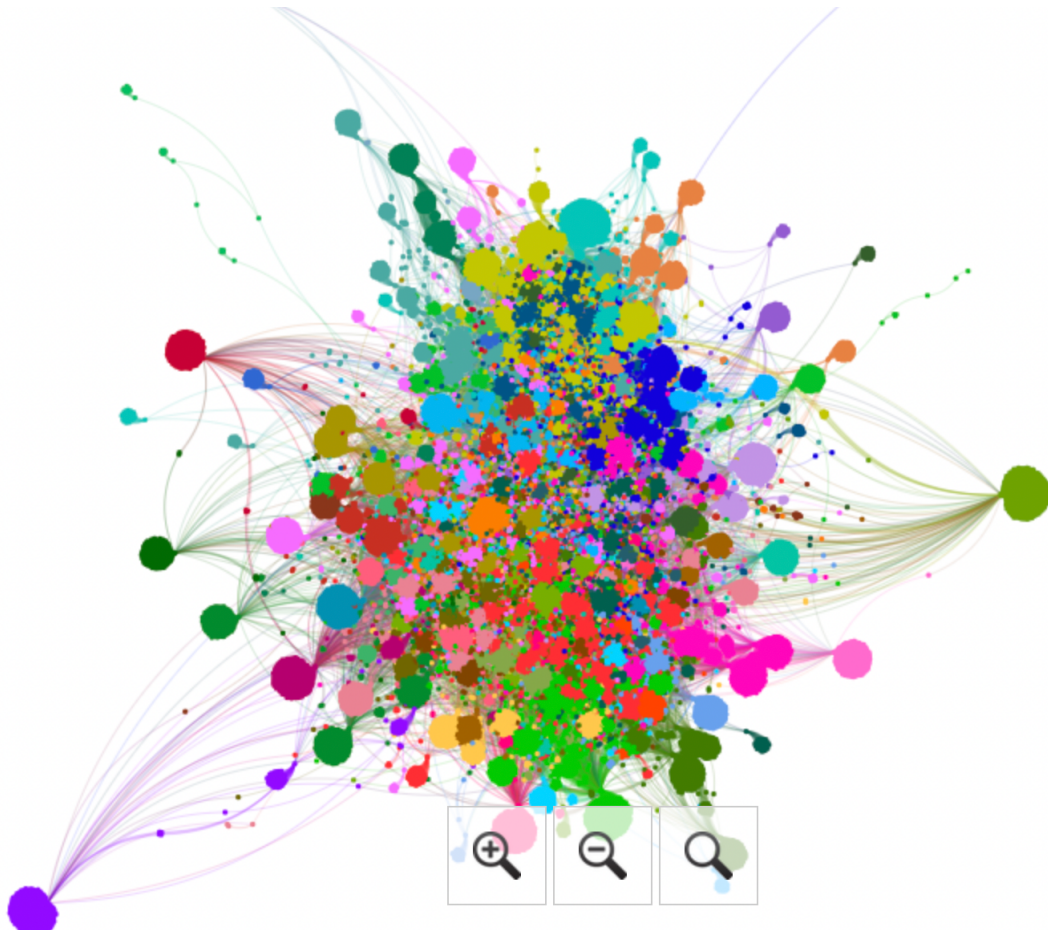


Culture Action Europe as integrator of European cultural networks and organisations



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Visit the interactive dashboard: <https://bit.ly/caeintegrates>

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SUMMARY

In order to measure the structure and strengths of the cultural ecosystem that is connected directly or indirectly to Culture Action Europe, we have repeated a network analysis we have first performed based on the situation in 2016.

In the years since, both the communication platforms using reports on their webpages, and the real life connections between the organisations strengthened.

Using the tools of linkage analysis (based on the over several hundred thousand links found on the 57,000+ websites managed by mostly cultural organisations), we can safely conclude that the **structuring and connecting function of Culture Action Europe have significantly strengthened during the last period**. The direct connections, as measured by the Closeness Centrality index, have increased by 24%. The integrative function of Culture Action Europe, that is reflected in the Bridge Centrality, shows that the **structuring effect of linking together the various cultural hubs increased even more strongly, by 62%**.

USER GUIDE TO EXPLORE THE INTERACTIVE DASHBOARD

Starting with the exploration

First of all, do not panic, when opening the dashboard <https://bit.ly/caeintegrates> and you see only a blank page. Given the size of the file to be visualised and the strength of your machine and internet connection it might take up to 30-40 seconds till the page will be loaded.

Just to give you an idea on the size of the underlying data, starting with about a 100 randomly selected cultural organisation website analysis, we have collected the nodes/ points represented in various colours and sizes based on their published links. In practice it meant that our program has collected all mentions of other websites (assuming that it represent an affinity or connection). We have manually removed most of the mentions / links that could be easily identified as of meta-sites and not a real cultural entity or organization. This way sites like Youtube, Vimeo or others are not included in the linkage analysis. After identifying a link, the algorithm in turn looked and explored the linkages and connections — following this way the connections up to three level deep.

The starting dataset consist of 3.5 million individual webpages and 196 million weblinks, out of this we derived 57K nodes (entities) and 77K edges (the connection lines between the node).

What is important to emphasise, that this is ONE possible visualisation and various algorithms and parameters might yield slightly different results.

The same is true for the clustering of the nodes: in order to find segments of the overall cultural landscape in Europe based on similarities of linkages the total 50+ thousand entities have been classified into 34 clusters or modules. Again, this is a statistical convenience, in order to better understand the internal structure and connections they are numbered, and colour coded for navigation purposes only.

To help with the interpretation I will highlight some obvious common characteristics.

The internal structure of the cultural landscape: exploring the colour coded clusters

We strongly recommend to go back and forth between the overall picture of the full cultural landscape panorama, and drilling down to the constituting clusters. To do that, we recommend using two different tools on the top left corner of the starting dashboard page.

