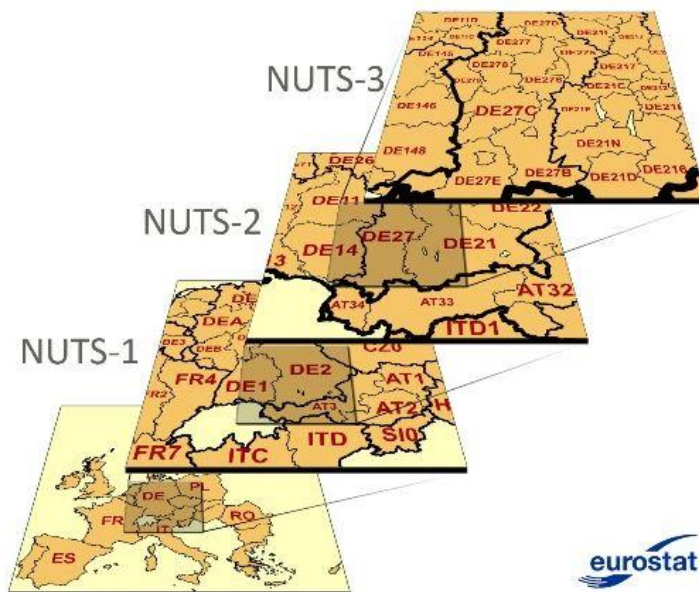
The Europegram is a normal countrygram that shows only EU countries. The rest of the countries are not shown.

This visualisation is based on the country of the organisations that have been processed by the Entity Matcher.

5.4.4 Regions

The NUTSgrams represent the regions of Europe of the organisations that are publishing, patenting or receiving EU projects. The NUTS classification (Nomenclature of territorial units for statistics) is a hierarchical system for dividing up the economic territory of the EU.

NUTS3 is a more granular level of regions than NUTS2.



5.4.4.1 NUTS2

In a NUTS2grams nodes are NUTS2 level regions.

This visualisation is based on the NUTS2 region of the organisations that have been processed by the Entity Matcher.

5.4.4.2 NUTS3

In a NUTS3grams nodes are NUTS3 level regions.

This visualisation is based on the NUTS3 region of the organisations that have been processed by the Entity Matcher.

5.4.5 Cities

Citygrams show the cities where organisations are located.

This visualisation is based on the city of the organisations that have been processed by the Entity Matcher.

5.4.6 Map



This visualisation is the projection on a geographical map of the city of the organisations that have been processed by the Entity Matcher.

When zoomed out, the colours of the bubbles indicate the intensity of the number of documents per regions. When hovering on the bubble, the region taken into account for the calculation is shown. The map can be zoomed in and out. No filtering or further analysis is however possible.

5.5 Topic Page

The topic tab in TIM gives access to all the graphs relating to the topics or themes of the underlying documents.



