Cumbrian Facebook pages: Their use by the farming community relative to other regional Facebook pages

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This report looks at the potential role of Facebook for community management and social cohesion in the Cumbrian farming community. It compares use of farming-related Facebook pages with other regionally-focused Facebook pages. Across a sample of postings on ten Facebook pages, news alerts and information-themed postings were most frequent, followed by social posts. Users' interactions with pages and other users through 'likes' and comments varied according to the type of posting. Most interactivity was clustered around one of the ten pages, and there was little overlap between different pages and their users. Although it appears that these Facebook pages are important to existing communities and new online communities, there is little suggestion of 'conversations' between communities.

Overview:

The farming community in Cumbria maintains a landscape which is of international significance, contributes to the generation of £1.1bn for the regional economy and in doing so employs 36,000 people in the regional tourism and leisure industry.

One of the issues facing farming in Cumbria is the unwillingness of many young people to stay in farming. This is often because of the challenging economics of farming, but also due to factors such as social exclusion and physical isolation.

Social media tools such as Facebook increasingly play a role in community management. Facebook can provide an online presence which allows a high degree of rich interactivity for existing community organisations, but it can also enable new organisations to become established.

Posts to Facebook pages can act as news feeds, social calendars or simply an environment for general social interaction. The platform also provides an opportunity to connect individuals and communities from the same localities who might otherwise interact very little.

In providing those opportunities, Facebook and other social media platforms can play a role in creating and reinforcing social cohesion. Greater social cohesion in diverse communities can strengthen and create more stable self-supporting communities, which is important if some section of the community is facing pressure.

This report looks at the roles played by a number of Cumbria-focused community management Facebook pages and analyses the nature and extent of interaction between the various 'communities' who read and contribute to those pages. In particular, it considers how the farming-related Facebook pages sit within the context of other, more general regional pages.

Cumbria facts and figures:

- At 6,768km^2, Cumbria is the second largest English county, with a population of just under half a million.[*]

- Contains England's largest national park; the Lake District National Park, renowned for its landscape and cultural heritage.

- Cumbria also contains part of the Yorkshire Dales National Park and three designated Areas of Outstanding Natural Beauty.

- The tourism industry employs more than 36,000 in Cumbria and is worth £1.1bn per year to the regional economy.[*]

- At £188M the agricultural sector in Cumbria directly accounts for 2.2% of the county's gross value added (GVA), almost three times the national average for the sector.[**]

- 21.5% of the 22,000 enterprises in Cumbria are in the agricultural sector. [***]

[*]https://en.wikipedia.org/wiki/Cumbria
[**]www.cumbriaobservatory.org.uk/elibrary/Content/Internet/536/675/4356/41866101715.pdf (in 2011. Includes forestry and fisheries)
[***]http://www.cumbriaobservatory.org.uk/elibrary/Content/Internet/536/675/4356/42038104628.pdf (in 2014. Includes forestry and fisheries)

Cumbrian Facebook pages:

Ten Facebook pages were analysed. Most of these are an online presence for existing organisations which have a regional focus.

Three pages were selected because of their primary focus in the agricultural sector for the region:

Cumbria Young Farmers
A rural youth organisation for young people across Cumbria aged 10 to 26.

The Cumbria Farmer Network
A not for profit organisation solely developed to help, support and guide farmers by providing services and benefits to local communities in Cumbria.

Westmorland County Agricultural Society
A registered charity which promotes agriculture, horticulture, allied industries, rural crafts, livestock breeding, forestry and conservation.

The remaining seven are pages with a regional focus, posting articles and links on a variety of topics:

Cumbria Crack
Commercial organisation providing news, travel, weather & events for Cumbria.

Cumbria & the Lake District
Postings about leisure, tourism and local interest.

The Lake District, Cumbria
A commercial entity responsible for promoting tourism throughout Cumbria.

BBC Radio Cumbria
Facebook page for the radio station which provides local news, sport, weather and travel news.

Cumbria County Council
The County Council's Facebook presence, posting on a variety of topics related to the region.

I ♥ Lake District National Park
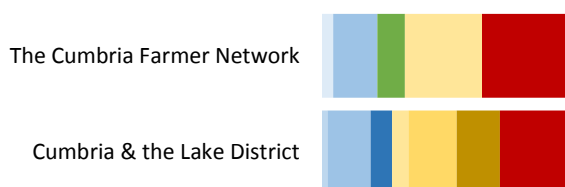The official Facebook page of the Lake District National Park.

Enjoy Cumbria
Providing announcements and postings about attractions and things to do.

