The French Standard Group «FR2013»

What is a Standard Group?

A standard group is used as an indication of how a population will typically score on one of the 48 patterns of the iWAM. The indication is a range of typical scores. jobEQ uses this range on its feedback reports in order to give a relative indication of where a person scores in comparison to others. The standard group can be any group, such as a team of sales people, all employees of a certain organization, or the population of a country. In this case the standard group represents the French working population.

Once we know how a group typically scores, we can determine, in relative terms, whether a person's score is lower than, the same as, or higher than that of a particular population.

iWAM standard groups are calculated by taking the means of a sample of a group, adding one standard deviation to these means to find the upper limit of the standard group and subtracting one standard deviation from the mean to find the lower limit. If we presuppose that the population is approximately normally distributed, we know by definition that approximately two-thirds of the population will fall within the standard group range for the scale. In addition, we can assume that 1 out of 6 individuals will score higher than the standard group and 1 out of 6 will score lower.

Purpose of a Standard Group?

Standard groups are not intended to add statistical validity. Rather, standard groups help people understand the test results by showing how individuals compare to a given population or group. We use a standard group in iWAM reports to generate visual charts and/or textual explanations of a person's scores as those in the standard group would experience them.

Standard groups are less relevant when jobEQ questionnaires are used for making decisions such as in hiring or promotions. A more useful technology for making decisions in these cases is to compare an individual's scores to those of top performers in a certain position. This kind of comparison uses jobEQ's *Model of Excellence* technology.

Purpose of this paper

This paper will explain how the French Standard Group of 2013 is constructed. First the working population of France and the used sample is documented with essential demographics like gender, age and occupation. Further descriptive characteristics concerning meta-programs are displayed. The extent in which the standard group is representative for the French workforce population is discussed.

About the population

Based on the Census data (last update September 2012) of the French National Institute of Statistics and Economic Studies (Institut National de la Statistique et des Etudes Economiques), one can conclude that France has an active working population of circa 28.4 million people. The current national labor force consists out of 52.26% male workers and 47.74% female employees. Four age categories are represented as following: 15 to 24 year olds 10.02%, 25 to 49 year olds 64.16%, 50 to 64 year olds 25.12%, and 65 years or older 0.70%. Also general information concerning occupations was provided by the National Institute.

About the sample

The 2013 Standard Group is based on 770 persons working in France, who completed the iWAM questionnaires between January 2002 and April 2013. Of this group 28.44 % completed the iWAM in the on-line demo environment. The rest of the sample participated in various research projects and commercial projects conducted in French work environments. A comparison with the 2000 sample was not relevant since there were only 154 respondents representing France in that period.

Filters

The following filters where used to construct the 2013 Standard Group:

- First a test criteria filter was used: people who left more than 6 items of 40 unchanged in the questionnaire were not used because of reliability reasons: the test administration of people who leave more 15% of the items unchanged is considered as not valid;
- Duplicate candidates were filtered out as well;
- Students were filtered out because they have almost no experience in a work environment;
- The following occupation categories were deleted as well cause of 'not representative for the French working population': 'homemaker', 'retired' and 'unemployed/between jobs';
- To prevent distortion by one or more major clients, persons from major commercial projects were filtered out[1].

Gender

Concerning gender, the sample represents closely the working population in France. The sample has a 51/49 male-female ratio whereas the population has a 52/48 ratio. A chi-square test ($\chi 2$ (1) = 0.464, p= 0.50) shows that the sample distribution is not significantly different to the population distribution.

[1] A common mistake in creating standard groups for tests is to rely only (or mainly) on a 'sample of convenience' (i.e. a student population or data from one organization) which is an example of nonprobability sampling which can provoke bias in the standard group.