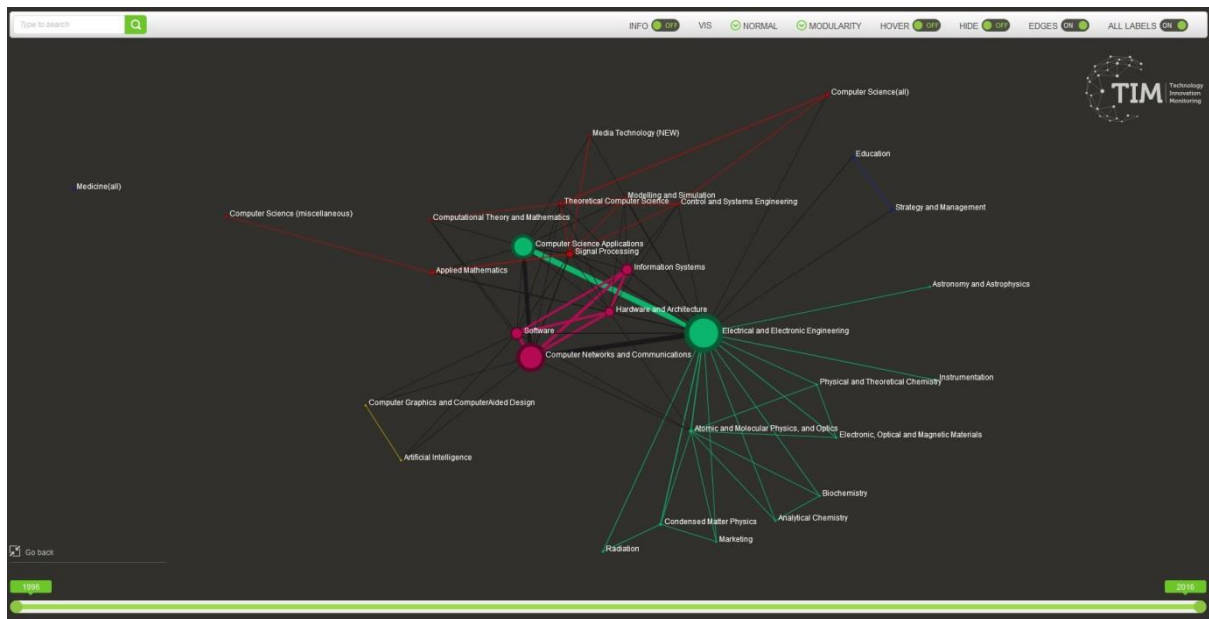
The "topics" refer to attributes in relation to the content of the documents.

Each graph gives the user a different perspective on the topics of the documents that are analysed.

5.5.1 Journal Categories

This network graph is built with the Journal Category attributed to each articles contained in the subdataset. The journal category is a classification of field of science that is attributed by Elsevier to each scientific journal that is part of the database. See the subjects [here](#).

The graph will only take into account the documents that have a subject category in Scopus (articles, reviews, conference proceedings and some book chapters).



In a journal category gram each node represents a subject category (for example: Computer Science or Engineering).

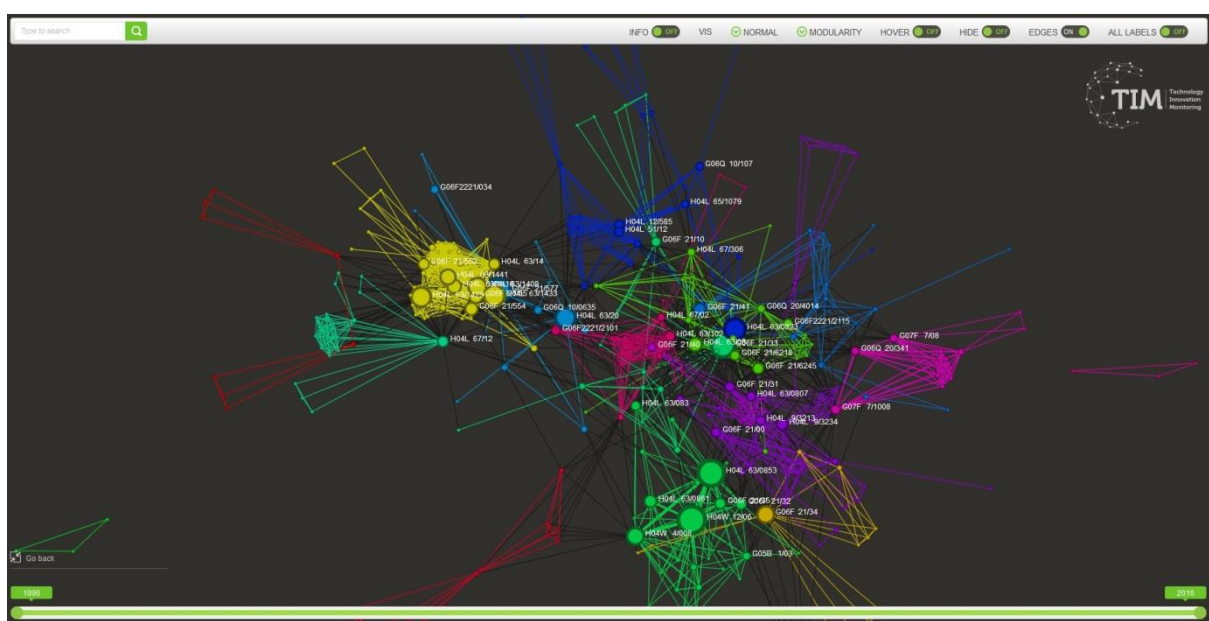
The link between two subject categories represents the fact that at least one document is being attributed to those two subjects.