For each page, the most recent 50 posts were sampled, and from each of those, up to 50 comments/likes were sampled.

What type of content gets posted?

Social: 35%

Educational: 3%

News, Information, Alerts: 44%

Commercial: 18%

Group-related social events - offline	Sport-related events	Social postings - online	Events in the wider community	Educational events	Notifications and appeals for assistance	Regional information - inc tourism	News alerts	Commercial activities

Mix of social, news/information and commercial:

The Cumbria Farmer Network

Cumbria & the Lake District

Largely social:

The Lake District, Cumbria

Westmorland County Agricultural Society

I ♥ Lake District National Park

BBC Radio Cumbria

Cumbria Young Farmers

Largely news, information and alerts:

Cumbria County Council

Enjoy Cumbria

Cumbria Crack

0% 20% 40% 60% 80% 100%

There is wide variation between pages in the proportion of postings on a given theme.

Half of the pages, including Cumbria Young Farmers and the Westmorland County Agricultural Society had over 45% of their postings on social themes.
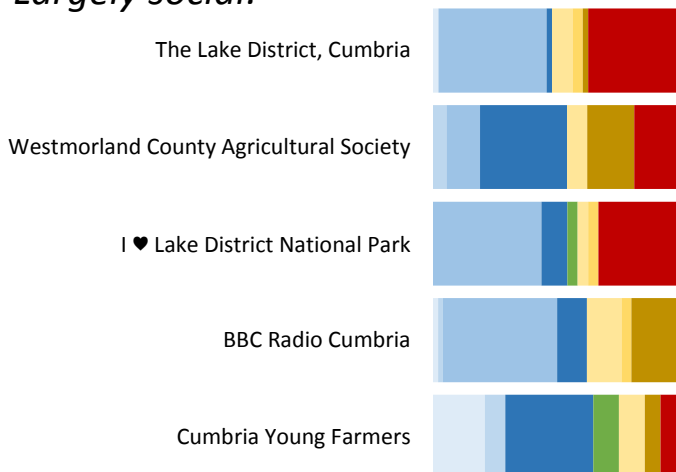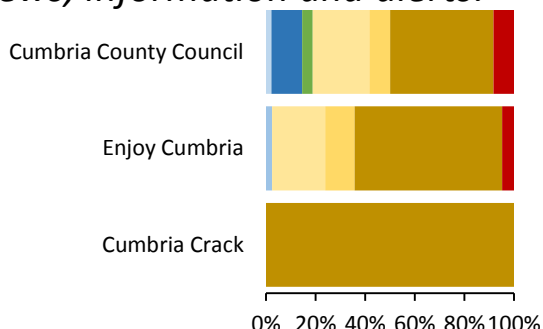
Three pages (Enjoy Cumbria, Cumbria County Council and Cumbria Crack) were primarily used for news, information and alerts.

Two pages, including the Cumbria Farmer Network were a mix of social, news/information and commercial.

Examples of posts:

"You can't beat a bit of sunshine for lambing, definitely makes life a bit easier."

"UPDATE: The A591 in Ambleside has now reopened, following the collision earlier today."

"check out our new Facebook page for all your ATV and groundcare needs!"

"Join our navigation skills for beginners course this Sat in Grasmere"

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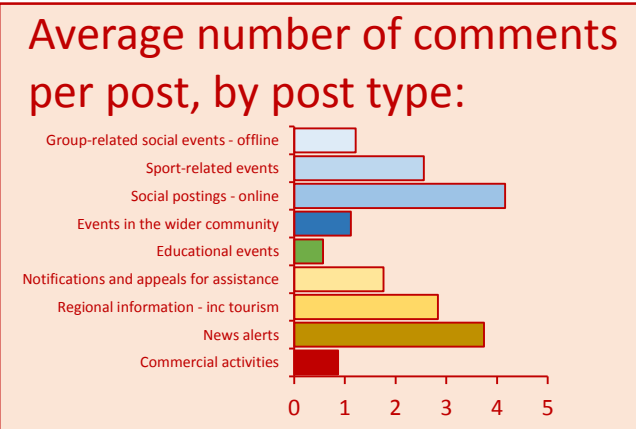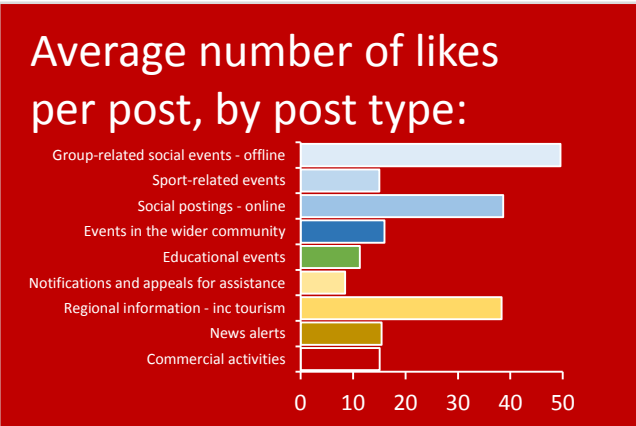
Likes and comments