When looking up and exploring the cultural ecosystem of any given organisation, one might start with searching for it in the search window

Cultural Organizations and Networks

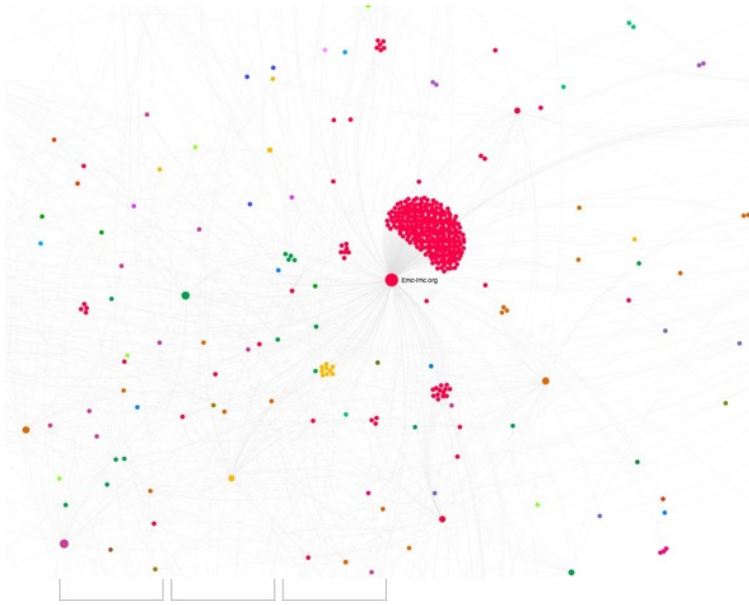
×

You must search for a name with a minimum of 3 letters.

After identifying the color code for the given organization, one might proceed looking up the cluster identified by the same colour. For example select the following organization's website name:

Cultural Organizations and Networks

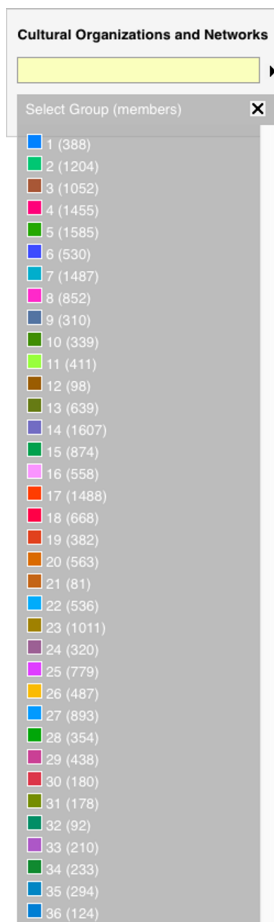
×



After the selection we are presented on the dashboard with a subset of the original dense network map and can follow the direct and indirect connections of the European Music Council website — in different ways.

We can explore the immediate connections that are dense around the

starting page, by clicking on each of the individual nodes. To facilitate easier exploration, we recommend to use the tools on the bottom of the page, in order to zoom into various segments of the overall map as well.

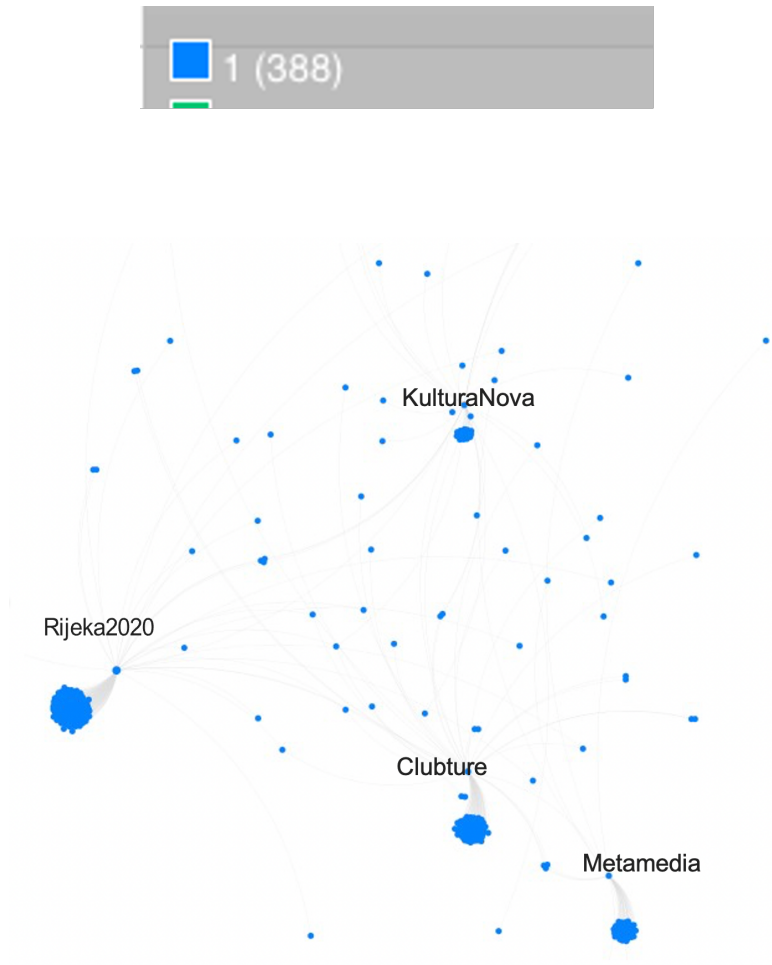


The full colour coded list of the 36 clusters can be looked up for reference under the search box.

This gives a numerical idea of the number of organisations that have been classified by the clustering algorithms as being similar. (Similar here in the sense that the linkages within the clusters are more dense then between the rest of the network).

The largest and the smallest modules range between 81 members (light brown, number 21) and one with 1604 members (violet, number 14)

Examples for exploring the individual clusters



The dominant feature of the group is that it concentrates and contains mostly Croatian entities. The internal structure further concentrates around four larger cultural operators, that are in turn only loosely connected.

The full list of Group members can be found on the right hand panel where the overwhelming majority have a .hr domain name extension, designating the geographic location of the cultural entities. The full list can be looked up online, just to illustrate below is an extract:

[Kulturistra.hr](#)
[Cdu.hr](#)
[Min-Kulture.hr](#)
[Radiona.org](#)
[Ina.hr](#)
[Strukturnifondovi.hr](#)
[Allaboutcookies.org](#)
[Kioskngo.org](#)
[Lokomotiva.org.mk](#)
[Pdm.hr](#)
[Pogon.hr](#)
[Pula.org](#)
[Mmsu.hr](#)
[Civilnodrustvo.hr](#)
[Whw.hr](#)
[Lae.hr](#)
[Room100.org](#)
[Boell.de](#)
[Uzuvrh.hr](#)
[Hzz.hr](#)
[Ifacca.org](#)
[Rimini-Protokoll.de](#)
[Mspm.hr](#)
[Asemus.museum](#)
[Aseminfoboard.org](#)
[Bcn.cat](#)
[Eaae.be](#)
[Daniudruga.hr](#)
[Kodalykozpont.hu](#)
[Mrrfeu.hr](#)
[Hbor.hr](#)

Among the largest clusters are the one that is colour coded by green and numbered as 2 is representing one of the most interconnected cultural sectors in any European country.