The thicker the node, the higher the number of documents that have those two subjects is.

For groups of categories of the same colour, the graph suggests that those tend to appear more often together in the same publications than with others (read more about communities of nodes [here](#)).

The journal category gram will only represent the documents that have been classified in a certain Subject Category by Scopus. All other types of documents are not taken into account for this visualisation.

5.5.2 Patent Classification



The patent classification graph is a visualisation of the CPC class attributed to the documents. Patent publications are each assigned at least one classification term indicating the subject to which the invention relates. For the nomenclature of patent classes see the [European Patent Office](#) page.

In a classificationgram each node represents a CPC class (for example: C12N 15/10 or F16K 47/18).

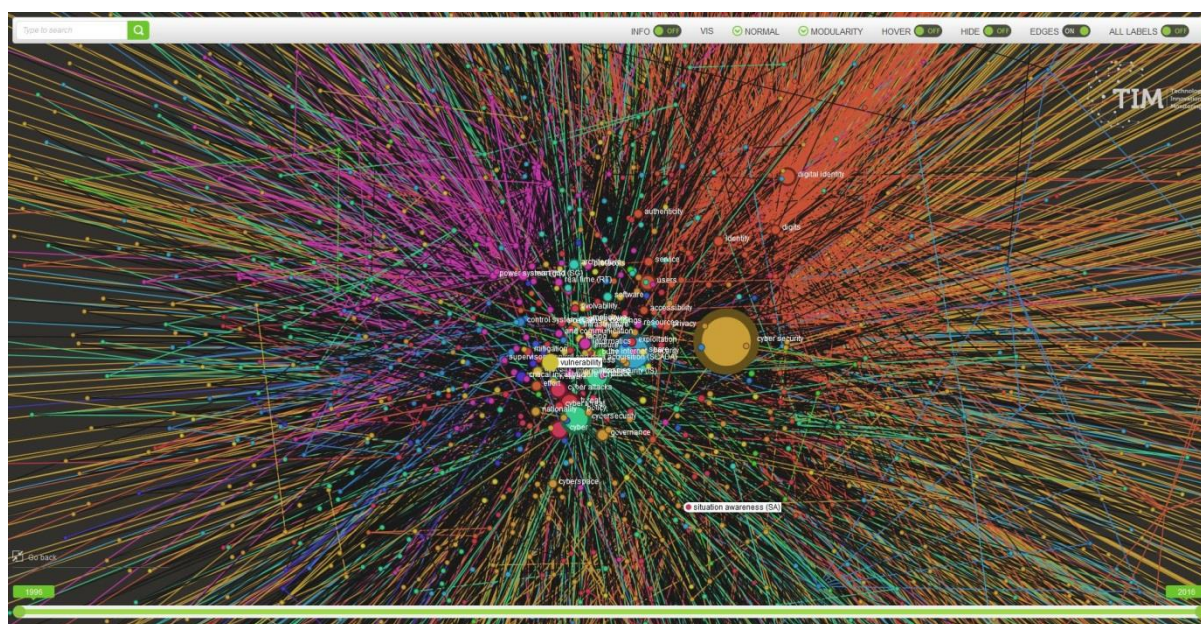
The link between two CPC classes represents that at least one patent has been classified in those two classes.

The thicker the node, the higher the number of patents that belong to that couple of classes.

This visualisation is based on the CPC class of the patents. All other types of documents are excluded from the visualisation.

5.5.3 Keywords

The keywordgrams are a visualisation of the keywords attributed to the documents. The keywords can come directly from the documents or be calculated by TIM using some text processing algorithms.