Table 1: Comparison of iWAM Standard Group 2013 and working population

iWAM Standard Group	n	%	Working population	N	%
Male	393	51.04	Male	14.838.000	52.26
Female	377	48.96	Female	13.552.000	47.76
Total	770	100.00	Total	28.390.000	100.00

Age

If we compare age categories in table 2 (see also Appendix 1) we can state that the 2013 Standard Group represents very closely the age categories of the working population in France: The categories at both ends show a minor under-representation (3.1% and 5.8%). The difference found in the category 15-24 years, old showing an under-representation, is a normal finding. Most people who take the iWAM had some extra years of education and are 21 years or older whereas in the working population this is not the case. Because the iWAM is constructed to measure motivation and attitude in a work environment, people under 18 years can be considered as a source of distortion. The 'unknown' category contains more than 10% of the sample.[2]

Table 2: Comparison of iWAM Standard Group 2013 and working population (age)

iWAM Standard Group	n	%	Working Population	N	%
15-24	53	6.88%	15-24	2.846.000	10.02%
25-49	485	62.99%	25-49	18.214.000	64.16%
50-64	149	19.35%	50-64	7.132.000	25.12%
65+	1	0.13%	65+	198.000	0.70%
Unknown	82	10.65%	Unknown		
Total		100.0	Total	28.390.000	100.0

Occupation

Table 3 shows the distribution of the occupation categories of the standard group. As one can see the occupations of the respondents are quite varied ranging from less than 1% ('Government/military') up to almost 17% ('Consulting'). The category 'Other' accounts for 12% indicating that their profession is other than the categories mentioned.

In the census data, we find two categorizations: one classification that gives insight in the different sectors of employment and one that gives information about the socio-professional categories (see Appendices 2 and 3 for detailed information). To make a comparison, we used the socio-professional classification (see also last column in table 3).

[2] This can be related to two facts: first, in the early version of the iWAM there was no option to administer extra variables like occupation etc… Second, now the possibilities are available to question more variables, it is possible that in client projects (where people are asked via the 'invite option') people do not necessarily fill out the extra parameters. That is the explanation why the category 'NOT SPECIFIED' shows a strong presence in the sample.

Table 3: Comparison of iWAM Standard Group (occupations)

iWAM Standard Group 2013	n	%	Socio-professional
[NOT SPECIFIED][3]	214		
Accounting/Finance	24	4.32%	Cadres et professions intellectueles supérieures
Computer related (Internet + other)	30	5.40%	Cadres et professions intellectueles supérieures
Consulting	93	16.73%	Cadres et professions intellectueles supérieures
Customer service/support	9	1.62%	Employés
Education/training	65	11.69%	Professions intermédiaires
Engineering	27	4.86%	Cadres et professions intellectueles supérieures
Executive/senior management	73	13.13%	Artisans, commerçants et chefs d'entreprise
General administrative/supervisory	39	7.01%	Employés
Government/Military	3	0.54%	Employés
Manufacturing/production/operations	8	1.44%	Ouvriers
Other	67	12.05%	
Professional (medical, legal, etc.)	31	5.58%	Cadres et professions intellectueles supérieures
Research and development	11	1.98%	Cadres et professions intellectueles supérieures
Sales/marketing/advertising	55	9.89%	Employés
Self-employed/owner	21	3.78%	Artisans, commerçants et chefs d'entreprise
Total	770	100.00%	

More than 20% of the working people in France is blue collar labor force. In comparison to the sample data we find the standard group contains a large under-representation of these workers. This under-representation of blue collar workers (less than 2%) can be justified by the fact that the iWAM was constructed for white collar workers. The same rationale is applicable to the socio-professional category 'Agriculteur, exploitants' which cannot be found in the jobEQ categories.

The category 'Cadres et professions intellectuelles supérieures' can be linked to the jobEQ categories 'Accounting/Finance', 'Computer related (Internet + other)', 'Consulting', 'Engineering', 'Professional (medical, legal, etc.)' and 'Research and development'. This socio-professional category accounts for 17.5% of the French working population whereas in the sample these occupations represent 38.9%.

The category 'Employés' contains 28.3% of the active workforce in France; in the sample we find 19.1% containing jobEQ categories like 'Customer service/support', 'General administrative/supervisory', 'Government/Military' and 'Sales/marketing/advertising'.
The category 'Professions intermédiaires' accounts for 24.4%, in the standard sample only the 'Education/training' category could be matched to this socio-professional group representing 11.7%.

The socio-professional category 'Artisans, commerçants et chefs d'entreprise' can be linked to 'Self-employed/owner' and 'Executive/senior management, respectively accounting for 6.5% of the population and 16.9% of the sample.

Despite a somewhat difficult comparison between a very general classification on one hand and very specific one on the other hand, the 16 jobEQ occupation categories in the standard group are well varied, showing widespread heterogeneity in different occupations.

