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A Research Report

United States Standard Group Study
for the
Inventory for Work Attitude and Motivation
[U.S. 2016]

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Executive Summary

According to jobEQ, the publisher of the iWAM, a standard group is an indication of how a population will typically score on an iWAM scale. A standard group is not a norm group in the classic sense in that it does not purport to represent a population of a country. Rather, it is a reference group based on individuals in the respective country who have taken the iWAM test. The standard or reference group provides a basis for an individual, group, or organization to see how his, her, or their scores compare with those of the standard group.

This is the third United States standard group created for the *Inventory for Work Attitude and Motivation* (iWAM). The two previous versions were created in 2001 and 2007. The number of individuals in this standard group is over four times larger than the group used for the one in 2007.

The methodology for creating and documenting the standard group involves analyzing the test results for the population of individuals who indicated that, in this case, the United States was their primary work country, removing those who do not meet the validity criteria for the test and only using the latest version of the iWAM for those who have retaken the test. In this case, the two kinds analysis involve (1) comparing the U.S. iWAM test-takers with the demographics of the U.S. workforce and (2) comparing the 2016 results with the results of the analysis for the 2007 standard group.

In comparing the current group with the U.S. workforce on four demographic variables, we conclude that:

- The proportion of men to women in the standard group is similar to that in the workforce

- The standard group may somewhat underrepresent younger individuals (teens and early 20s), but appears fairly comparable in terms of mid- and late career individuals as well as seniors.

- The standard group may underrepresent trades and crafts people while having more individuals who are technically/financially oriented (Computer, Engineering, Accounting/Finance).

- The standard group is definitely more formally educated than the U.S. workforce with far fewer individuals with a high school diploma or less and far more with some college, a bachelor's degree, or advanced degree.

When comparing the 2016 standard group to the 2007 standard group, we conclude that:

- The 2007 standard group had a larger proportion of women than men; 2016 reversed the proportions and is more similar to the proportions in the U.S. workforce.

- Young professional, mid-career, and late career percentages all declined in 2016 while the senior percentage increased significantly. The change may have occurred because of the large number of individuals (20.68%) who left this demographic blank.

- In terms of occupation, there were some moderate decreases and increases for the 2016 group with the largest increases coming in the "Executive/Senior Management," "Engineering," and "Accounting/Finance."

- There were decreases in the percentages in every category for education, but, as for the age category, there was a significant increase in the "Unknown" category (from 6.61% to 23.33%). The size of the unknown group for this and other variables is likely a result or providing open free access to the test for individuals who want to understand the iWAM or who want to explore it before using it in an organization. Individuals are not required to provide demographic information in order to complete the test.

We also compared the mean scores and variance between the 2016 and 2007 standard group for the 48 iWAM scales. The tables also contain a notation on the comparison between the 2001 and 2007 standard groups.

For the 48 scales, we learned that 16 scales were statistically significantly lower, 14 were significantly higher, and there was no difference between the two groups for 18 scales when we combined the "Borderline" group with the no-significant difference group. These results suggest that there is some increasing differentiation among the scales with an equal number being significantly higher and lower. We also concluded that there are some meaningful shifts reflected in the current standard group.

For a scale-by-scale analysis see the last section of the report and the table in Appendix A.

Inventory for Work Attitude and Motivation:
2016 United States Standard Group Study

The original United States Standard Group was created by jobEQ in 2001 based on population of U.S. residents who completed the iWAM from the launch of the online version until the time of the research. Between the creation of the initial standard group and 2007, the number of individuals completing the *Inventory for Work Attitude and Motivation* increased tenfold.

By the end of 2015, over 8,000 individuals who listed the United States as their primary work country had completed the iWAM.

Because of the rapid expansion of the iWAM and in an attempt to keep the reference group for the United States up-to-date, the Institute for Work Attitude and Motivation, jobEQ's partner and distributor for North America, created the current U.S. Standard Group based on the individuals who completed the iWAM.

The procedure to identify who would be included in the analysis involved analyzing all the United States Closed User Groups (test centers) and:

- Removing anyone who listed another country as their primary work country

- Removing duplicate iWAM results (a number of individuals had taken the iWAM more than once; only the latest test administration was included in the analysis)

- Removing anyone with 8 or more unchanged items (8 or more unchanged items increase the probability that the iWAM results for the individual may not be valid).

