

## 1. The list of top-20 sites by PageRank

1. <a href="http://www.opsi.gov.uk">www.opsi.gov.uk</a> [0.0015168643782398274]	11. <a href="http://www.communities.gov.uk">www.communities.gov.uk</a> [0.0006554311467163489]
2. <a href="http://www.adobe.co.uk">www.adobe.co.uk</a> [0.0014182182459715198]	12. <a href="http://www.bbc.co.uk">www.bbc.co.uk</a> [0.0006482874881544456]
3. <a href="http://www.ico.gov.uk">www.ico.gov.uk</a> [0.0009654563807161581]	13. <a href="http://www.google.co.uk">www.google.co.uk</a> [0.0006028805944996983]
4. <a href="http://www.dti.gov.uk">www.dti.gov.uk</a> [0.00089555331065544]	14. <a href="http://www.dh.gov.uk">www.dh.gov.uk</a> [0.0005906484974062024]
5. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a> [0.0008937889977065464]	15. <a href="http://www.hmso.gov.uk">www.hmso.gov.uk</a> [0.0005818417136696459]
6. <a href="http://news.bbc.co.uk">news.bbc.co.uk</a> [0.000780473245157769]	16. <a href="http://www.hse.gov.uk">www.hse.gov.uk</a> [0.0005757813160594587]
7. <a href="http://www.direct.gov.uk">www.direct.gov.uk</a> [0.0007209475362666682]	17. <a href="http://www.fco.gov.uk">www.fco.gov.uk</a> [0.000540229700172051]
8. <a href="http://www.dfes.gov.uk">www.dfes.gov.uk</a> [0.000697529301060852]	18. <a href="http://www.nationaltrust.org.uk">www.nationaltrust.org.uk</a> [0.0005155226994647975]
9. <a href="http://www.fsa.gov.uk">www.fsa.gov.uk</a> [0.0006817074015284916]	19. <a href="http://www.homeoffice.gov.uk">www.homeoffice.gov.uk</a> [0.000483592734339035]
10. <a href="http://www.nationalrail.co.uk">www.nationalrail.co.uk</a> [0.0006581577785798681]	20. <a href="http://mysite.wanadoo-members.co.uk">mysite.wanadoo-members.co.uk</a> [0.00045848917724008694]

## 2. The list of top-20 sites by No-spam-PageRank

1. <a href="http://www.opsi.gov.uk">www.opsi.gov.uk</a> [0.0015163269912291798]	6. <a href="http://news.bbc.co.uk">news.bbc.co.uk</a> [0.0007798118062589196]
2. <a href="http://www.adobe.co.uk">www.adobe.co.uk</a> [0.0014177550573844725]	7. <a href="http://www.direct.gov.uk">www.direct.gov.uk</a> [0.0007204877150489438]
3. <a href="http://www.ico.gov.uk">www.ico.gov.uk</a> [0.0009642175795585692]	8. <a href="http://www.dfes.gov.uk">www.dfes.gov.uk</a> [0.0006978022269123422]
4. <a href="http://www.dti.gov.uk">www.dti.gov.uk</a> [0.0008953203325559037]	9. <a href="http://www.fsa.gov.uk">www.fsa.gov.uk</a> [0.0006801444750391456]
5. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a> [0.0008925273921990404]	10. <a href="http://www.nationalrail.co.uk">www.nationalrail.co.uk</a> [0.0006574169744247544]

11. [www.communities.gov.uk](http://www.communities.gov.uk)  
[0.0006552851670602633]

12. [www.bbc.co.uk](http://www.bbc.co.uk)  
[0.0006481317727919905]

13. [www.google.co.uk](http://www.google.co.uk)  
[0.0006023073035861512]

14. [www.dh.gov.uk](http://www.dh.gov.uk)  
[0.0005910116655537075]

15. [www.hmso.gov.uk](http://www.hmso.gov.uk)  
[0.0005818574145054327]

16. [www.hse.gov.uk](http://www.hse.gov.uk)  
[0.00057537938842279]

17. [www.fco.gov.uk](http://www.fco.gov.uk)  
[0.000539037997378092]

18. [www.nationaltrust.org.uk](http://www.nationaltrust.org.uk)  
[0.0005154578899466747]

19. [www.homeoffice.gov.uk](http://www.homeoffice.gov.uk)  
[0.0004833514113988187]

20. [mysite.wanadoo-members.co.uk](http://mysite.wanadoo-members.co.uk)  
[0.00045755162909262494]

**3. Your comment (1-2 paragraphs) on the similarities/differences between the two lists above**

Based on the two lists above, the top 20 sites by PageRank and No-spam-PageRank are exactly the same. The only difference is that the scores are different; however, the scores are different by a very small margin.