[3] This category was not taken into account to calculate percentages of the sample.

Meta-programs

Table 4 shows the absolute means, standard deviations and standard errors of the 48 patterns. The absolute averages of the meta-programs range from 16% up to 74%. All parameters show a sufficient variation in scores (standard deviations ranging from 14% to 24%). The averages and standard deviations of each scale are used to calculate the individual norm groups.

Table 4: patterns of iWAM Standard Group 2013: means, standard deviations and standard errors

pattern	Mean	SD	SEM	pattern	Mean	SD	SEM	pattern	Mean	SD	SEM
OF1PA	53.01%	17.89%	0.64%	So1A	16.02%	15.97%	0.58%	Co1A	72.87%	15.54%	0.56%
OF1MA	40.25%	15.24%	0.55%	So2A	76.25%	15.15%	0.55%	Co2A	32.98%	20.90%	0.75%
OF2PA	73.86%	19.40%	0.70%	So3A	63.19%	16.17%	0.58%	Co3A	29.29%	23.49%	0.85%
OF2MA	32.93%	17.66%	0.64%	WA1A	48.64%	17.56%	0.63%	Co4A	57.28%	19.34%	0.70%
OF3PA	65.91%	18.70%	0.67%	WA2A	72.70%	15.51%	0.56%	Co5A	53.96%	17.81%	0.64%
OF3MA	33.57%	18.39%	0.66%	WA3A	59.35%	17.90%	0.65%	Co6A	44.24%	27.75%	1.00%
OF4PA	68.34%	18.03%	0.65%	TP1A	63.19%	15.42%	0.56%	Co7A	42.81%	19.76%	0.71%
OF4MA	25.58%	22.04%	0.79%	TP2A	68.92%	16.18%	0.58%	Co8A	40.94%	21.86%	0.79%
OF5PA	68.99%	21.04%	0.76%	TP3A	63.75%	15.38%	0.55%	IF1A	58.88%	17.04%	0.61%
OF5MA	29.03%	18.78%	0.68%	Mo1A	35.53%	18.25%	0.66%	IF2A	37.95%	20.22%	0.73%
OF6PA	47.80%	22.33%	0.80%	Mo2A	39.10%	19.46%	0.70%	IF3A	55.36%	16.48%	0.59%
OF6MA	38.30%	18.43%	0.66%	Mo3A	65.31%	18.43%	0.66%	IF4A	68.38%	15.99%	0.58%
OF7PA	60.63%	23.99%	0.86%	N1A	44.35%	15.75%	0.57%	IF5A	41.03%	20.84%	0.75%
OF7MA	22.22%	23.96%	0.86%	N2A	16.12%	15.49%	0.56%	IF6A	54.34%	16.90%	0.61%
OF8PA	54.18%	22.05%	0.79%	N3A	69.25%	14.01%	0.50%	IF7A	38.61%	17.66%	0.64%
OF8MA	45.17%	19.90%	0.72%	N4A	51.52%	19.25%	0.69%	IF8A	59.62%	20.24%	0.73%

Standard errors vary from 0.50% to 1.00% with an average of 0.67%. When .95 confidence intervals (i.e. mean $\pm$ 1.96 SEM) are constructed around the sample means, one can conclude that in 95% of the cases the mean will fall within a margin less than 1%. One can conclude that the estimation of the population means for the 48 patterns using the Standard Group 2013 (n=770) is quite accurate.

Conclusions

The data used in this research provides a substantial basis to build a new standard group which is far more representative in comparison to the 2000 sample. Demographics of the sample shows a distribution of men and women resembling the real life distribution of the working people in France.

When examining the age distribution, one will find that the sample is representative for the vast majority of the age groups. In perspective of the goal of the iWAM the mentioned under-representation in youngest category is strength instead of a weakness. Young people who have almost no working experience can bias the results. That is also one of the main reasons that the student population is filtered out.

Information about the socio-professional groups in the French working population allows a very general comparison with the predefined categories in the iWAM. The under-representation of blue collar workers is justified by the fact that the iWAM was constructed for white collar workers. Furthermore, despite some categories are somewhat over or under-represented due to the lack of more substantial differentiation in occupations, one can state that the sample contains a wide variety of specified occupation categories.

