FIFPRO ROGE25 SURVEY:
CLUSTER REPORT

October 2023

OVERVIEW

As part of the ROGE25 project, one of the main objectives was to carry out a landscape mapping, collecting data from the participating associations of the league and union structures of women's football in their respective countries. This has been about looking with our ROGE25 partner unions at what set of minimum standards are necessary and what is currently being met. The landscape mapping and data collection was completed in the first half of 2023 with each of the 12 ROGE25 partner and affiliate countries evaluating and reporting on their domestic situation.

Subsequently, the following project task has been to work with this data and create a cluster analysis. This has involved making ascending classifications and clusters, putting the 12 countries into a tiered matrix based on their descriptive profiles.

We present here the **Cluster Report** (October 2023) completed by ROGE25 research partner Nicolas Delorme of University of Bordeaux. The report positions the 12 countries into clusters according to their score for each dimension of the 'Wheel of Conditions': (1. Contracts, 2. Health & Safety, 3. Training & Match Environments, 4. Wages & Compensation, 5. Workload, 6. Employment Promotion, 7. Social Protection, 8. Player Data Protection, 9. Freedom of Association & Collective Bargaining, 10. Non-Discrimination, 11. Access to Remedy, 12. Education).

Given that all the indicators used in the Cluster Analysis have the same weight, the next steps of the project (i.e., the November 2023 'Findings Workshop' and the players' workshops) will help to determine whether (a) some indicators should be added, removed or edited and (b) if some indicators should have greater or lesser weight. Any modification of the indicators will – de facto – modify the above analysis. Additionally (c) we will also consider any overlaps in the 12 dimensions of the Wheel and whether modifications to these categories should be made. Finally, (d) we will discuss whether some dimensions of the Wheel should have greater or lesser weight.

1) Descriptive statistics

As far as the global score according to all the indicators/dimensions is concerned, there is an important disparity between the studied countries (mean = 46; s.d. = 20.22). Spain, Italy and Sweden have the higher scores whereas Scotland, France and Greece have the lowest ones.

Country	Score (/100)
Spain	80
Italy	66
Sweden	66
England	56
Portugal	51
Slovenia	49
Netherlands	48
Denmark	47
Cyprus	31
Scotland	24
France	20
Greece	14
Mean	**46**

As far as the global score for each dimension of the 'Wheel of Conditions' is concerned, 'contracts', 'education' and 'social protection' are the most advanced areas whereas 'freedom of association & collective bargaining' and 'health & safety' require significant improvements. Beyond that, the global mean is only 46/100 (s.d. = 14.75). There is thus a significant need to improve all the areas of the 'Wheel of Conditions'.

Dimension	Score (/100)
Contracts	68
Education	68
Social Protection	66
Employment & Promotion	53
Wages & Compensation	46
Workload	42
Player Data Protection	40
Non-Discrimination	40
Training & Match Environments	39

Access to Remedy		39
Health & Safety		28
Freedom of Association & Collective Bargaining		25
Mean		**46**

	CYP	DNK	ENG	FRA	GRC	ITA	NLD	PRT	SCO	SVN	ESP	SWE
Contracts	100	80	80	60	40	100	40	40	40	60	100	80
Health & Safety	32	37	47	5	5	53	5	42	5	5	53	42
Training & ME	18	73	77	5	18	41	27	59	0	36	86	32
Wages & Compensation	46	46	69	8	0	69	77	46	31	38	46	69
Workload	25	25	50	25	0	75	50	25	25	75	75	50
Employment & Promotion	30	60	60	40	20	90	50	60	10	50	70	90
Social Protection	38	63	63	50	13	75	88	88	50	63	100	100
Player Data Protection	29	14	0	0	0	71	86	57	0	86	100	43
Freedom of Association &CB	0	33	33	0	0	33	0	33	33	0	67	67
Non-Discrimination	0	0	100	8	0	67	33	33	0	92	100	42
Access to Remedy	13	38	25	25	25	38	38	63	13	25	88	75
Education	40	90	70	20	50	80	80	70	80	60	80	100
Mean	**31**	**47**	**56**	**20**	**14**	**66**	**48**	**51**	**24**	**49**	**80**	**66**

2) Principal component analysis

The dataset includes 12 individuals (i.e., the studied countries) and 12 variables (i.e., the areas of the 'Wheel of Conditions').