This is one of the largest clusters that is densely interconnect Italian civil, state and local cultural organisations. Again, a small extract from the list can give the Italian flavour. Most of the website are national and serving local cultural needs — here are just a few of them

[Unimib.it](#)
[Cessda.net](#)
[Salonelibro.it](#)
[Fondazione cariparo.net](#)
[lccm.co.at](#)
[Makeacube.com](#)
[Fnac.it](#)
[Associazione fondcrpiemontesi.it](#)
[Anpalservizi.it](#)
[Forum-Ekonomiczne.pl](#)
[Ismeamercati.it](#)
[Editricesapienza.it](#)
[Altroconsumo.it](#)
[Programmaelisa.it](#)
[Confindustria.it](#)
[Scuolamusicafiesole.it](#)
[Svimez.info](#)
[lpresslive.it](#)
[Funzionepubblica.gov.it](#)
[Partecipa.gov.it](#)
[Open.gov.it](#)
[Readthedocs.io](#)
[Fitzcarraldo.it](#)
[Jesi.an.it](#)
[Consob.it](#)
[Agcm.it](#)
[Marchespublics.gov.tn](#)
[Uibm.gov.it](#)
[Quifinanza.it](#)
[Impresainungiorno.gov.it](#)
[Centrosantachiara.it](#)
[Jugglingmagazine.it](#)
[Vallimarecchiaeconca.it](#)
[Repubblica.it](#)
[Sistema.puglia.it](#)
[Urly.it](#)
[Altraromagna.it](#)
[Civis.bz.it](#)
[Regione.vda.it](#)
[Operauni.tn.it](#)
[Provincia.lecco.it](#)
[Europa.marche.it](#)

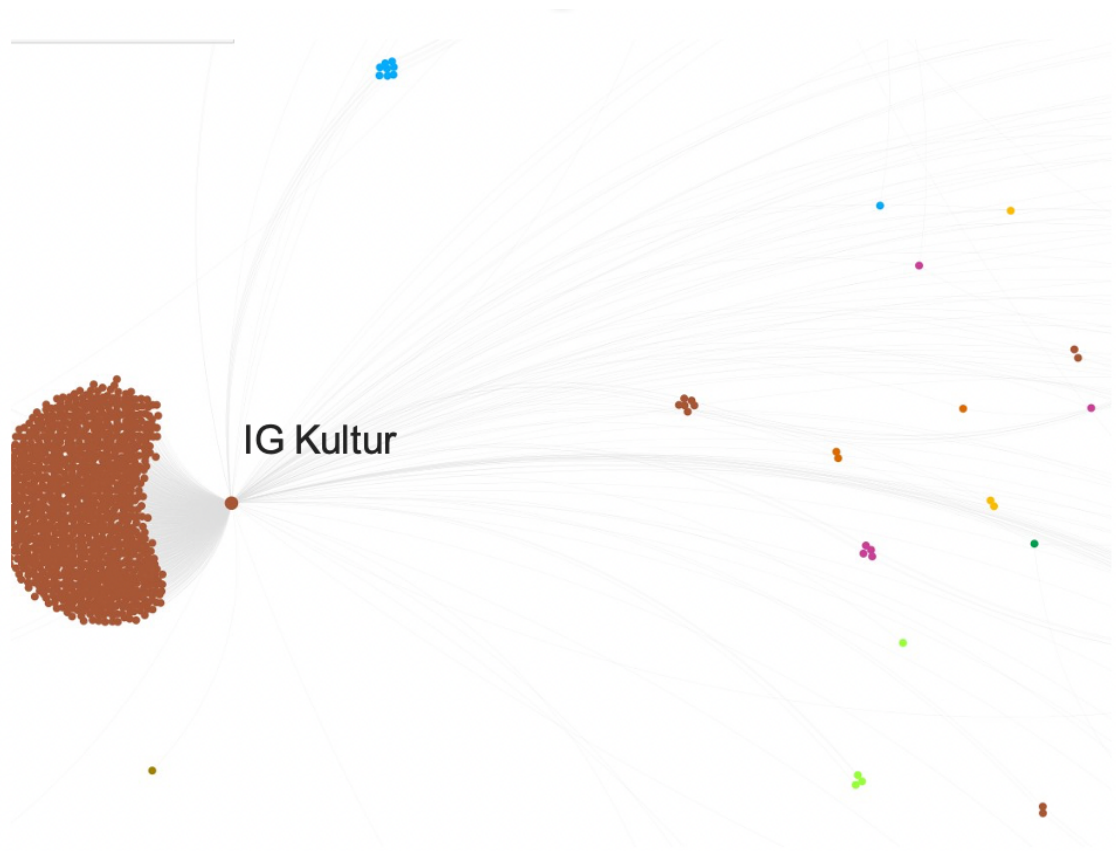
[Artribune.com](#)
[Finpiemonte.it](#)
[Corecom.toscana.it](#)
[Fondoambiente.it](#)
[Regione.umbria.it](#)
[Ebiterbari.com](#)
[Norme.marche.it](#)
[Aliseo.liguria.it](#)
[Rete.toscana.it](#)
[Spid.gov.it](#)
[Interno.gov.it](#)
[Ebitesc.it](#)
[Lazioinnova.it](#)
[Secutix.com](#)
[Unica.it](#)
[Provincia.foggia.it](#)
[Unleashingideas.org](#)
[Centrinnovazione.it](#)
[Ebincall.it](#)
[Provinz.bz.it](#)
[Trentinosociale.it](#)
[Fondazioneambiente.org](#)
[Pescaralavoro.it](#)
[Camcom.gov.it](#)
[Museidigenova.it](#)
[Provincia.fm.it](#)
[Provincia.pistoia.it](#)
[Agenzia lavoro.tn.it](#)
[Sviluppo.lazio.it](#)
[Fondazione crp.it](#)
[Seedlab.it](#)
[Uniser.net](#)
[Confindustria.pd.it](#)
[Bonuseggolino.it](#)
[Galsibilla.it](#)
[Comune.terni.it](#)
[Amicidimuseibrindisi.it](#)
[Torino.gov.it](#)
[Comune.grosseto.it](#)
[Fondazione merz.org](#)
[Provincia.py.it](#)
[Comune.viterbo.it](#)
[Maninbottega.it](#)
[Luccalavoro.it](#)
[Ersucagliari.it](#)
[Confindustria.pescara.it](#)
[Unideaperiluocterritorio.it](#)
[Exp.it](#)
[Provincia.agrigento.it](#)
[Comune.rimini.it](#)
[Provincia.pc.it](#)
[Studiokene.org](#)