**4. The list of top-20 sites containing .co.uk by PageRank**

1. [www.adobe.co.uk](http://www.adobe.co.uk)  
[0.0014182182459715198]

2. [news.bbc.co.uk](http://news.bbc.co.uk)  
[0.000780473245157769]

3. [www.nationalrail.co.uk](http://www.nationalrail.co.uk)  
[0.0006581577785798681]

4. [www.bbc.co.uk](http://www.bbc.co.uk)  
[0.0006482874881544456]

5. [www.google.co.uk](http://www.google.co.uk)  
[0.0006028805944996983]

6. [mysite.wanadoo-members.co.uk](http://mysite.wanadoo-members.co.uk)  
[0.00045848917724008694]

7. [www.actinic.co.uk](http://www.actinic.co.uk)  
[0.0004268162067476992]

8. [www.networkrail.co.uk](http://www.networkrail.co.uk)  
[0.0003640398196569995]

9. [www.caa.co.uk](http://www.caa.co.uk)  
[0.00032710620860882734]

10. [www.erolonline.co.uk](http://www.erolonline.co.uk)  
[0.00032325517863542096]

11. [www.punterlink.co.uk](http://www.punterlink.co.uk)  
[0.00031455563140291595]

12. [www.streetmap.co.uk](http://www.streetmap.co.uk)  
[0.00030441339496852974]

13. [www.tso.co.uk](http://www.tso.co.uk)  
[0.00030310453842517744]

14. [www.kelkoo.co.uk](http://www.kelkoo.co.uk)  
[0.0002926680894983065]

15. [www.guardian.co.uk](http://www.guardian.co.uk)  
[0.00028086861863899906]

16. [www.rac.co.uk](http://www.rac.co.uk)  
[0.0002781833278394606]

17. [www.event-management-uk.co.uk](http://www.event-management-uk.co.uk)  
[0.0002638469923639058]

18. [www.telegraph.co.uk](http://www.telegraph.co.uk)  
[0.00024662598481841865]

19. [www.investorsinpeople.co.uk](http://www.investorsinpeople.co.uk)  
[0.00023703672636871383]

20. [www.business-directory-uk.co.uk](http://www.business-directory-uk.co.uk)  
[0.00021834116672779356]

**5. The list of top-20 sites containing .co.uk by No-spam-PageRank**

1. [www.adobe.co.uk](http://www.adobe.co.uk)  
[0.0014177550573844725]

2. [news.bbc.co.uk](http://news.bbc.co.uk)  
[0.0007798118062589196]

3. [www.nationalrail.co.uk](http://www.nationalrail.co.uk)  
[0.0006574169744247544]

4. [www.bbc.co.uk](http://www.bbc.co.uk)  
[0.0006481317727919905]

5. [www.google.co.uk](http://www.google.co.uk)  
[0.0006023073035861512]

6. [mysite.wanadoo-members.co.uk](http://mysite.wanadoo-members.co.uk)  
[0.00045755162909262494]

7. [www.actinic.co.uk](http://www.actinic.co.uk)  
[0.0004275822265788012]

8. [www.networkrail.co.uk](http://www.networkrail.co.uk)  
[0.000363578117342681]

9. [www.caa.co.uk](http://www.caa.co.uk)  
[0.00032670701629315484]

10. [www.erolonline.co.uk](http://www.erolonline.co.uk)  
[0.0003173640738929826]

11. [www.punterlink.co.uk](http://www.punterlink.co.uk)  
[0.00031651948957987466]

12. [www.streetmap.co.uk](http://www.streetmap.co.uk)  
[0.00030424951060941416]

13. [www.tso.co.uk](http://www.tso.co.uk)  
[0.0003028006825034482]

14. [www.kelkoo.co.uk](http://www.kelkoo.co.uk)  
[0.0002928870966451433]

15. [www.guardian.co.uk](http://www.guardian.co.uk)  
[0.00028050984576233996]

16. [www.rac.co.uk](http://www.rac.co.uk)  
[0.0002779493305391587]

17. [www.event-management-uk.co.uk](http://www.event-management-uk.co.uk)  
[0.0002659336091578067]

18. [www.telegraph.co.uk](http://www.telegraph.co.uk)  
[0.0002461311067730707]

19. [www.investorsinpeople.co.uk](http://www.investorsinpeople.co.uk)  
[0.00023691730911530067]

20. [www.business-directory-uk.co.uk](http://www.business-directory-uk.co.uk)  
[0.00021903587788696993]

**6. Your comment (1-2 paragraphs) on the similarities/differences between the two lists above**

Based on the two lists above, the top 20 sites containing .co.uk by PageRank and No-spam-PageRank are exactly the same. The only difference is that the scores are different; however, the scores are different by a very small margin.