The aim of the principal component analysis is to increase the interpretability of the dataset while preserving the maximum amount of information, and to enable the visualisation of multidimensional data. It is a prerequisite of the cluster analysis through an ascending hierarchical classification of the individuals.

a. Study of the outliers

The analyses did not detect any outliers.

b. Inertia distribution

The inertia of the first dimensions shows if there are strong relationships between variables and suggests the number of dimensions that should be studied.

The first two dimensions of the analysis express 69.07% of the total dataset inertia. It means that 69.07% of the total variability of the individuals' cloud is explained by this plane. This percentage is relatively high and consequently the data variability is well represented by the

first plane. This value is greater than the reference value of 52.72%. The variability explained by this plane is thus significant (the reference value is the 0.95-quantile of the inertia percentages distribution obtained by simulating 5097 data tables of equivalent size on the basis of a normal distribution).

```
Eigenvalues
                        Dim.1   Dim.2   Dim.3   Dim.4   Dim.5   Dim.6   Dim.7   Dim.8   Dim.9  Dim.10  Dim.11
Variance                6.828   1.460   1.273   0.808   0.593   0.412   0.294   0.175   0.100   0.056   0.001
% of var.              56.900  12.166  10.609   6.735   4.940   3.434   2.448   1.456   0.833   0.469   0.010
Cumulative % of var.   56.900  69.065  79.675  86.410  91.350  94.784  97.231  98.687  99.520  99.990 100.000
```


Decomposition of the total inertia
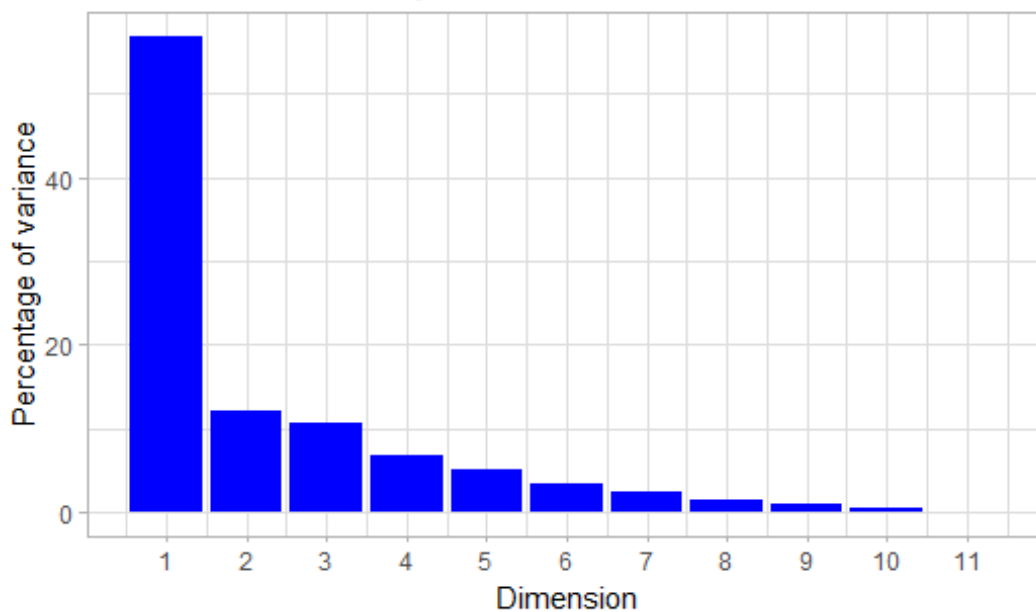
The determination of the right number of axes to interpret suggests to restrict the analysis to the description of the first axis. This axis shows an amount of inertia greater than those obtained by the 0.95-quantile of random distributions (i.e., 56.9% against 31.73%). This observation suggests that only this axis is carrying a real information. As a consequence, the description of the analysis will be restricted to this axis.

```
Individuals
                      Dist     Dim.1    ctr    cos2     Dim.2    ctr   cos2
Cyprus             |  3.209 | -2.116   5.466  0.435 |  -0.116  0.077  0.001 |
Denmark            |  2.288 |  0.348   0.148  0.023 |  -1.822 18.952  0.634 |
England            |  2.923 |  1.368   2.284  0.219 |  -0.458  1.195  0.025 |
France             |  3.895 | -3.413  14.221  0.768 |   0.294  0.495  0.006 |
Greece             |  4.587 | -4.342  23.007  0.896 |  -0.667  2.543  0.021 |
Italy              |  3.265 |  2.698   8.881  0.683 |   0.542  1.679  0.028 |
Netherlands        |  2.925 |  0.109   0.014  0.001 |   1.854 19.612  0.402 |
Portugal           |  2.297 |  0.867   0.918  0.143 |  -0.652  2.430  0.081 |
Scotland           |  3.631 | -2.868  10.037  0.624 |  -0.593  2.007  0.027 |
Slovenia           |  2.903 | -0.099   0.012  0.001 |   2.753 43.259  0.899 |
Spain              |  4.855 |  4.412  23.758  0.826 |   0.030  0.005  0.000 |
Sweden             |  3.748 |  3.037  11.254  0.656 |  -1.165  7.747  0.097 |
```

```
Variables
                                                           Dim.1    ctr   cos2    Dim.2    ctr   cos2
Contracts                                              |  0.563  4.648  0.317 | -0.144  1.413  0.021 |
Health...Safety                                        |  0.799  9.341  0.638 | -0.419 12.019  0.175 |
Training...Match.Environments                          |  0.741  8.032  0.548 | -0.204  2.839  0.041 |
Wages...Compensation                                   |  0.748  8.202  0.560 |  0.118  0.948  0.014 |
Workload                                               |  0.774  8.769  0.599 |  0.552 20.893  0.305 |
Employment...Promotion                                 |  0.889 11.577  0.790 | -0.030  0.063  0.001 |
Social.Protection                                      |  0.873 11.156  0.762 |  0.094  0.609  0.009 |
Player.Data.Protection                                 |  0.658  6.332  0.432 |  0.600 24.635  0.360 |
Freedom.of.Association...Collective.Bargaining         |  0.765  8.570  0.585 | -0.502 17.255  0.252 |
Non.Discrimination                                     |  0.723  7.648  0.522 |  0.426 12.434  0.182 |
Access.to.Remedy                                       |  0.776  8.826  0.603 | -0.194  2.567  0.037 |
Education                                              |  0.686  6.900  0.471 | -0.251  4.326  0.063 |
```