The third cluster (REMINDER — the rank orders have no significance) is colour coded with BROWN, and also have over one thousand entities - nodes. (1052)



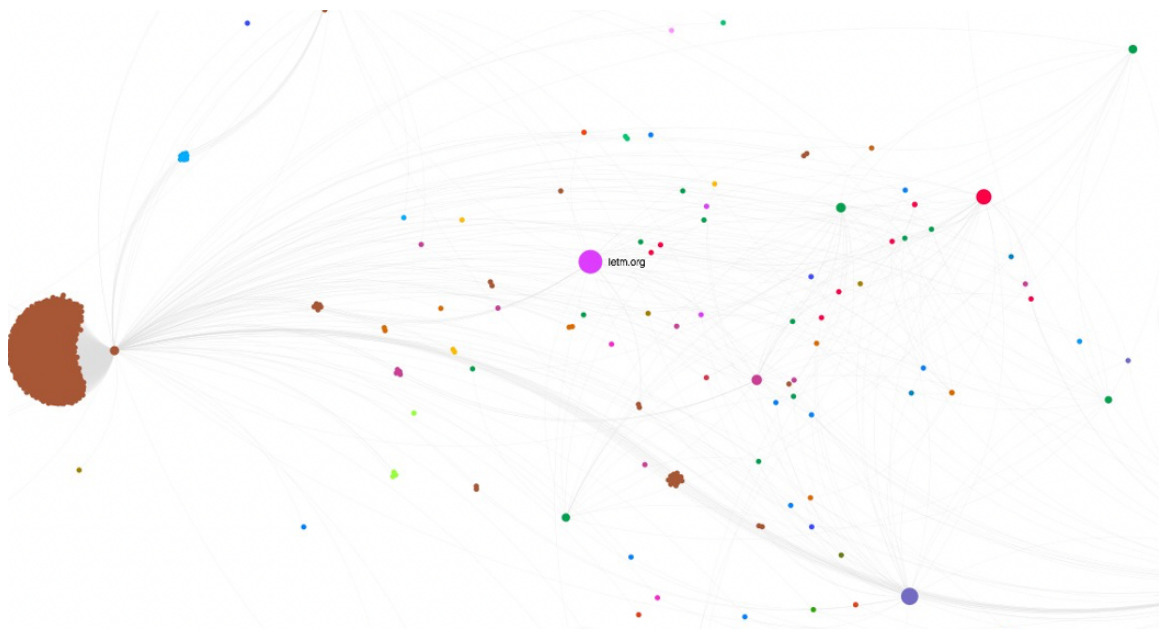
The cluster is very compact and consists of Austrian entities, the organisations are widely distributed among the various fields of culture but concentrated within Austria. The exceptions are the links of small clusters of different colours. (like the blue-coded, transnational networks of circus artists, or the various cultural press sites, mainly from Germany). The dominant central node is IG Kultur.



It is interesting and important to note that while the cluster consist mostly cultural organisations that are located within the Austrian national boundaries, and dominated by a single site that acts as an aggregator and connector, the same site is also the gateway to the other European networks.

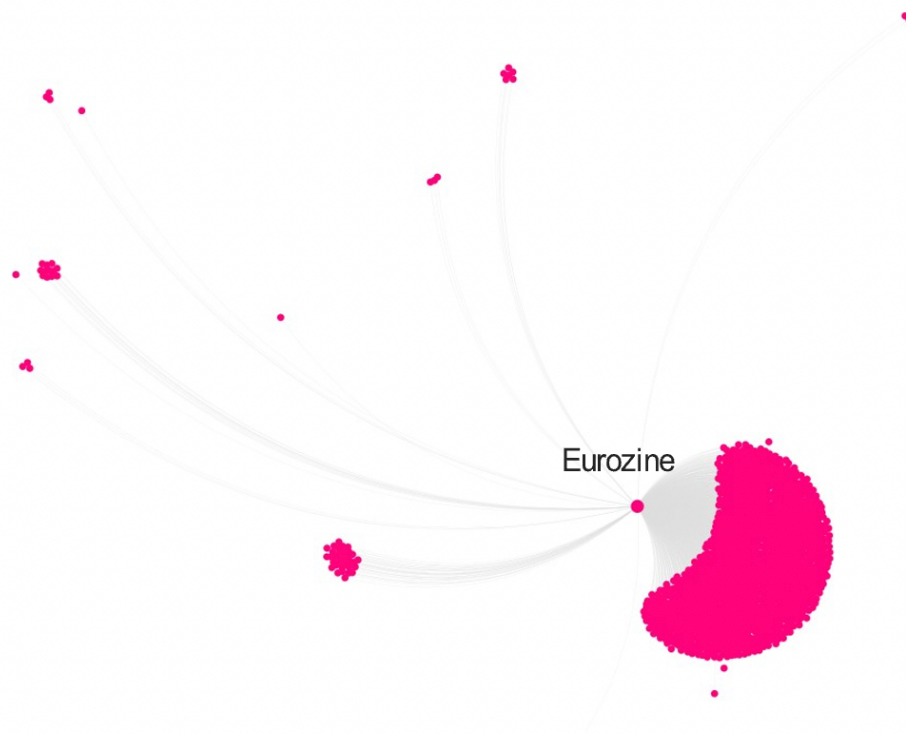
If we select IG Kultur by clicking on the node, we see a that outside the brown connections, the site acts as a bridge to the transnational and European networks, like Culture Action Europe, IETM, the Cultural Foundation, the EMC-IMC and others.