There is a relatively low level of interaction in the network; much of what goes onto the selected Facebook pages is broadcasting of information rather than providing a forum for interaction.

However, there were still many comments and 'likes' to the postings made by the owners of the ten selected pages, which varied in numbers considerably among the pages:
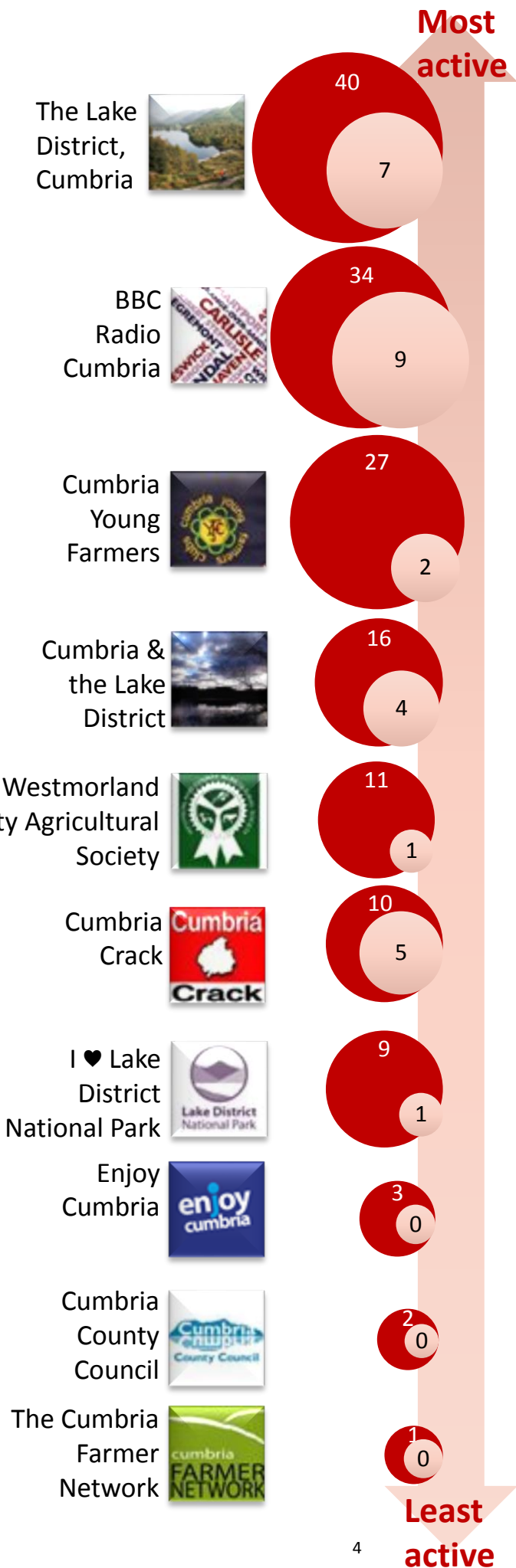
Average number of likes per post

Average number of comments per post
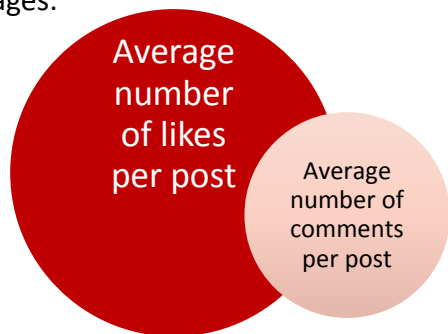
4917
likes received by the selected Facebook pages in the sample of posts

1004
comments made to the selected Facebook pages in the sample of posts

Average number of likes per post, by post type:

- Group-related social events - offline
- Sport-related events
- Social postings - online
- Events in the wider community
- Educational events
- Notifications and appeals for assistance
- Regional information - inc tourism
- News alerts
- Commercial activities

0 10 20 30 40 50

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0 1 2 3 4 5

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Most active

The Lake District, Cumbria — 40 / 7

BBC Radio Cumbria — 34 / 9

Cumbria Young Farmers — 27 / 2

Cumbria & the Lake District — 16 / 4

Westmorland County Agricultural Society — 11 / 1

Cumbria Crack — 10 / 5

I ❤ Lake District National Park — 9 / 1

Enjoy Cumbria — 3 / 0

Cumbria County Council — 2 / 0

The Cumbria Farmer Network — 1 / 0

Least active

How are the Facebook users connected?