c.   Description of Dimension 1

The dimension 1 opposes individuals such as Spain, Sweden and Italy (on the right of the graph, characterised by a strong positive coordinate on the axis) to individuals such as Greece, France and Scotland (on the left of the graph, characterised by a strong negative coordinate on the axis).

PCA Graph of Individuals
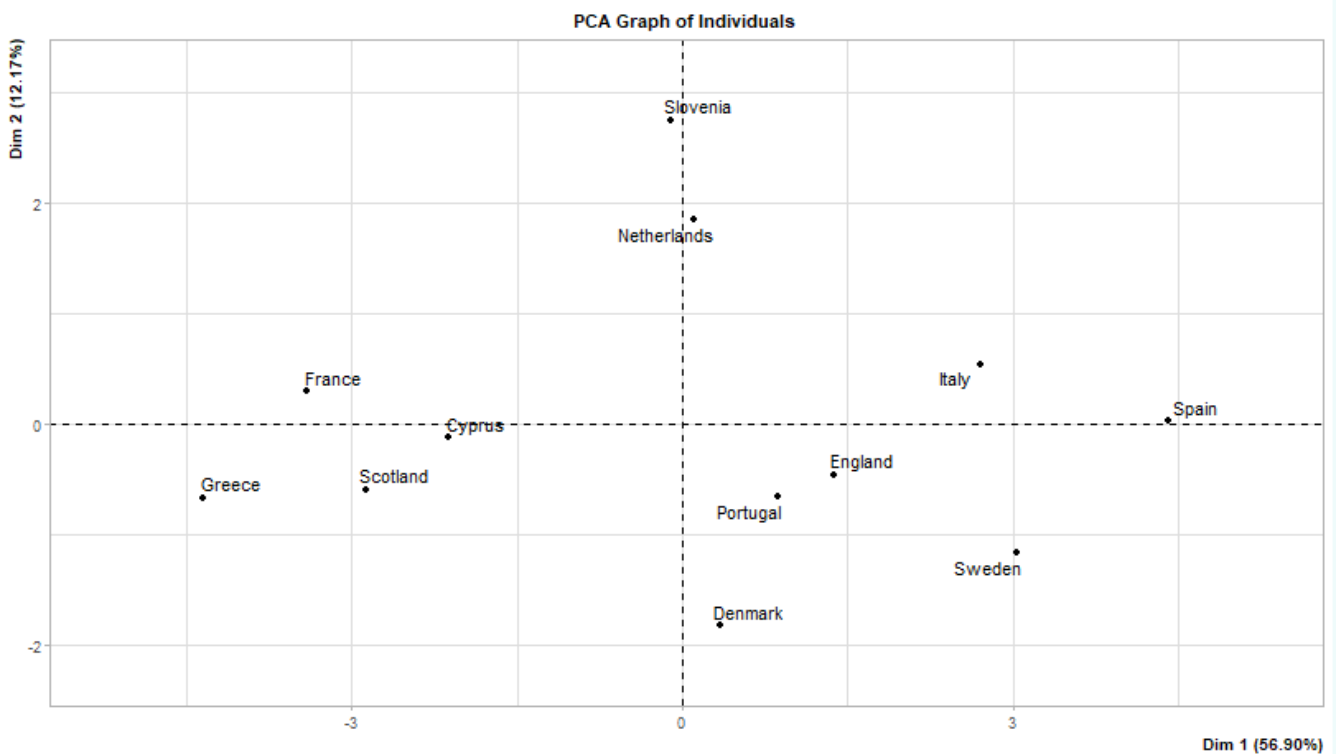
The group in which the individuals Spain, Sweden and Italy stand (characterized by a positive coordinate on the axis) is sharing high values for the following variables: 'employment & promotion', 'freedom of association & collective bargaining', 'access to remedy', 'health & safety', 'workload', 'contracts' and 'social protection' (in descending order).

The group in which the individuals Greece, France and Scotland stand (characterized by a negative coordinate on the axis) is sharing low values for the following variables: 'employment & promotion', 'social protection', 'training & match environments', 'wages & compensation', 'workload', 'education', 'non-discrimination', 'player data protection' and 'access to remedy' (in descending order).
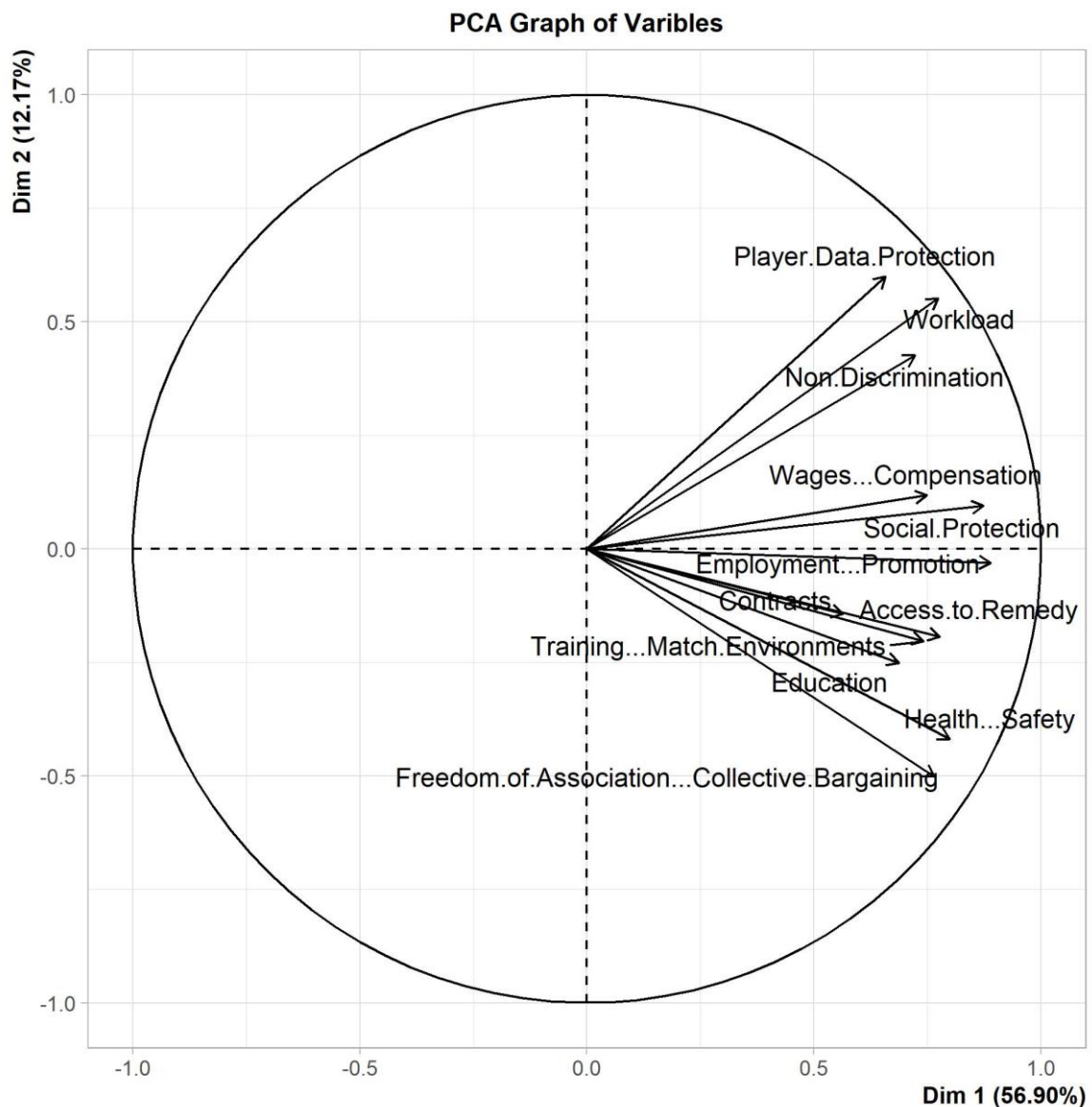
3) Ascending hierarchical classification