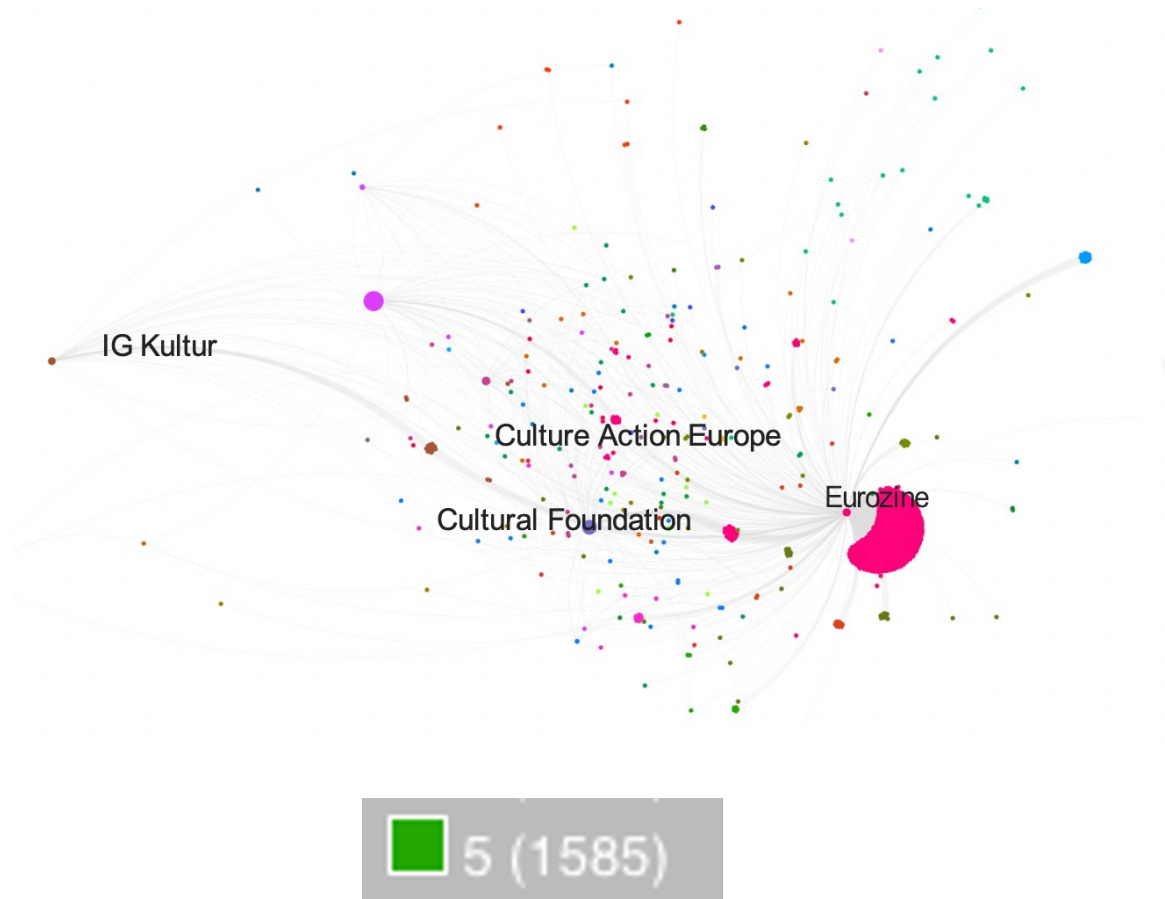
Here is a snapshot of these connections to different other colour coded clusters, representing the interconnectedness of the Austrian cultural scene with the European one.





This large cluster is special among all the modules as it concentrates on the sources of information on European cultural issues. The focal point is Eurozine, as it links to the organs of civil society and reports on the intersection of culture and social policy. The sources of information are covering the whole of Europe, but also global sites are linked. In a sense this is only marginally part of the cultural landscape, but if we look at the site itself, we can visually inspect, based on the number of different colour coded entities that it is deeply integrated and linked to the European cultural scene. (See the second snapshot in the next page).





The second largest cluster is again mostly national one .. concentrating on the linkages between the cultural organisations operating in the Netherlands.

A quick look at the list of members reflects the diversity and richness of cultural life in the country.

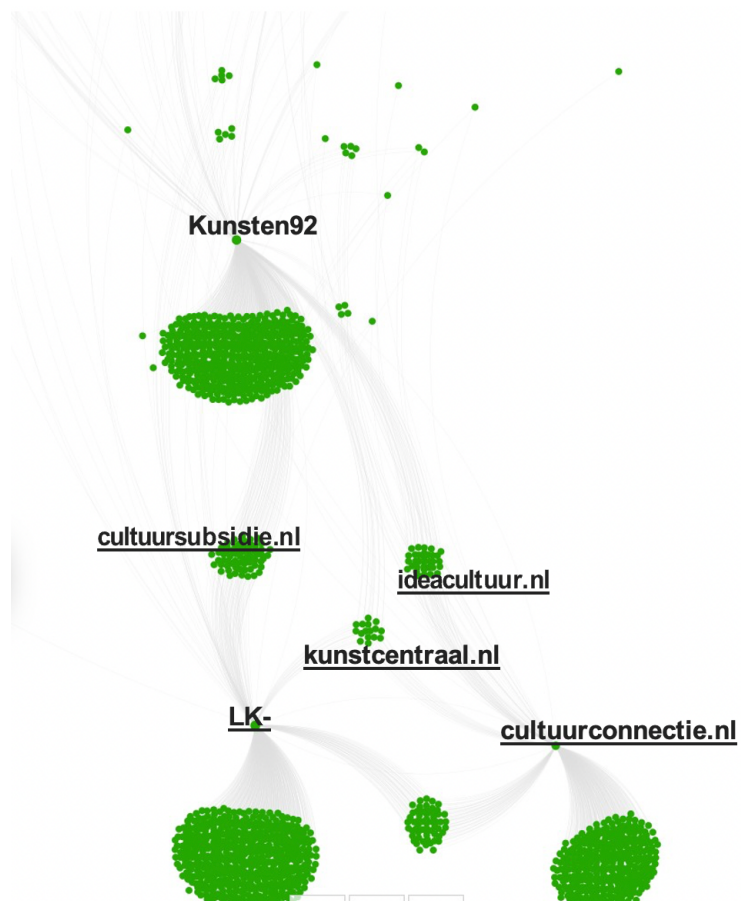
[Amsterdamse muziekprijs.nl](#)
[Env-Kiem.nl](#)
[Kunsteducatiwalcheren.nl](#)
[Scalacentrumvoordekunsten.nl](#)
[Msadam.nl](#)
[Muziekschoollog.nl](#)
[Kaepnotaris.nl](#)
[Exactonline.nl](#)
[Exact.com](#)
[Sdim.nl](#)
[Tvenster.nl](#)
[Muzarthe.nl](#)
[Veiligheidstrainingen.nl](#)
[Bhvassistent.nl](#)
[Linkedin.com /.../bhv.nl](#)
[Muziekschool-Nwv.nl](#)
[Muziekschoolhengelo.nl](#)
[Destroming.nl](#)
[Mdtveendam.nl](#)
[Muziekschoolamstelveen.nl](#)
[Kunstencentrumjerusalem.nl](#)
[Muziekschoolwestland.nl](#)
[Zeistermuziekschool.nl](#)
[Ritmyk.nl](#)
[Veiliginternetten.nl](#)
[Artsprofessional.co.uk](#)
[Stichting oak.nl](#)
[Plannedculture.nl](#)
[Officielebekendmakingen.nl](#)
[Kunstbedrijfarnhem.nl](#)
[Bplusc.nl](#)
[Ideacultuur.nl](#)
[Hart-Haarlem.nl](#)
[Knmo.nl](#)
[Rivm.nl](#)
[Dansondernemers.nl](#)
[Balknet.nl](#)
[Rozet.nl](#)