United States workforce statistics for 2015 were downloaded from the U.S. Department of Labor's Bureau of Labor Statistics. These data provide the basis for comparing the iWAM Standard Group population with the demographics of the U.S. workforce. As you will see, however, the demographic categories for the iWAM do not align perfectly with the data categories for the Department of Labor.

There are two additional factors to consider. First, because of European law, jobEQ does not collect data on ethnicity or racial origin. As a result there is no category for that demographic. Second, test-takers are not required to provide demographic information in order to complete the iWAM. As a result, the data tables have a category called "Not Specified" to indicate how many individuals left the demographic categories blank.

This standard group research project was conducted under the auspices and supervision of jobEQ, the publisher of the *Inventory for Work Attitude and Motivation* (iWAM).

Comparing the U.S. 2016 Standard Group to the U.S. Workforce

The 2016 United States Standard Group is based on 7931 individuals who indicate that the U.S. is their primary work country and who completed the iWAM questionnaire since its online launch by jobEQ in 2000. When comparing the 2016 Standard group demographics to the most recent data from the U.S. Department of Labor Statistics, we concluded that the Standard Group is generally representative of the current U.S. workforce with some exceptions which are discussed below.

An additional factor is than in the 2016 Standard Group, over 27% of the sample selected 'Other' or did not specify their occupation. Although this is less than we found in the 2007 analysis (over 34%), it will impact some of the percentages and proportions in the data tables.

The comparison of the iWAM standard group to the U.S. workforce data begins on the following page.

Gender

Although the relative size of the respective groups is similar to the U.S. workforce, there is a slightly higher proportion of women in the iWAM standard group than in the workforce (48.58% vs. 46.78%).

Table 1: 2016 iWAM vs. U.S. Employment Gender Dispersion

iWAM Data	n	%	U.S. Employment[1]	%
Male	4052	51.09%	Male	53.22%
Female	3853	48.58%	Female	46.78%
Not Specified	26	0.32%		

We do not anticipate that this difference will have a significant effect on the standard group.

Age

As you can see in Table 3, the age categories of the jobEQ demographics and the U.S. data are not perfectly aligned. As a result, we have to make judgments about the extent to which the standard group is representative of the U.S. workforce.

Table 2: 2016 Standard Group vs. U.S. Employment Age Group Dispersion

iWAM Standard Group Data		N	%	U.S. employment[1]	%
Youth	<21 years	7	0.08%	<19	3.18%
Young Professional	21-30 years	510	6.43%	20-24 years	9.42%
Mid-Career	31-44 years	1901	23.96%	25-34 years	22.00%
				35-44 years	21.00%
Late-Career	45-60 years	2564	32.32%	45-54 years	21.93%
Senior	>60 years	1280	16.13%	55-64 years	16.78%
				>65 years	5.69%
Unknown		1669	21.04%		

In general, the iWAM standard group has less young individuals in it compared to the U.S. workforce. The standard group is probably underrepresented in both the "Youth" and "Young Professional" categories.

In the 31 to 60+ range, the iWAM data appear comparable to the U.S. workforce.

Occupations

This is a difficult category to analyze because the U.S. workforce data are more numerous and require some combinations in order to create a comparison. Notes to the table indicate how we created comparable categories. See Table 3. As noted in the introduction, slightly over 27% of the iWAM group indicated "Other" or did not specify an occupation.

In addition, as noted in the table, there are several categories in the iWAM demographics for which there is no counterpart in the U.S. workforce data. Those categories are indicated with "N/A" in the U.S. data column.

There appear to be five possible differences between the U.S. standard group and the workforce population:

- The standard group appears to have more computer-related individuals than the workforce

- There may be more executives/senior management in the U.S. workforce. It is difficult to be certain of this difference because of the way we combined the workforce data.

- The standard classification "Engineering" is significantly larger than the comparable category in the workforce data.