The ascending hierarchical classification has revealed 4 clusters. The Cluster 1 includes Cyprus, France, Greece and Scotland; the Cluster 2 includes Netherlands and Slovenia; the

Cluster 3 includes England, Danmark and Portugal and the Cluster 4 includes Italy, Spain and Sweden.

Cluster Dendrogram
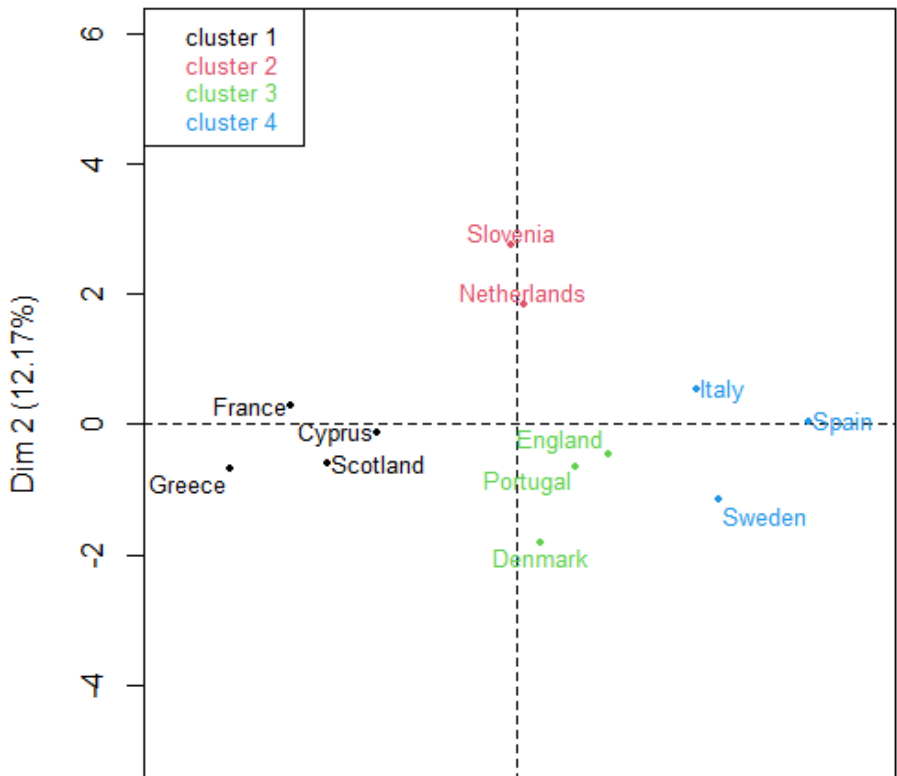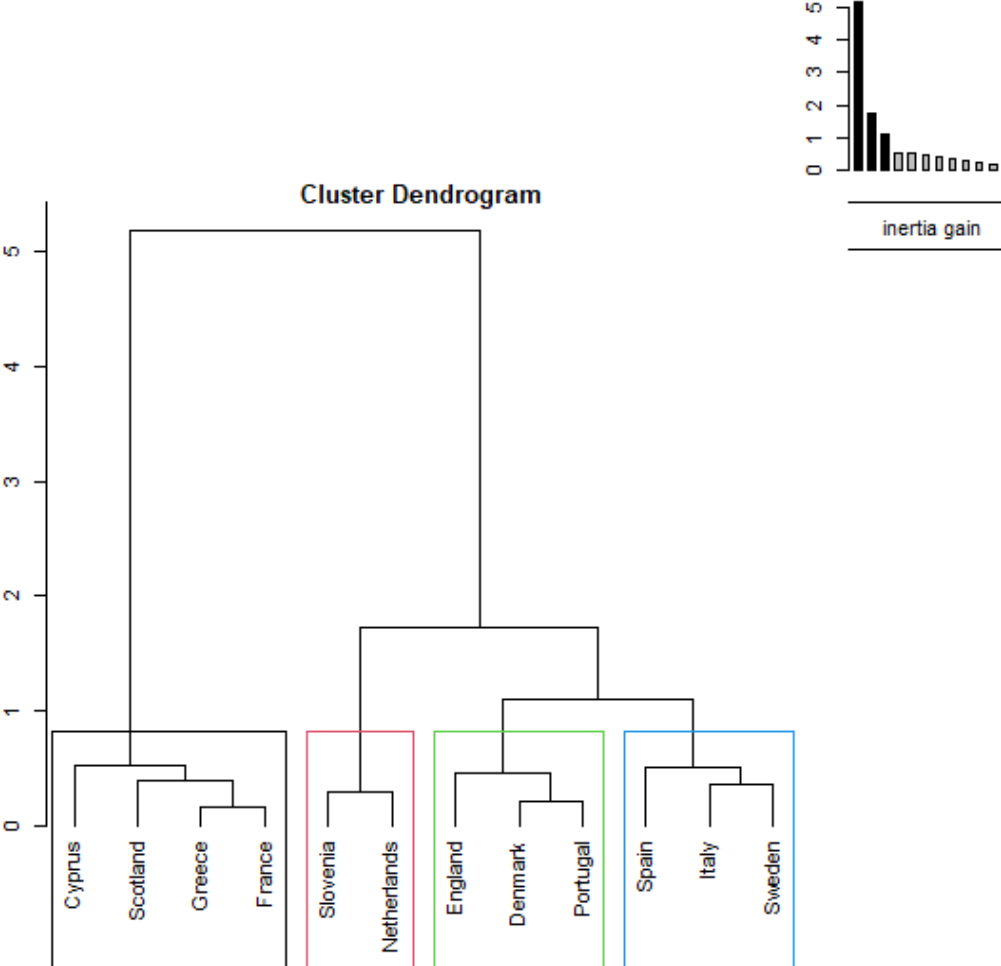
The Cluster 1 (Cyprus, France, Greece and Scotland) is characterised by low values for the following variables: employment & promotion, social protection, training & match environments, wages & compensation, workload, education, non-discrimination, player data protection and access to remedy (in descending order). To say it in other words, they strongly underperform the other countries in these areas (i.e., the mean in the cluster is significantly lower than the overall mean in each of these areas). These countries should pay a specific attention in improving the aforementioned areas of the 'Wheel of Conditions'.

```
$`1`
                           v.test Mean in category Overall mean sd in category Overall sd   p.value
Access.to.Remedy         -2.010917        18.750000      38.54167        6.250000  23.08179 0.044334198
Player.Data.Protection   -2.123784         7.142857      40.47619       12.371791  36.80863 0.033688175
Non.Discrimination       -2.266152         2.083333      39.58333        3.608439  38.80820 0.023442054
Education                -2.268470        47.500000      68.33333       21.650635  21.53808 0.023300549
Workload                 -2.280180        18.750000      41.66667       10.825318  23.57023 0.022597042
Wages...Compensation     -2.465058        21.153846      45.51282       18.344985  23.17465 0.013699106
Training...Match.Environments -2.494632   10.227273      39.39394        8.115260  27.41964 0.012608795
Social.Protection        -2.631515        37.500000      65.62500       15.309311  25.06502 0.008500515
Employment...Promotion   -2.704290        25.000000      52.50000       11.180340  23.84848 0.006845043
```