[Kunstraad.nl](#)
[Kickstartcultuurfonds.nl](#)
[Liefdevoormuziek.nu](#)
[Jksoverheid.nl](#)
[Gevangenismuseum.nl](#)
[Rtvnoord.nl](#)
[Geenbtwverhoging.nl](#)
[Europeeserfgoedjaar.nl](#)
[Davosdeclaration2018.ch](#)
[Rd.nl](#)
[Internetconsultatie.nl](#)
[Sbf-Filantropie.nl](#)
[Collegevanrijksadviseurs.nl](#)
[Denationaleomgevingsvisie.nl](#)
[Bumastemra.nl](#)
[Europeanology.eu](#)
[Designacademy.nl](#)
[Tertium.nl](#)
[Socialevraagstukken.nl](#)
[Rijksmuseumtwente.nl](#)
[Pbl.nl](#)
[Cultureelerfgoed.nl](#)
[Creativeeuropedesk.nl](#)
[Erfgoedzeeland.nl](#)
[Fabchannel.com](#)
[Openerfgoed.nl](#)
[Nationaledialoogbouwcultuur.nl](#)
[Jokehermsen.nl](#)
[Bng.nl](#)
[Tijdschrift raster.nl](#)
[Kiesraad.nl](#)
[Orpheus.nl](#)
[Spui25.nl](#)
[Lesopafstand.nl](#)
[Rtvutrecht.nl](#)
[Vrede van Utrecht.nl](#)
[Tumultdebat.nl](#)

[Museumconsulenten.nl](#)
[Liniebreedondernemen.nl](#)
[Monumentengemeenten.nl](#)
[Fimnederland.nl](#)
[Phoenixcultuur.nl](#)
[Voia.nl](#)
[Restauratiefonds.nl](#)
[Heemschut.nl](#)
[Nederlandmonumentenland.nl](#)
[Nationalemonumentenorganisatie.nl](#)
[Archeologiedagen.nl](#)
[Reuvsdagen.nl](#)
[Volkscultuur.nl](#)
[Muziekschoolamsterdam.nl](#)
[Stichting-Trias.nl](#)
[Nieuweveste.nl](#)
[Bijvrijdag.nl](#)
[Keunstwurk.nl](#)
[Cultuurpleinnoordveluwe.nl](#)
[En-Maes.nl](#)
[Erfgoedleiden.nl](#)
[Leidseschouwburg-](#)
[Stadsgehoorzaal.nl](#)
[Dekunstbeweging.nl](#)
[Hetcultuurgebouw.nl](#)
[Kleinkunstig.nl](#)
[Dekubuslelystad.nl](#)
[Citiesintransition.eu](#)
[Cultuurcompaan.nl](#)
[Stadsschouwburgamsterdam.nl](#)
[Hofstaten.nl](#)
[Kunstcircuit.nl](#)

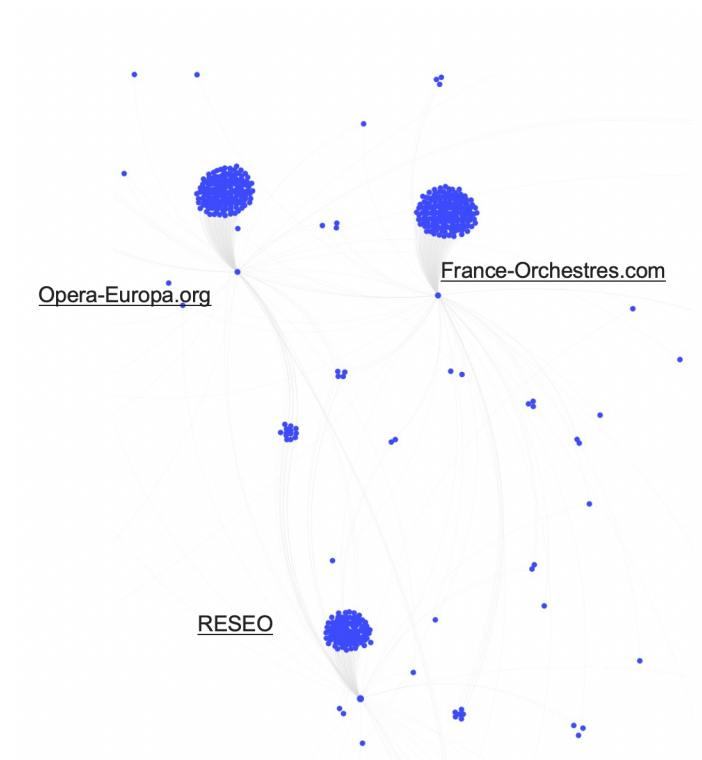
The entities that are in the list and not based on the country is a testament to the rich international connections of the Dutch cultural life.

The large number of cultural entities are connected via a number of gateway sites. Here is a snapshot of the internal connectivity map.



6 (530)

The cluster is dominantly covers the European opera sector but with a sizeable, mostly French symphonic orchestra connections. The strong connections are structured around three strong aggregator nodes — that is well captured in the screenshot below. The third node that integrates the two previous one is the European Network for Opera, Music, and Dance Education (RESEO).



The other clusters can be similarly explored in order to discover the interconnectedness of the European Cultural landscape.

CULTURE ACTION EUROPE AS AN INTEGRATOR OF THE EUROPEAN CULTURAL ECOSYSTEM

One of our most important task in analysing the interconnectedness of the European cultural organiSations, based on publicly available website linkages is to find the references the editors of webpages posted, or found in the pages that mention other organiSations in their web-based publications that appear in their pages.

After collecting and saving the several hundred thousands of entity mentions we could discover, using computer analysis with various, mostly open source network analysis software tools, we were able to visualise the linkages among the found entities in a huge network map.

The next step of the analysis performed was decomposing the single network into sub-units that in our case, we can call virtual cultural communities. In the technical jargon of network analysis they are called sets of highly inter-connected nodes, modules or clusters. In simple language it means that with the help of various algorithms we are identifying and separating within the overall network those sub-graphs, clusters (the so-called modules), that are more densely interconnected internally, within themselves than how they do with the rest of the network. By identifying these clusters or modules, we better understand the internal structuring of the network.