Most of the users are clustered around the Facebook page with which they have had most interaction.

In the graph below, the pages which relate directly to the farming community in Cumbria are clustered together in the bottom-right of the graph, along with the Cumbria County Council page.
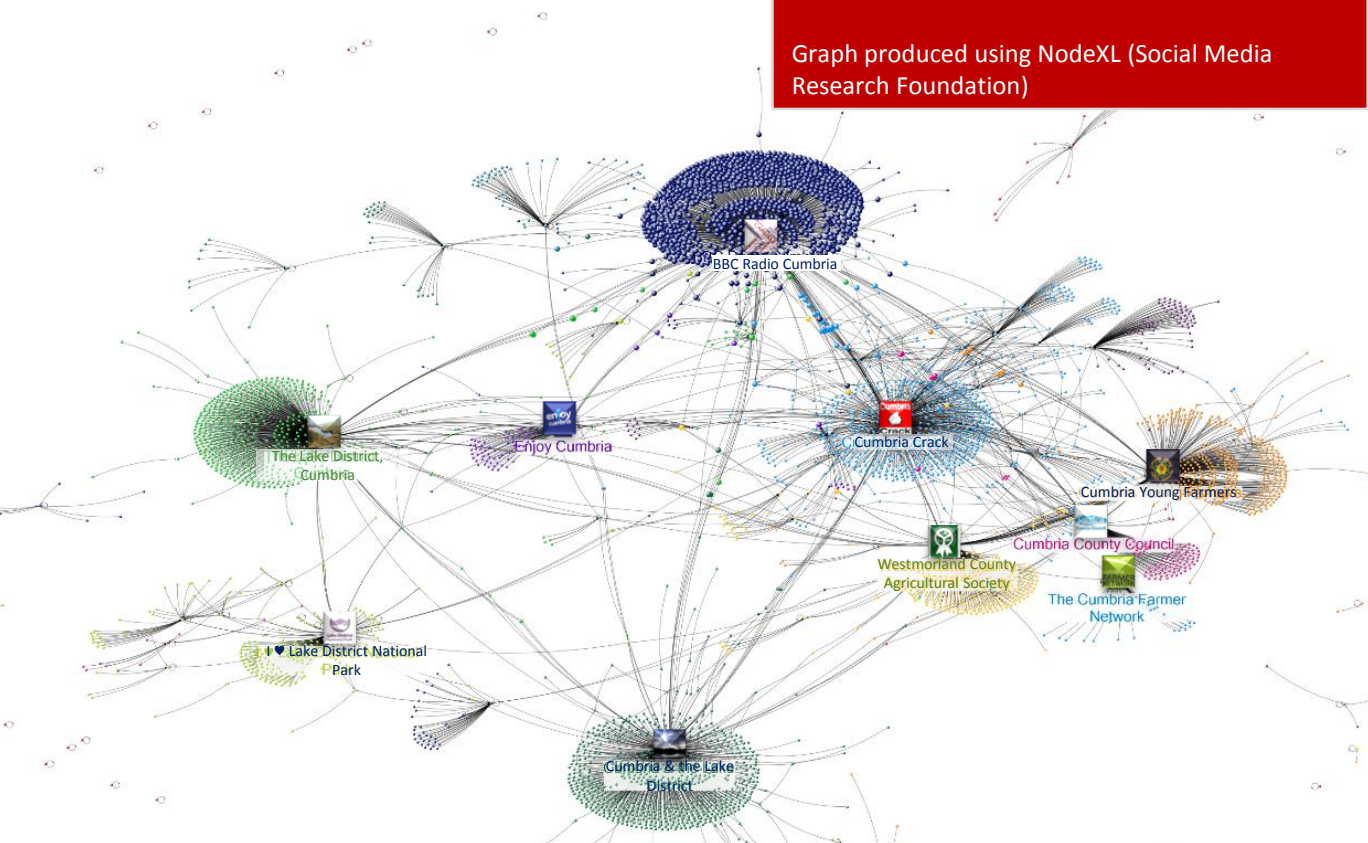
This clustering of clusters around the pages occurs because of a small number of indirect connections between those pages.