In a keyword graph each node represents a keyword (for example: Cyber Security or Transplantation).

The link between two keywords represents that at least one document has a least those two keywords.

The thicker the node, the higher the number of documents that have those two keywords is.

5.5.3.1 Author Keywords

In this visualisation, the keywords that are shown are the author keywords attributed by the authors to their publications (articles, reviews, conference proceedings and some book chapters). Only documents that have keywords attributed by their authors are taken into account. All other types of documents are excluded from this visualisation.

5.5.3.2 Automatic Keywords

In this visualisation, the keywords are computed by TIM for each type of document. Autokeywords or Automatic keywords are computed by text mining techniques. This visualisation includes all types of documents in the system, including those that do not have author keywords.

5.5.3.3 Relevant Keywords

Relevant keywords is an ordered list of terms with an associated score. The score measures the "relevance" of the keyword in the dataset.

[triple faeces test \(TFT\)](#) 197.00098
[complementary metal oxide silicon \(CMOS\)](#) 145.57031
[transistor](#) 128.16035
[light emitting diode \(LED\)](#) 112.1128
[southern indian ocean \(SIO\)](#) 104.82902
[batio](#) 90.15399
[aloes](#) 86.002525
[hafnium indium zinc oxide \(HIZO\)](#) 79.827805
[compatibility index \(CI\)](#) 75.55724
[leverton questionnaire \(LQ\)](#) 72.231575

5.6 News Page

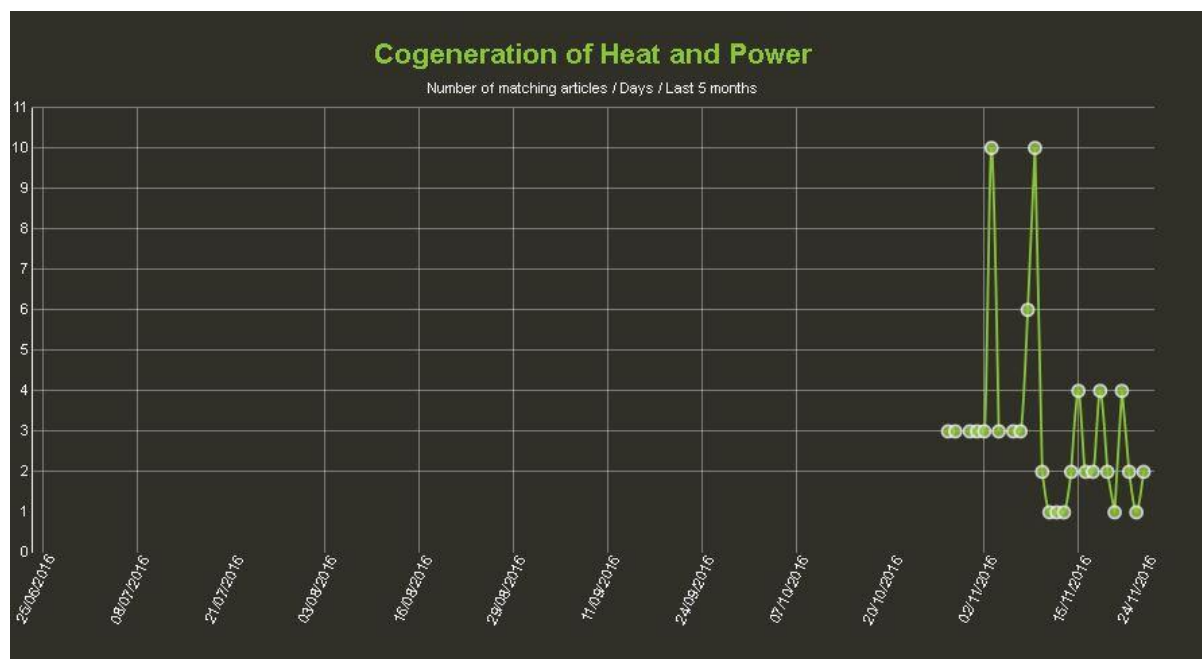


The News pages displays information related to general news about the field. The news have been aggregated using [Europe Media Monitor](#), news aggregation and analysis system developed by The European Commission's Joint Research Centre (JRC)

5.6.1 News

This page gives direct access to the latest news related to the selected dataset. Links are provided to the original news article on the website of the publisher.