Modularity can be measured by comparing the density of links **within** a given module to the density of links **between** modules. The resulting measurement indicates the cohesiveness and internal strength of such communities from a network perspective.

Connectivity is defined as the degree of connectedness of a graph, and can be measured using several formulas. At its essence, connectivity is a measurement of the robustness of a graph, as defined by the relative number of connections within a network. Networks with low connectivity are inherently fragile, as the removal of a small number of edges serves to weaken the network, and can actually disconnect some members from the components of the graph.

The key construct within network graph analysis is the idea of centrality, that make an attempt to understand the relative influence of individual nodes within the network. As one might anticipate, there are several ways one can measure centrality, with each method providing a different definition, and often, different results. Let's assume in each of the following cases that we are examining a subset of a network, rather than its entirety. Each centrality measure will be measured across an entire network, but we will use the following measures for illustrative purposes. The general principles do not differ.

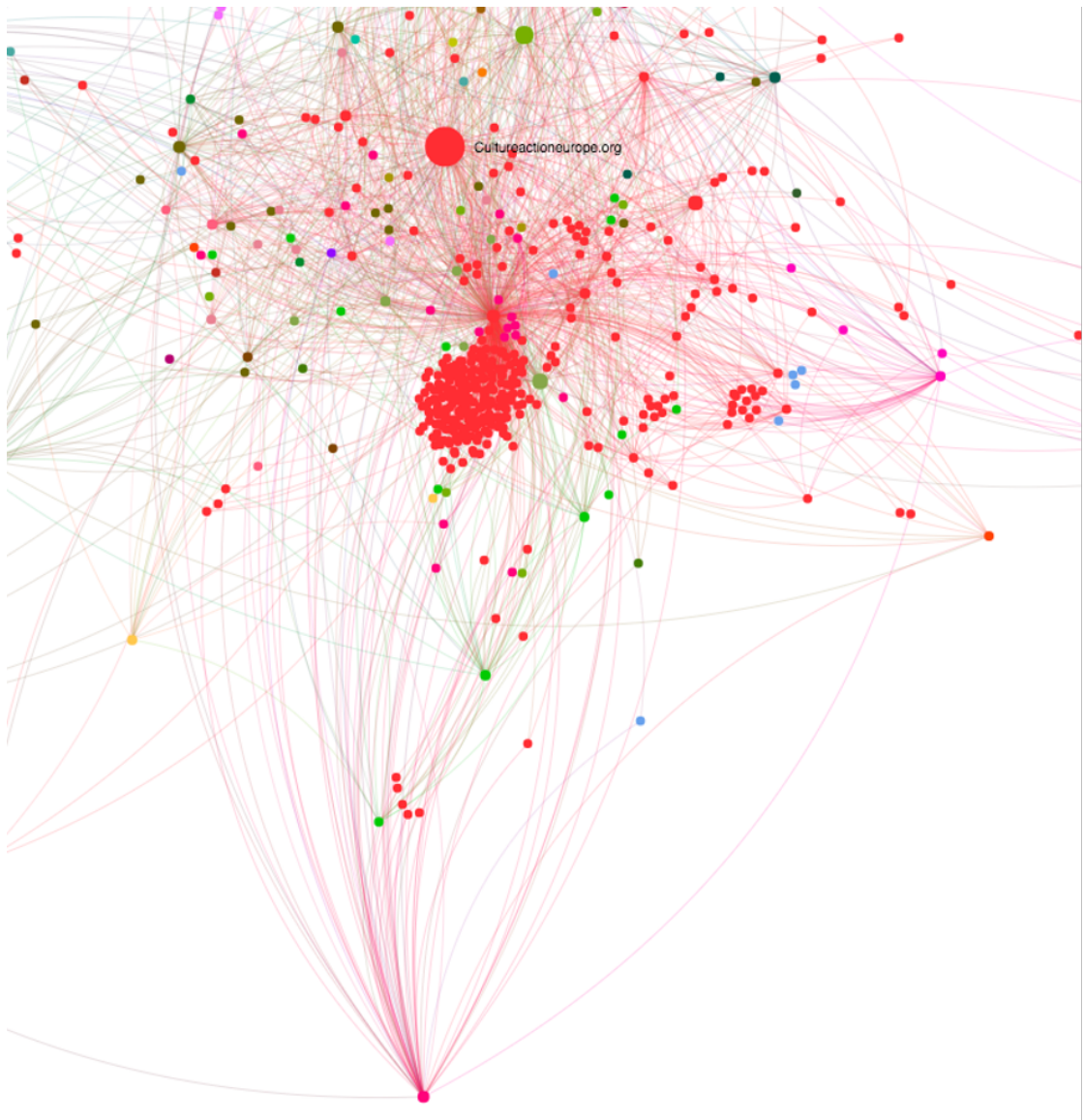
An often used measure of centrality is closeness centrality, a measure of the proximity of a selected node to all other nodes within the graph. A node with strong closeness centrality would typically have very short paths to all other nodes within the network. Note that the result will be a lower average number, as we are talking about how many steps it takes to reach all other nodes.