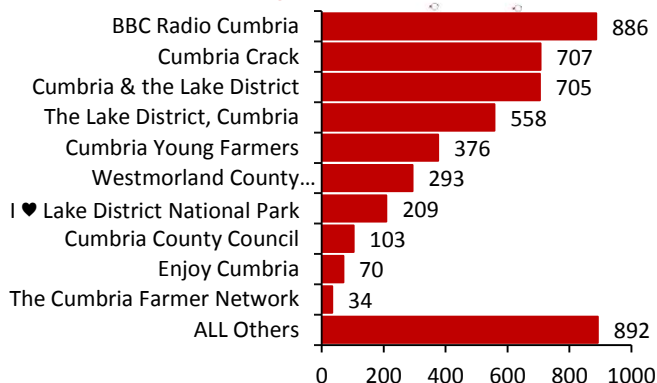This force-directed (Fruchtermann-Reingold) graph shows connectedness between the Facebook users.

Each circle represents a Facebook user, and the distance between these represents connectedness on the basis of users posting to, commenting on and 'liking' posts.

Clusters were identified using the Clauset-Newmann-Moore algorithm.

Graph produced using NodeXL (Social Media Research Foundation)

Members per cluster:

Cluster	Members
BBC Radio Cumbria	886
Cumbria Crack	707
Cumbria & the Lake District	705
The Lake District, Cumbria	558
Cumbria Young Farmers	376
Westmorland County…	293
I ♥ Lake District National Park	209
Cumbria County Council	103
Enjoy Cumbria	70
The Cumbria Farmer Network	34
ALL Others	892

Key graph metrics:

- The network has 28 clusters, the 10 largest of which are centred around postings on the selected Facebook pages.
- There are few direct links (likes or comments to one page by another) between clusters. The most links between clusters are between the Cumbria Crack and BBC Radio Cumbria clusters (n=27), followed by the Westmorland County Agricultural Society cluster and Cumbria Young Farmers (n=22).

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How well connected are the organisations' pages to their users?

In order to focus on which parts of the network are better connected in general, users whose only interaction was with one immediate user (or page) have been removed from this graph.
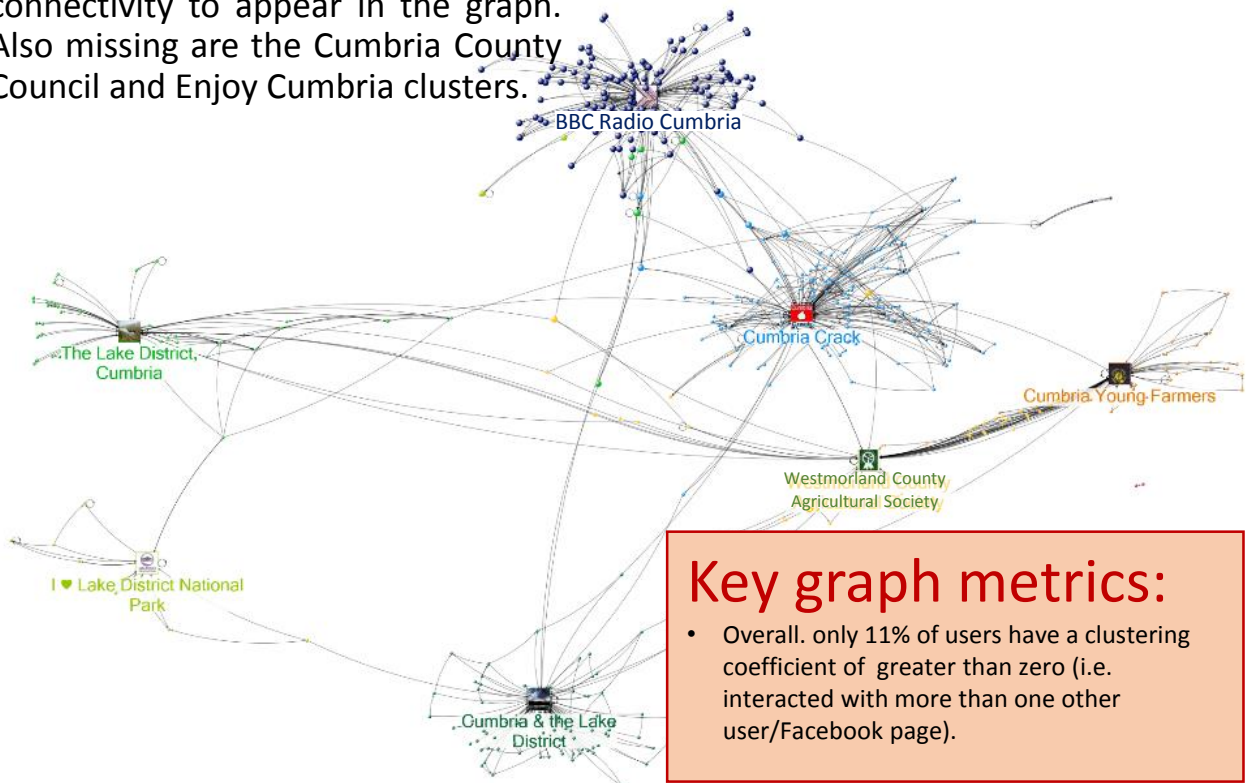
The BBC Radio Cumbria and Cumbria Crack pages had the two largest clusters of users, but only 14% of the BBC Radio Cumbria and 17% of the Cumbria Crack clusters' users interacted with more than one other user. Most only interacted with the Facebook page via a 'like' or comment. The Westmoreland County Agricultural Society cluster had 13% with more than one connection, and for Cumbria Young Farmers it was 10%.