5.6.2 News Trends



The plot shows the evolution in time of the news articles aggregated by the EMM System for the specific category.

5.7 Quantitative Analysis Page



This page displays some quantitative information relating to the dataset.

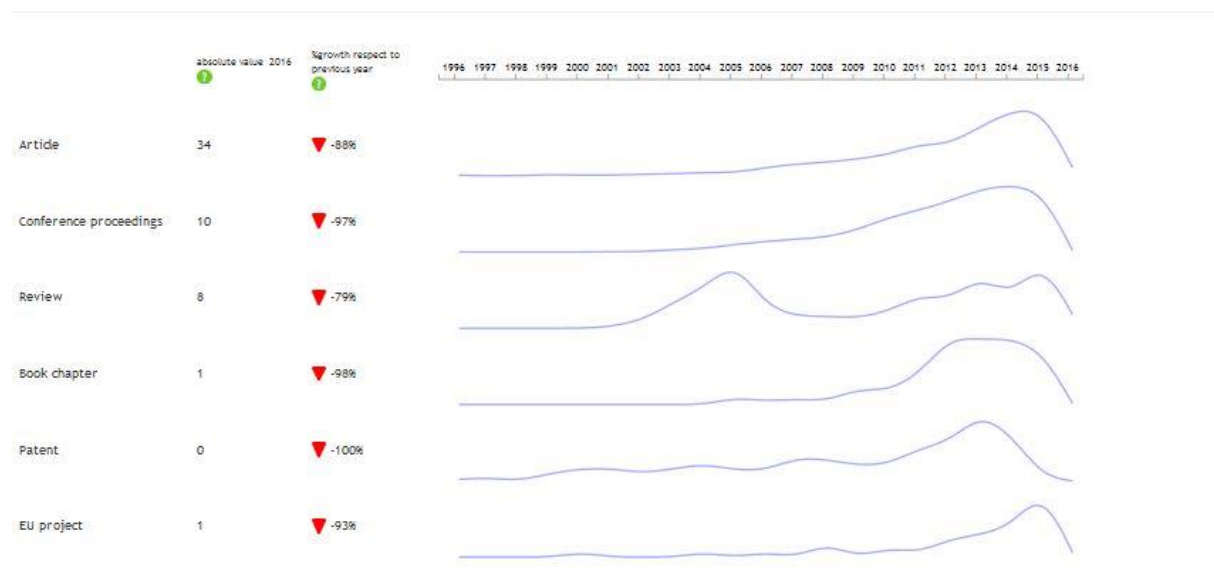
5.7.1 Technology Trends

This page displays several indicators and trends that can be useful to understand the maturation stage of a technology.

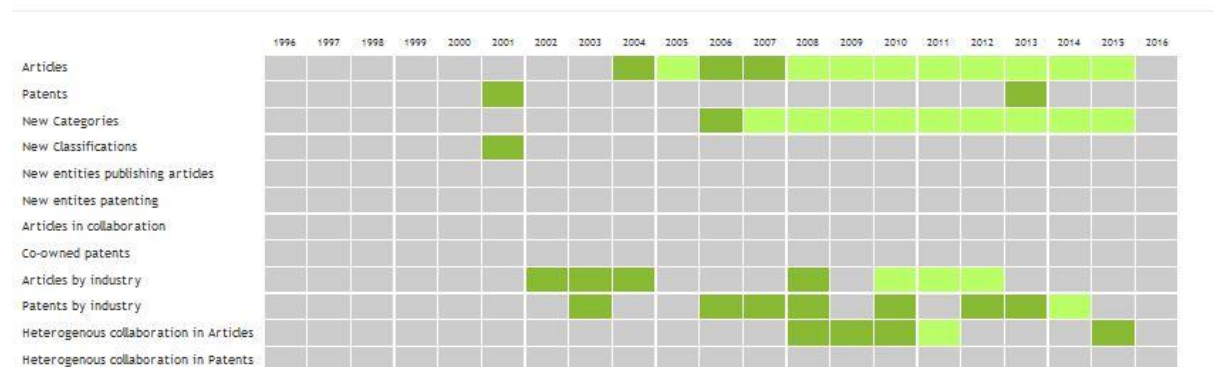
Trends allows to compare the trends over time for every type of documents in the system. Click on the plot to display a bigger visualisation of the plot of interest.