- There is a higher proportion of individuals in the "Manufacturing/production/operations" category in the workforce than in the standard group. We noted, however, that a number of people in this category could include the jobEQ category "Tradesman/craftsman."

- There are about 1.5% more individuals in the standard group in the "Accounting/Finance" category than in the workforce (6.36% vs. 4.78%)

In general, we conclude that the standard group is more managerial/professional than the U.S. workforce. This is same conclusion we reached in the analysis of the 2007 U.S. standard group.

Table 3: JobEQ Occupation/Employment Categories 2016 vs. U.S. Employment

iWAM Standard Group by Occupation	2016 n	%	U.S. %
Government/Military	212	2.67%	2.81%
General administrative/ supervisory	365	4.60%	5.98%[1]
Computer related (Internet & other)	353	4.44%	2.94%[2]
Sales/marketing/advertising	524	6.60%	7.71%
Student	505	6.36%	N/A[3]
Consulting	311	3.92%	N/A
Unemployed/Between Jobs	134	1.68%	N/A
Executive/Senior management	742	9.35%	11.4%[4]
Professional (medical, legal, etc.)	427	5.38%	4.03%[5]
Engineering	449	5.66%	1.98%[6]
Self-employed/owner	178	2.24%	N/A
Education/training	401	5.05%	5.99%[7]
Manufacturing/production/operations	254	3.20%	5.18%[8]
Accounting/Finance	505	6.36%	4.78%[9]
Customer service/support	250	3.15%	1.53%[10]
Research and development	88	1.10%	N/A
Tradesman/craftsman	33	0.41%	See Note 8
Homemaker	16	0.20%	N/A
Retired	28	0.35%	N/A
Other	751	9.46%	N/A
[Not Specified]	1405	17.71%	N/A

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[1] Includes "First-line supervisors. . ." only.

[2] Includes "Computer and mathematical occupations."

[3] Any category marked "N/A" (not applicable) did not have a comparable category in the federal employment statistics.

[4] Includes all "Management occupations" of which 1.0% are CEOs. The remainder are managers of various functions which would include senior executives. There is no way to subdivide the U.S. Government categories. There are, however, separate categories for "supervision."

[5] A variety of legal and medical professionals are included in this category. There may have been individuals who checked this category who are from other professions.

[6] Includes "Architecture and engineering occupations."

[7] Includes "Education, training, and library occupations."

[8] Includes "Production occupations" minus the supervision category. We are inclined to include the "Tradesman/craftsman" category from jobEQ (below) with this group. If we do that, the total is 3.62% which is still less than the U.S. employment percentage.

[9] Includes "Business and financial operations occupations."

[10] This number includes only the "Customer service representative" category. Other categories may be included in the jobEQ statistic.

Education

As we indicated in the footnote, the "1-6 years" category is probably lower than indicated. That fact, if true, makes the difference between the 2016 standard group and the U.S. workforce even larger.

Table 4: 2016 iWAM vs. U.S. Employment Education Dispersion

iWAM Data	n	%	U.S. Employment[1]	%
1-6 years[11]	288	3.63%	< 12 years	11.39%
7-12 years	491	6.19%	12 years (HS graduate)	29.08%
13-15 years	1086	13.69%	13-15 years	26.51%
16-21 years	3914	49.35%	Bachelor's Degree	20.77%
			Advanced Degree	12.24%
Unknown	1879	23.69%		
Other	273	3.44%		

Even though the categories are not perfectly aligned, it is clear that the iWAM standard group is significantly more formally educated than the U.S. workforce.

Summary: Standard Group versus the U.S. Workforce

Based on the analysis, compared to the U.S. workforce, we conclude that the U.S. 2016 Standard Group is:

- There is a slightly higher percentage of women in the U.S. standard group (48.58%) than in the workforce (46.78%).

- The U.S. standard group is underrepresented in the younger age groups, but appears fairly comparable in the other categories.

- In general, the U.S. standard group is more managerial and professional than the U.S. workforce.

- While a fairly large proportion of the U.S. standard group (over 27%) did not specify their level of education or were categorized as "Other," the portion of the standard group that specified education level indicates that the standard group has significantly more formal education than the overall workforce.