## 7. The list of top-20 sites containing .gov.uk by PageRank

1. <a href="http://www.opsi.gov.uk">www.opsi.gov.uk</a> [0.0015168643782398274]	11. <a href="http://www.hse.gov.uk">www.hse.gov.uk</a> [0.0005757813160594587]
2. <a href="http://www.ico.gov.uk">www.ico.gov.uk</a> [0.0009654563807161581]	12. <a href="http://www.fco.gov.uk">www.fco.gov.uk</a> [0.000540229700172051]
3. <a href="http://www.dti.gov.uk">www.dti.gov.uk</a> [0.00089555331065544]	13. <a href="http://www.homeoffice.gov.uk">www.homeoffice.gov.uk</a> [0.000483592734339035]
4. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a> [0.0008937889977065464]	14. <a href="http://www.dft.gov.uk">www.dft.gov.uk</a> [0.0004572991098763979]
5. <a href="http://www.direct.gov.uk">www.direct.gov.uk</a> [0.0007209475362666682]	15. <a href="http://www.dataprotection.gov.uk">www.dataprotection.gov.uk</a> [0.00044551620266407174]
6. <a href="http://www.dfes.gov.uk">www.dfes.gov.uk</a> [0.000697529301060852]	16. <a href="http://www.dwp.gov.uk">www.dwp.gov.uk</a> [0.00043753647957066734]
7. <a href="http://www.fsa.gov.uk">www.fsa.gov.uk</a> [0.0006817074015284916]	17. <a href="http://www.legislation.hmso.gov.uk">www.legislation.hmso.gov.uk</a> [0.0004196267367553457]
8. <a href="http://www.communities.gov.uk">www.communities.gov.uk</a> [0.0006554311467163489]	18. <a href="http://www.informationcommissioner.gov.uk">www.informationcommissioner.gov.uk</a> [0.0003958947431418644]
9. <a href="http://www.dh.gov.uk">www.dh.gov.uk</a> [0.0005906484974062024]	19. <a href="http://www.statistics.gov.uk">www.statistics.gov.uk</a> [0.00037184244017089766]
10. <a href="http://www.hmso.gov.uk">www.hmso.gov.uk</a> [0.0005818417136696459]	20. <a href="http://www.hm-treasury.gov.uk">www.hm-treasury.gov.uk</a> [0.0003704741179414513]

## 8. The list of top-20 sites containing .gov.uk by No-spam-PageRank

1. <a href="http://www.opsi.gov.uk">www.opsi.gov.uk</a> [0.0015163269912291798]	6. <a href="http://www.dfes.gov.uk">www.dfes.gov.uk</a> [0.0006978022269123422]
2. <a href="http://www.ico.gov.uk">www.ico.gov.uk</a> [0.0009642175795585692]	7. <a href="http://www.fsa.gov.uk">www.fsa.gov.uk</a> [0.0006801444750391456]
3. <a href="http://www.dti.gov.uk">www.dti.gov.uk</a> [0.0008953203325559037]	8. <a href="http://www.communities.gov.uk">www.communities.gov.uk</a> [0.0006552851670602633]
4. <a href="http://www.defra.gov.uk">www.defra.gov.uk</a> [0.0008925273921990404]	9. <a href="http://www.dh.gov.uk">www.dh.gov.uk</a> [0.0005910116655537075]
5. <a href="http://www.direct.gov.uk">www.direct.gov.uk</a> [0.0007204877150489438]	10. <a href="http://www.hmso.gov.uk">www.hmso.gov.uk</a> [0.0005818574145054327]

11. www.hse.gov.uk  
[0.00057537938842279]

12. www.fco.gov.uk  
[0.000539037997378092]

13. www.homeoffice.gov.uk  
[0.0004833514113988187]

14. www.dft.gov.uk  
[0.00045716426001675783]

15. www.dataprotection.gov.uk  
[0.0004445341940639843]

16. www.dwp.gov.uk  
[0.0004373521638385658]

17. www.legislation.hmso.gov.uk  
[0.000419431970034124]

18. www.informationcommissioner.gov.uk  
[0.0003956975759919554]

19. www.statistics.gov.uk  
[0.00037178722668428164]

20. www.hm-treasury.gov.uk  
[0.00037000563458066744]

**9. Your comment (1-2 paragraphs) on the similarities/differences between the two lists above**

Based on the two lists above, the top 20 sites containing .gov.uk by PageRank and No-spam-PageRank are exactly the same. The only difference is that the scores are different; however, the scores are different by a very small margin.