The Innovative activity page displays the growth of several indicators that have been linked with the maturation of technologies. Periods of high growth are marked in dark green while periods of moderate growth are light green. The years in grey correspond to years were the growth was not significant or inexistent.

Trends



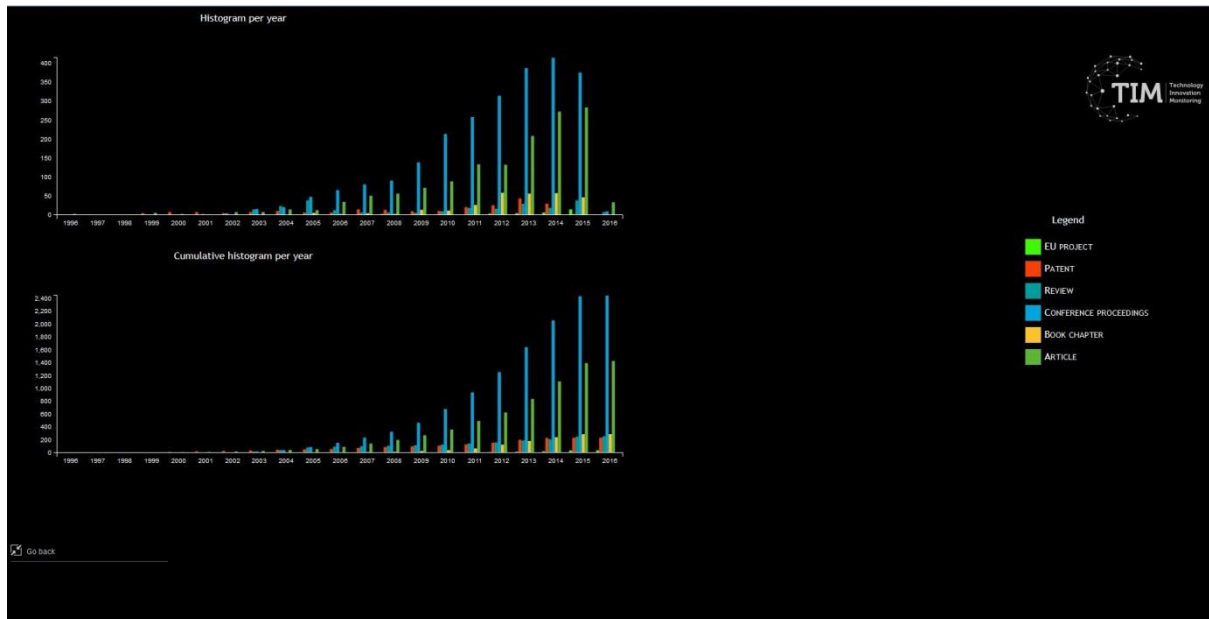
Innovative activity



5.7.2 Histogram

The histogram page presents the number of documents for each type in a simple histogram graph.

One of the plots is cumulative and the other one represents the value per year.