The Cluster 2 (Netherlands and Slovenia) is characterised by variables whose values do not differ significantly from the overall means. It means that they should prioritize the areas of the 'Wheel of Conditions' with low scores such as 'freedom of association & collective bargaining' and 'health & safety'.

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$`2`
NULL
```

The Cluster 3 (England, Denmark and Portugal) is characterized by high values for the variable 'training & match environments'. To say it in other words, they strongly overperform the other countries in this area (i.e., the mean in the cluster is significantly higher than the overall mean in this area). These countries could thus act as role models and widespread good practices in this area (which is one with a low global score in the sample). It also means that they should prioritize the areas of the 'Wheel of Conditions' with low scores such as 'freedom of association & collective bargaining', 'health & safety' and 'access to remedy'.

```
$`3`
                               v.test Mean in category Overall mean sd in category Overall sd    p.value
Training...Match.Environments 2.116216          69.69697      39.39394       7.725787   27.41964 0.03432641
```

The Cluster 4 (Italy, Spain and Sweden) is characterized by high values for the following variables: 'employment & promotion', 'freedom of association & collective bargaining', 'access to remedy', 'health & safety', 'workload', 'contracts' and 'social protection' (in decreasing order). To say it in other words, they strongly overperform the other countries in these areas (i.e., the mean in the cluster is significantly higher than the overall mean in each of these areas). It also means that they do not significantly underperform the other countries in the other areas. These countries could thus act as role models and widespread good practices in the aforementioned areas, especially in 'freedom of association & collective bargaining', 'health & safety' and 'access to remedy' which are the ones with low global scores in the sample. They should also focus on the improvement of the other areas even if they do not underperform the other countries.

```
$`4`
                                                    v.test Mean in category Overall mean sd in category Overall sd
Employment...Promotion                             2.475686        83.33333     52.50000       9.428090   23.84848
Freedom.of.Association...Collective.Bargaining     2.432192        55.55556     25.00000      15.713484   24.05626
Access.to.Remedy                                   2.333236        66.66667     38.54167      21.245915   23.08179
Health...Safety                                    2.088159        49.12281     27.63158       4.962153   19.70758
Workload                                           2.031010        66.66667     41.66667      11.785113   23.57023
Contracts                                          2.015946        93.33333     68.33333       9.428090   23.74634
Social.Protection                                  1.989466        91.66667     65.62500      11.785113   25.06502
                                                      p.value
Employment...Promotion                             0.01329806
Freedom.of.Association...Collective.Bargaining     0.01500777
Access.to.Remedy                                   0.01963574
Health...Safety                                    0.03678346
Workload                                           0.04225402
Contracts                                          0.04380559
Social.Protection                                  0.04664983
```

In addition, we have identified the paragons (i.e., the average profile of a particular cluster) for each cluster. France, Netherlands, Denmark and Italy are the paragons of their respective clusters.

```
Cluster: 1
  France   Greece Scotland   Cyprus
1.307350 1.668011 1.959139 2.183986
----------------------------------------------------------------
Cluster: 2
Netherlands    Slovenia
   1.330618    1.330618
----------------------------------------------------------------
Cluster: 3
 Denmark Portugal  England
1.135091 1.794864 1.926315
----------------------------------------------------------------
Cluster: 4
   Italy   Sweden    Spain
1.771794 1.782276 2.032791
```

4) Limitations

At this stage of the project, one should take into account a (potential) limitation. All the indicators used in the above analyses have the same weight. The next steps of the project (i.e., the 'Findings workshop' and the players' workshops) will help to determine whether (a) some indicators should be added, removed or edited and (b) if some indicators should have greater or lesser weight. Any modification of the indicators will – de facto – modify the above analysis. If needed, an edited cluster report will be produced.