The Cumbria Farmer Network's cluster did not have sufficient connectivity to appear in the graph. Also missing are the Cumbria County Council and Enjoy Cumbria clusters.

The clustering coefficient gives an indication of how many people in a network interact with each other. This is a useful measure because it tells us whether a network or cluster exists largely on the basis of being for broadcast of information on a one to many basis, with opportunity for response by 'liking' or commenting, or whether there is further user-user interaction in the network.

In this instance the clustering coefficient has been measured on the basis of users posting to, commenting on or liking posts or comments. Clusters were identified using the Clauset-Newmann-Moore algorithm. The circles shown (ie users) all have a clustering coefficient of greater than zero. The larger the circle, the greater the clustering coefficient.

Graph produced using NodeXL (Social Media Research Foundation)

Key graph metrics:

- Overall. only 11% of users have a clustering coefficient of greater than zero (i.e. interacted with more than one other user/Facebook page).

Strategic connections:

This graph shows a subset of the data; the Facebook users and pages whose connections are well connected users and Facebook pages.

Consequently, many of the users are absent. Those interacting with the BBC Radio Cumbria Facebook page remain, largely because of the relatively high volume of the following, but also because of the greater interactivity among members of the BBC Radio Cumbria cluster.

Interestingly, Cumbria County Council and Enjoy Cumbria return to this graph, whereas I ♥ Lake District National Park is now absent, along with the Cumbria Farmer Network.

Being connected to people who are themselves well connected can be better than having a lot of connections yourself. This graph looks at the Facebook users whose connectivity was arguably more 'strategic', using the Eigenvector Centrality measure. All nodes in this graph have an Eigenvector Centrality of greater than zero.

Graph produced using NodeXL (Social Media Research Foundation)
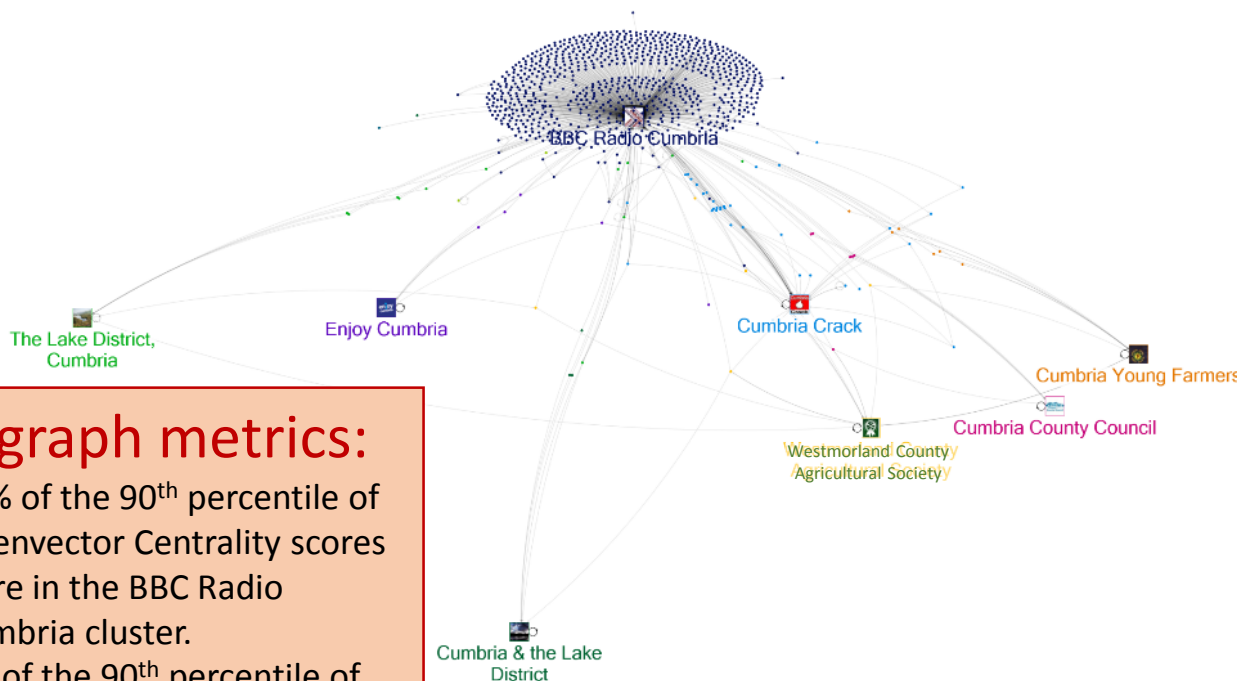
Key graph metrics:

- 86% of the 90th percentile of Eigenvector Centrality scores were in the BBC Radio Cumbria cluster.
- 5% of the 90th percentile of Eigenvector Centrality scores were in the Cumbria Crack cluster.
- The remainder of the 90th percentile comprised half of the remaining 26 clusters.

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Who is most active and connected?

A large proportion of the most active users (in terms of 'likes' and/or comments posted or received) were commercial entities. The users whose activity bridged larger numbers of users did so between clusters rather than within a cluster. However, of those top 0.5% of users who acted as 'bridges', there was a disproportionately high number who were organisations and commercial entities.

Commercial users were largely a mix of tourist accommodation providers, wedding-related companies (bridal hair, clothing) and photographers, including bridal photographers.

Only 4 of the 34 'super-networkers' had connections to the farming-related pages, although all of those were 'individual' users rather than organisations or commercial entities.

The combination of two graph metrics, **Degree** and **Betweenness Centrality** give a good sense of which users are most active at connecting within the network. Degree is a measure of connections to others through 'likes' or comments made or received. Betweenness Centrality is a measure of how much a user 'bridges' other users.

In order to understand *how* these 'super-networkers' might effect connectivity between groups of users, each of the 4344 users was categorised as either a commercial entity, organisation (such as non-profit or administrative) or an individual. The most and connected users were then selected on the basis of their being in the top 0.5% of either Degree or Betweenness Centrality scores (shaded portions of figure below).

Graph produced using NodeXL (Social Media Research Foundation)

Shaded portion of graph: The 1% 'super-networkers'

Commercial, 5
Individual, 29
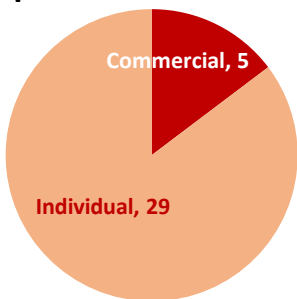
Unshaded portion: The other 99%

Organisation, 26
Commercial, 94
Individual, 4180
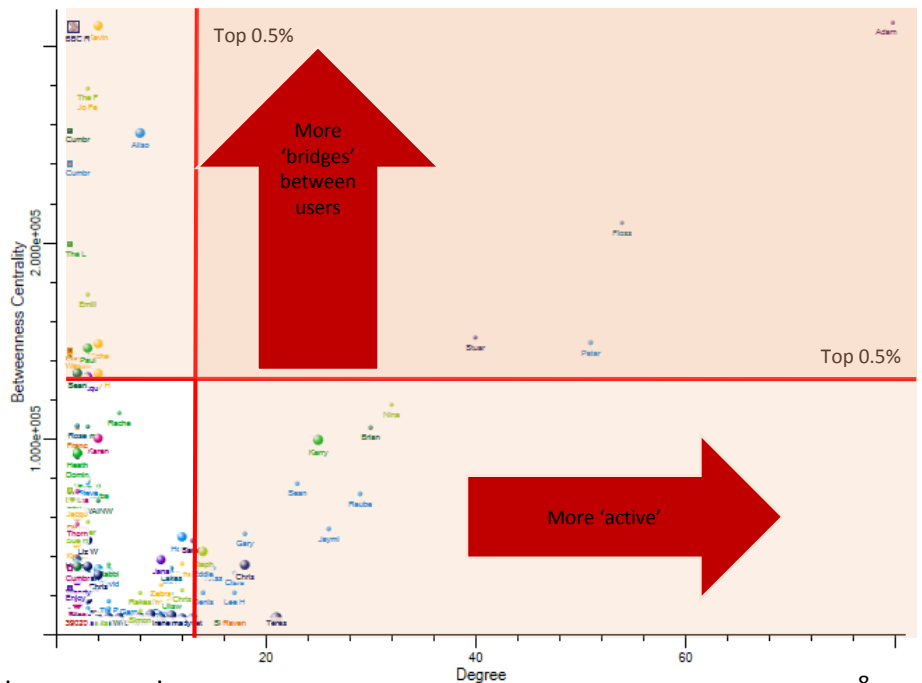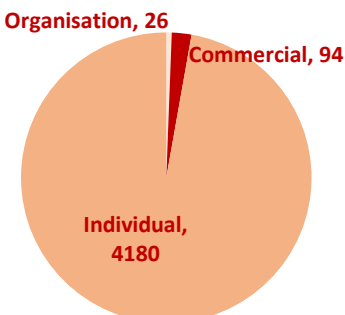
Conclusions