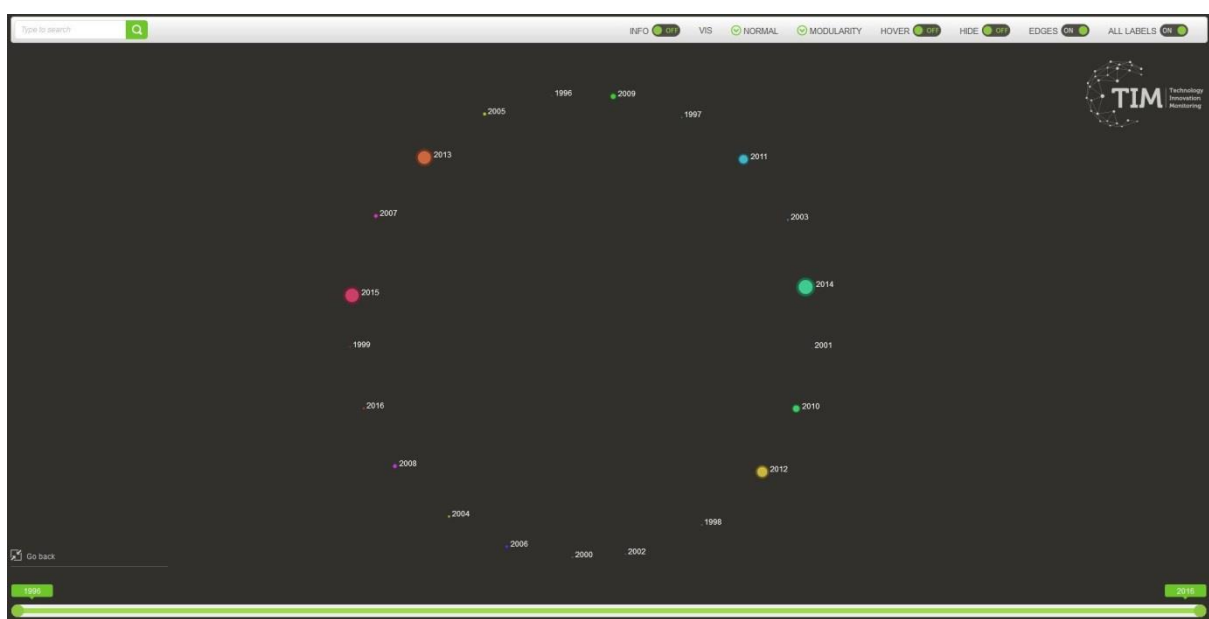


5.8 Miscellaneous Page



The Miscellaneous page contains graphs with a few additional fields that are present in the data. Most of the visualisations are not very useful from an analysis point of view but are to be used for filtering.