The next section of the report is a comparison of the 2007 and 2016 U.S. standard groups.

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[11] This category has some errors in it. For example, we noticed that several individuals known to be in pursuit of an undergraduate college degree listed who their years of education as less than six.

2016 U.S. Standard Group vs. 2007 U.S. Standard Group

The 2016 iWAM sample size for the United States standard group (N=7931) is over four times larger than for the 2007 standard group (N=1921). The demographic comparisons of the 2016 and 2007 standard groups are summarized in the following sections.

Gender

The proportion of women to men reversed between 2007 and 2016 (see Table 5). In the previous standard group over 53% of the participants were female with only slightly more than 45% being male.

Table 5: 2007 iWAM vs. 2016 iWAM Gender Distribution

iWAM Data	N	%	N	%
Male	867	45.13%	4185	51.01%
Female	1032	53.72%	3990	48.64%
Not Specified	22	1.14%	28	0.34%

The relative proportions in this standard group are more similar to the demographics of the U.S. workforce than was the previous standard group. There was also a decrease in the number of individuals who did not provide gender information.

Age

There were two significant changes in the age data (see Table 6). First, there was a marked decrease in the "Young Professional" category (18.16% to 6.64%). Second, there is a significant increase in the percentage of individuals who did not provide age data (5.77% to over 20%).

Table 6: 2007 iWAM vs. 2016 U.S. Employment Age Group Dispersion

Category	Age Range	2007 Data		2016 Data	
		N	%	N	%
Youth	<21 years	15	0.78%	12	0.14%
Young Professional	21-30 years	349	18.16%	545	6.64%
Mid-Career	31-44 years	568	29.56%	1994	24.30%
Late Career	45-60 years	741	38.57%	2638	32.15%
Senior	>60 years	137	7.13%	131	16.05%
Unknown		111	5.77%	1696	20.68%

While there were declines in the percentage of "Mid-Career" and "Late Career" participants, the percentage of "Seniors" increased from 7.13% to 16.05%. Because of the large number of individuals in the "Unknown" category, it is difficult to conclude if there is an actual difference in the age groupings between 2007 and 2016.

Occupation

Note that the 2007 data tables did not contain a category called "Retired." Since the number is small (28), that group does not have a significant impact on the overall standard group profile. See Table 7. One positive factor is that the proportion of individuals who did not enter an occupation was significantly lower (17.67% vs. 25.24%). The more individuals who designate their occupation, the better the data in the standard group.

Table 7: JobEQ Occupation iWAM Employment Categories 2007 vs. 2016

iWAM Standard Group by Occupation	2007		2016	
	n	%	n	%
Government/Military	32	1.66%	218	2.65%
General administrative/ supervisory	74	3.85%	376	4.58%
Computer related (Internet & other)	98	5.09%	279	3.14%
Sales/marketing/advertising	135	7.02%	532	6.48%
Student	153	7.96%	556	6.77%
Consulting	100	5.2%	316	3.85%
Unemployed/Between Jobs	41	2.13%	140	1.70%
Executive/Senior management	134	6.97%	754	9.19%
Professional (medical, legal, etc.)	111	5.77%	441	5.37%
Engineering	61	3.17%	457	5.57%
Self-employed/owner	62	3.22%	185	2.25%
Education/training	96	4.99%	421	5.13%
Manufacturing/production/operations	28	1.45%	260	3.16%
Accounting/Finance	58	3.01%	513	6.25%
Customer service/support	40	2.08%	269	3.27%
Research and development	16	0.83%	88	1.07%
Tradesman/craftsman	12	0.62%	38	0.46%
Homemaker	6	0.31%	18	0.21%
Retired			28	0.34%
Other	170	8.84%	777	9.40%
[Not Specified]	485	25.24%	1450	17.67%

A number of categories had minimal changes in percentage (≤ 0.25%). These include "Research and Development," "Tradesman/craftsman," "Education/training," and "Homemaker."

Some categories had modest decreases (0.5-0.99%) including "Computer related" and "Self-employed/owner" The "Unemployed/Between jobs" category declined by 0.45%.

Categories with modest increases include "General administrative/supervisory" and "Other."