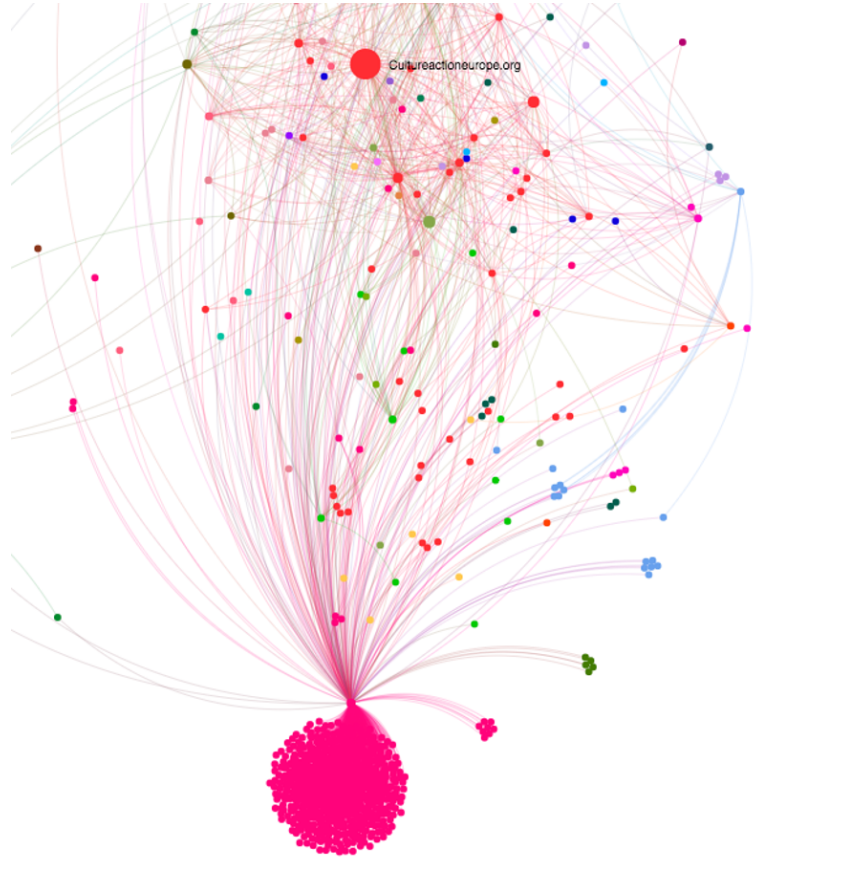
Another key measure is betweenness centrality, which often returns a very different result than the other centrality measures. In this case, we will find nodes that are highly influential in connecting otherwise remote regions of a graph, even though these nodes might have low influence as measured by other centrality measures. These nodes form a bridge between parts of the graph and thus play a key role in reducing path distances when traversing the graph. An example of this might be the case of Culture Action Europe, that acts as a structuring force within the wider cultural sector, linking together otherwise highly connected and dense clusters of cultural organisations within different domains. Given the fact that the connections can be visualised as a network of networks, this is just a technical description of the degree how far an organisation fulfils this function.

As an example the music sector related organisations are well connected with the website of the European Music Council (www.emc-imc.org) .. In our visualisation dashboard, one can see, that while over 500 connections were discovered originated to other, mostly music and singing connected organisations, the node also acts as a bridge connection to other such cultural bridge organisations, like www.ietm.org or culturactioneurope.org as well.

The EMC-IMC.org acts as a connector on the one hand to all the music related sites (represented here by red dots) to CAE.

The bottom of the screenshot one can see an other hub – integrating the European jazz sites – having both direct and indirect connections to CAE. The enlarged view of the second screenshot serves to illuminate further the cascading bridge functions.





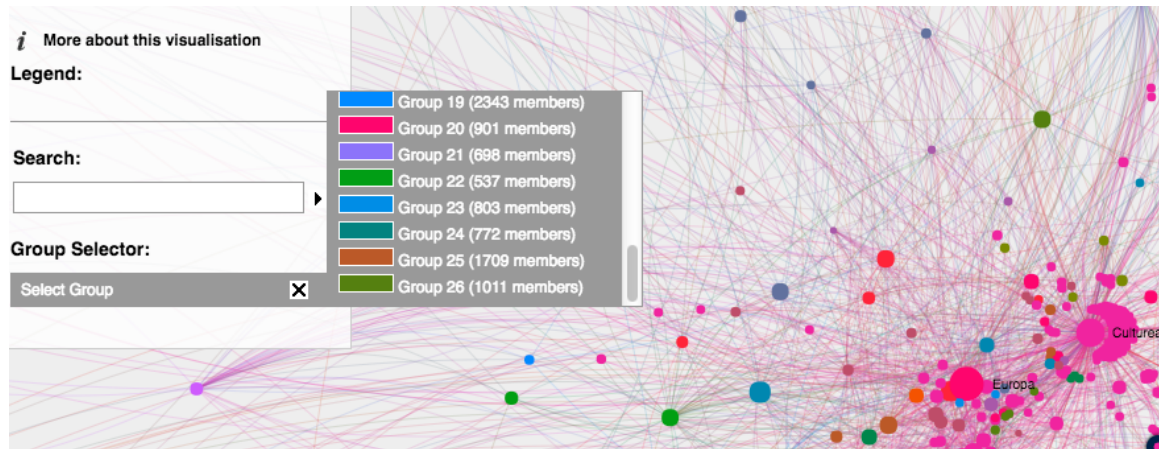
One way to measure the changes on how Culture Action Europe performs as integrator of the various networks is to use the various centrality measures of the network analysis tools.

We performed a similar network analysis in 2016. In order to make the structures as closely comparable as possible, for the comparative analysis we have started out from the same ca. 100 homepages that all belong to the network members of CAE.

By crawling each link in each of these pages, we have collected the domains to which these homepages are connected. Following up a similar way from the pages reached this way, we have mapped out the further connections.

By analysing the full interconnected links we separated the „hubs” that are structuring the internal networks members of each such „hubs”. By selecting one of these hubs (on the dashboard it is called Group Selector) one can browse the clusters or groups that are more interconnected within the groups than outside, with others.

In our 2016 analysis we have found 26 such hubs that were connected directly or indirectly to CAE.



The structuring using the same algorithm yielded more hubs (groups) that are interconnected.



When we want to numerically express the centrality of Culture Action Europe within this cultural ecosystem, using the standard measures of network analysis described above, the best measure to compare is the Betweenness Centrality index.

The closeness centrality measure of CAE shows the strength of central integrative role by having short paths to other nodes within the network. Comparing the changes over time, one need to remember that the measure reflects on how many steps it takes to reach all other nodes.

The lower the average number, means that it takes less steps to reach all other nodes.

The Closeness Centrality measure in 2016 was .4101, while in 2020 the same index decreased to .3299 – an improvement in terms of being in the centre of the cultural networks represented here, of about 24%.

Another, in our case very important measure is the betweenness centrality index. While the Closeness Centrality reflects on how close the organisation is on the average to each individual nodes, the Betweenness Centrality Measure that is sometimes also called Bridge Centrality captures the extent CAE functions as an integrative force between various networks. In short, this is the key measure to watch when we want to characterise temporal changes on how well CAE performs as a „network of networks”.

In network theory it has a very wide application, it represents the degree to which nodes stand between each other. A node with higher betweenness centrality would have more control over the network, because more information and in our case more personal communication and organisational experience will pass through that node. Contrary to the Closeness Centrality Measure, in the case of Betweenness or Bridge Centrality measure, the higher number reflects the more centrality of the given node.

The Betweenness Centrality measure of Culture Action Europe for 2016 is 3,522 that have increased to 5,711 by 2020. In other words this reflects a very significant 62% increase in the strength of bridging together larger number or clusters of cultural practice communities. The role of Culture Action Europe as the network of networks have been further strengthened in the period between the two measurements.