A cohesive force?

The evidence reviewed here suggests that the Facebook pages do provide an opportunity for social cohesion on the basis of interaction with *individual* pages, but the extent to which this occurs depends on the type of content and the pages' users. However, the low degree of interaction *between* clusters points to very little in the way of activity which actively or passively promotes social cohesion between the 'communities' represented by the clusters. There was occasional interaction between Facebook *pages* though, for example with the Westmorland County Agricultural Society posting on the Cumbria Young Farmers page.

Digital noticeboards

Most of the Facebook users only interacted with one of the ten selected Facebook pages, in effect using the page as an interactive digital noticeboard. For some, there was interaction with other users, but primarily those within the same cluster. There were a few users acting as 'bridges' between clusters, but among these, a disproportionately high number had commercial interests. With commercial users the bridging would be incidental; part of their marketing, rather than in any sort of socially cohesive role. However, crossover between these clusters or 'communities' by non-commercial users *did* occur, if on a limited basis.

Interactivity drivers

The term 'social media' is an apt one, borne out by the posts in relation to real world social events or just online, which were strong drivers of interactivity in the farming community studied here. It is perhaps not surprising that activity on the Cumbria Young Farmers page was relatively high. The embracement of social media by this (implicitly) younger demographic in the farming community is encouraging for those interested in social cohesion and community management for the sector.
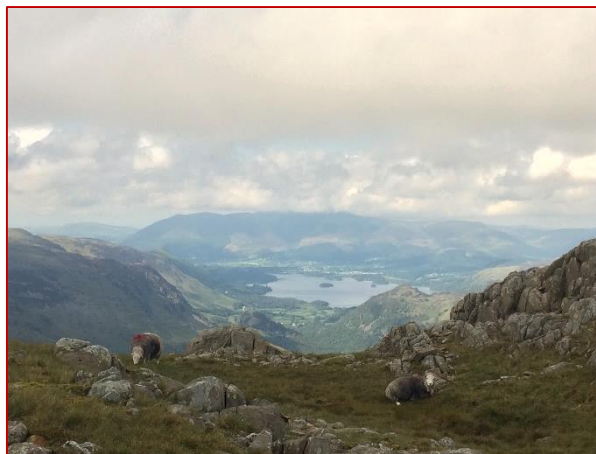
Across the board, the level of interaction was also high in response to news-related postings, with users enthusiastically engaging with posts and comments about posts.

Strategic connections?

'Strategic' connections - those where users are connected to other users who are themselves well-connected - were not much of a feature in the data studied. The users whose connections might be thought of as strategic, i.e. connected to well-connected people, were mostly found within the BBC Radio Cumbria cluster. It is notable that there was little 'strategic' connectivity in the other clusters.

Outside the network

Comments and 'likes' may also appear on the users' timelines and be picked up by their friends, and in doing so broaden the audience beyond the network considered here. Social media offers great potential for the farming community to be "part of the conversation"[*]. Worldwide, there are many examples of individuals in the farming community taking to social media to communicate about farming with a wide audience, and Cumbria isn't without its own social media 'star' (@herdyshepherd1 on Twitter). Analysis of well-know individuals' networks might provide some clues as to whether their activities might be a socially cohesive force.

[*]http://deltafarmpress.com/management/agriculture-social-media-stars-encourage-farmers-ranchers

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