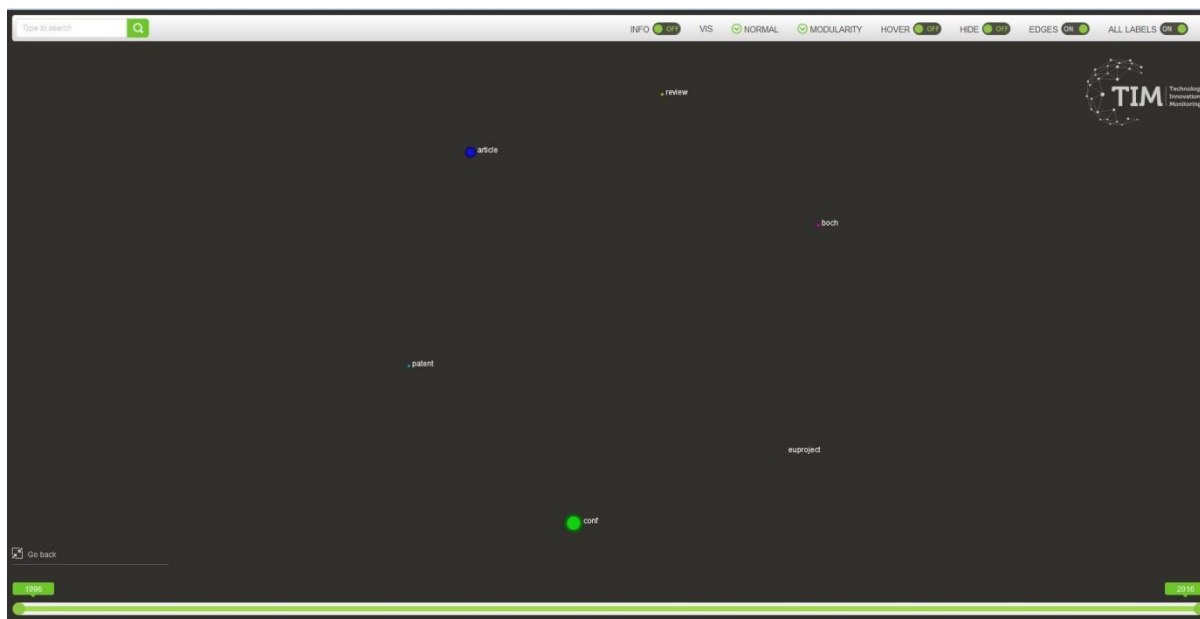
5.8.1 Year



This network graph represents the years of the documents. The date taken into account is the year of publication for scientific publications, the year of the priority date for patents and the year of beginning of the project for EU projects.

The size of the nodes represents the number of documents for each year. There are no edges between the nodes because one document cannot have two distinct publication years.

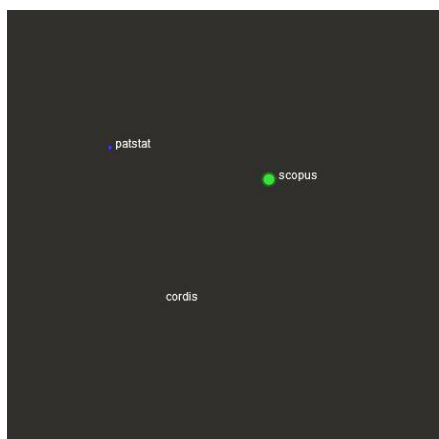
5.8.2 Type of document



This network graph represents the types of documents. As already presented previously those represent article: Research article, conf: Conference proceedings, boch: Book chapters, review: Review, patent: Patent, euproject: EU project.

The size of the nodes represents the number of documents for each type. There are no edges between the nodes because one document cannot be of two different types.

5.8.3 Data Source



This network graph represents the sources of documents. As already discussed previously, there are only three types of sources for document, Scopus for scientific publications, Patstat for patents and Cordis for EU projects.

The size of the nodes represents the number of documents for each source. There are no edges between the nodes because one document cannot be originated from two different sources.

5.8.4 Document list

The documents list retrieves some basic information about the documents in the dataset.

Access to the abstract or description is also provided. For scientific publications, a link to the original location of the article is provided. If your institution has the proper subscription, access to the full article might be possible. For patents, a link to the patent in Espacenet is provided.

 Solar cities and solar islands Number of documents = 71	
Solar refrigeration system	
Patent: CN201010584479A Priority date: 2010-12-17	
Large-size solar long-distance and explosion-proof multilayered garbage classification device and process	
Patent: CN201410507501A Priority date: 2014-09-28	
CHENG LIHUA, CHENG HAO, FENG WENJIE	
The invention relates to a large-size solar long-distance and explosion-proof multilayered garbage classification device and process, relating to the field of garbage treatment. The device comprises a solar island, a feeding island, a bag breaking island, a drying island, a layering island, a fermentation island, a biological coal manufacturing island, a collection island and a general control island, wherein the solar island provides power for the device; the feeding island, the bag breaking island, the drying island and the layering island are connected in sequence; the layering island is connected with the fermentation island and the collection island; the fermentation island is connected with the biological coal manufacturing island; the general control island monitors the safety work of the other islands; garbage is conveyed into the bag breaking island through the feeding island and then is subjected to bag breaking and coarse crushing by the bag breaking island, and then the garbage enters the drying island to be rotatably heated; dried solid garbage is conveyed to the layering island to be classified; and a classification result is transmitted to the fermentation island and the collection island respectively. The large-size solar long-distance and explosion-proof multilayered garbage classification device has the beneficial effects that firstly, the energy consumption is low and the operation cost is reduced by more than 30%; secondly, the continuous garbage classification quantity of a single machine is high; thirdly, the classification rate reaches more than 98%; and fourthly, the intelligent long-distance and explosion-proof online monitoring is realized.	
Photovoltaic solar island	
Patent: EP09702298A Priority date: 2008-01-15	



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