Looking at the descriptive statistics of the iWAM, we can report two important conclusions. First, we can state that the iWAM scales can measure quite accurately: all standard error measures are below 1.00%. Second, the scales show enough variation in scores (standard deviations up to 24%) to apprehend the heterogeneity of the standard group.

We can conclude that the French Standard Group 2013 is well balanced and heterogeneous if you take into account gender, age and job occupation.

Appendix 1

Population active et taux d'activité selon le sexe et l'âge en 2011

Population active et taux d'activité selon le sexe et l'âge en 2011

en 2011

	Femmes	Hommes	Ensemble
Taux d'activité (en %)			
15 ans ou plus	51,7	61,8	56,5
15-64 ans	66,2	74,8	70,4
15-24 ans	34,9	41,6	38,3
25-49 ans	83,9	94,4	89,1
50-64 ans	55,2	62,2	58,6
dont : 55-64 ans	41,8	47,2	44,4
65 ans ou plus	1,4	2,7	1,9
Population active (en milliers)			
15 ans ou plus	13 552	14 838	28 390
15-64 ans	13 471	14 721	28 192
15-24 ans	1 290	1 555	2 846
25-49 ans	8 711	9 503	18 214
50-64 ans	3 469	3 662	7 132
dont : 55-64 ans	1 735	1 823	3 558
65 ans ou plus	81	117	198

Appendix 2

Population en emploi selon le sexe et le secteur d'activité en 2011

Population en emploi selon le sexe et le secteur d'activité en 2011

en %

Secteur d'activité1	Femmes	Hommes	Ensemble	Part des femmes
Agriculture, sylviculture et pêche	**1,9**	**3,8**	**2,9**	**30,9**
Industrie	**8,4**	**18,9**	**13,9**	**28,8**
Industries extractives, énergie, eau, gestion des déchets et dépollution	0,7	2,3	1,5	22,1
Fabrication de denrées alimentaires, de boissons et de produits à base de tabac	2,1	2,8	2,4	40,0
Cokéfaction et raffinage	0,0	0,1	0,1	20,9
Fabrication d'équipements électriques, éléctroniques, informatiques ; fabrication de machines.	1,1	2,6	1,9	28,1
Fabrication de matériels de transport	0,6	2,4	1,6	19,4
Fabrication d'autres produits industriels	3,9	8,8	6,5	28,6
Construction	**1,5**	**11,9**	**7,0**	**10,5**
Tertiaire	**87,8**	**65,0**	**75,8**	**55,0**
Commerce ; réparation d'automobiles et de motocycles	11,9	12,8	12,4	45,7
Transports et entreposage	2,8	7,0	5,0	26,4
Hébergement et restauration	3,9	3,6	3,8	49,4
Information et communication	2,0	3,7	2,9	33,1
Activités financières et d'assurance	4,0	2,7	3,3	57,3
Activités immobilières	1,4	1,0	1,2	55,6
Activités scientifiques et techniques ; services administratifs et de soutien	10,1	11,5	10,8	44,4
Administration publique, enseignement, santé humaine et action sociale	41,7	18,7	29,6	66,9
Autres activités de services	9,8	3,9	6,7	69,4
Activité indéterminée	**0,3**	**0,4**	**0,4**	**46,2**
Total	**100,0**	**100,0**	**100,0**	**47,5**
Effectif (en milliers)	**12 240**	**13 538**	**25 778**	**47,5**

Appendix 3

Population en emploi selon le sexe et la catégorie socioprofessionnelle en 2011

Population en emploi selon le sexe et la catégorie socioprofessionnelle en 2011

en %

	Femmes	Hommes	Ensemble
Agriculteurs exploitants	1,2	2,8	2,0
Artisans, commerçants, chefs d'entreprises	3,8	8,9	6,5
Cadres et professions intellectuelles supérieures	14,5	20,3	17,6
Professions intermédiaires	26,1	22,9	24,4
Employés	45,6	12,7	28,3
Ouvriers	8,7	32,3	21,1
dont :			
Ouvriers qualifiés	*3,4*	*23,2*	*13,8*
Ouvriers non qualifiés	*5,3*	*9,1*	*7,3*
Ensemble	**100,0**	**100,0**	**100,0**
Effectif (en milliers)	12 240	13 538	25 778