**10. The list of top-20 sites by spam gain**

1. www.erolonline.co.uk  
[1.018562607513114]

2. www.nominet.org.uk  
[1.0120287134095989]

3. www.multimap.co.uk  
[1.0114934232716082]

4. www.britishwaterways.co.uk  
[1.0113936082323598]

5. www.bfinetnet.co.uk  
[1.0100425875498598]

6. www.bats.org.uk  
[1.009510453504504]

7. www.crb.gov.uk  
[1.0093369907877312]

8. www.baa.co.uk  
[1.0086406398815868]

9. www.lawcom.gov.uk  
[1.008173065905924]

10. www.odeon.co.uk  
[1.0081344313769374]

11. films.kelkoo.co.uk  
[1.008023056973291]

12. www.free-counters.co.uk  
[1.007243109789659]

13. www.sanger.ac.uk  
[1.0072207482721673]

14. www.travelogues.co.uk  
[1.0069730772641932]

15. [www.uk-websitesdirectory.co.uk](http://www.uk-websitesdirectory.co.uk)  
[1.0068361224151128]

16. [order.1and1.co.uk](http://order.1and1.co.uk)  
[1.0066620438177094]

17. [www.nationalexpress.co.uk](http://www.nationalexpress.co.uk)  
[1.0065485414637774]

18. [www.airquality.co.uk](http://www.airquality.co.uk)  
[1.0064886795037105]

19. [www.ukvisas.gov.uk](http://www.ukvisas.gov.uk)  
[1.006460090220523]

20. [www.employment-studies.co.uk](http://www.employment-studies.co.uk)  
[1.0063053112271232]

### 11. Your comment (1-2 paragraphs) on the list of sites by spam gain

Many of the sites on the list of sites by spam gain are not in the list of sites using PageRank or no-spam-PageRank. However, we can see that the top site in the list of sites by spam gain is [www.erolonline.co.uk](http://www.erolonline.co.uk). Notice that this site is rank 10 for both lists (PageRank and no-spam-PageRank). This shows that despite being the top site by spam gain, there is little to no impact on its ranking overall.

### 12. A brief description of your variant of PageRank

My variant of PageRank computes PageRank as described in part 2 for an induced subgraph. For example, it ranks all sites containing .co.uk below.

### 13. The list of top-20 sites by your variant of PageRank

1. [www.adobe.co.uk](http://www.adobe.co.uk)  
[0.0015285105393253832]

2. [news.bbc.co.uk](http://news.bbc.co.uk)  
[0.0013225003750837849]

3. [www.bbc.co.uk](http://www.bbc.co.uk)  
[0.0007818335441523002]

4. [www.google.co.uk](http://www.google.co.uk)  
[0.0007556744620558206]

5. [www.nationalrail.co.uk](http://www.nationalrail.co.uk)  
[0.0006777179236228851]

6. [www.networkrail.co.uk](http://www.networkrail.co.uk)  
[0.0006529249415843567]

7. [mysite.wanadoo-members.co.uk](http://mysite.wanadoo-members.co.uk)  
[0.0006053386329624933]

8. [www.actinic.co.uk](http://www.actinic.co.uk)  
[0.0005990798894916266]

9. [www.erolonline.co.uk](http://www.erolonline.co.uk)  
[0.00043425768802560325]

10. [www.rac.co.uk](http://www.rac.co.uk)  
[0.00040104500847122334]

11. [www.punterlink.co.uk](http://www.punterlink.co.uk)  
[0.00039056251550856466]

12. [www.kelkoo.co.uk](http://www.kelkoo.co.uk)  
[0.0003754154457280487]

13. [www.event-management-uk.co.uk](http://www.event-management-uk.co.uk)  
[0.000373070536992273]

14. [www.streetmap.co.uk](http://www.streetmap.co.uk)  
[0.0003319479364957409]

15. www.business-directory-uk.co.uk  
[0.0003314535942190842]

16. www.ncp.co.uk  
[0.00031036985900258316]

17. www.caa.co.uk  
[0.00028717047793573835]

18. www.infotex.co.uk  
[0.00028251434929935]

19. www.investorsinpeople.co.uk  
[0.0002664525958588925]

20. www.ncpchallenger.co.uk  
[0.00026555002816266386]

**14. Your comment (1-2 paragraphs) on the list of top sites by your variant of PageRank**

The list of top sites of my variant of PageRank is very similar to the top 20 sites containing .co.uk by PageRank. The top 10 sites of each list are almost exactly the same and in the same order. The next 10 sites, however, are considerably different – almost every site is different compared to the list with top 20 sites containing .co.uk by PageRank.