"Manufacturing/production/operations" and "Customer service/support" increased more than 1%, but less than 2%.

The largest increases were for: "Executive/senior management" (2.35%), "Engineering" (2.5%), and "Accounting/Finance" (3.35%).

Education

The largest and most significant change between 2007 and 2016 was the increase in the "Unknown" category (see Table 8). This category includes everyone who left the option blank in the demographic section. At the same time, the "Other" category remained about the same.

Table 8: 2007 iWAM vs. U.S. Employment Education Dispersion

Years of Education	2007 Data		2016 Data	
	N	%	N	%
1-6 years	104	5.41%	319	3.88%
7-12 years	170	8.84%	539	6.57%
13-15 years	358	18.63%	1137	13.86%
16-21 years	1095	57.0%	4016	48.95%
Unknown	127	6.61%	1914	23.33%
Other	67	3.48%	278	3.38%

The 2016 group had lower percentages than the 2007 group in every age-group category. Quantitatively this is most likely due to the significant increase in the "Unknown" category.

Based on the comparison to the U.S. workforce (Table 4) and the conclusion from the 2007 standard group research, we will continue to assert that the U.S. standard group is more educated than the working population of the country.

Comparison of iWAM Pattern Scores: 2007 vs. 2016

When constructing the 2007 U.S. standard group, we compared the sample's iWAM scores to those in the 2001 U.S. standard group. We used absolute percent scores rather than relative percent scores to do the comparison. We discovered that all factors were significantly (p< .05) more varied according to the f-test statistic. We proposed that the result might reflect the fact that the 2007 standard group was more heterogeneous than the 2001 standard group, which could also have been an indicator that 2007 is more representative of the U.S. culture.

In 2016, we discovered that only 18 of the 48 iWAM scales had a significant f-test value (p≤ .00) suggesting that at least in terms of variability, the two groups are more similar than the previous two.

The remainder of the report describes the scale-by-scale comparisons of the 2007 and 2016 standard groups noting both the levels of significance and the direction of the change in the scores where significant. The table from on which this discussion is based is in Appendix A.

We begin with the scales that were not statistically significantly different and those for which the difference is defined as "borderline."

No Difference

There was no significant difference between the 2007 and 2016 standard groups for the following 13 iWAM scales:

- Initiation*
- Depth*
- Group Environment*
- Sameness*
- Evolution
- Power (-)
- Past*
- Future*
- Convinced by Seeing*
- Convinced by Examples (+)
- Convinced after a Period of Time*
- Focus on People (+)
- Focus on Activity*

We added an indicator after each scale to compare this outcome to the 2001 vs. 2007 analysis. Here are the meanings of the symbols:

* There was no significance difference between the 2001 and 2007 groups.

(-) The 2007 group had a significantly <u>lower</u> mean score than the 2001 group.

(+) The 2007 group had a significantly <u>higher</u> mean score than the 2001 group.

Borderline Difference

In the analysis portion of the jobEQ test system, they provide statistical output which shows the results of t-tests for which the probability (p) is >5, but less than .10. They classify this outcome as a "borderline difference." While most social science research conclusions about null or research hypotheses are based on a probability of .05 or less, the nature and complexity of humans is such that applying a strict criterion may cause us to overlook important factors.

The "borderline" range is the "gray area" of research on motivation and attitude. That is, if a difference is .05< p <.10, then the recommendation is that the researcher or professional might want to pay attention to the difference because it could be significant. Because this seems to be a useful principle and practice for an inexact science, we include the category in this document.

Here are the five scales and the direction of the difference for which the t-test and resulting probability are classified as borderline.

Table 9: "Borderline" t-test Results" for 2007 vs. 2016 Standard Groups

iWAM Scale	p =	Direction of the Difference
Reflecting & Patience*	.053	2007 is <1% different than 2016
Problem Solving (-)	.066	2007 is ~2% higher than 2016
Neutral Communication (-)	.063	2007 is ~1% higher than 2016
Shared Responsibility (+)	.062	2007 is <1% different than 2016
Use*	.0982	2007 is ~1% higher

There are two shared characteristics of the four scales: (1) four of the five scales are in the Operating Factors group and (2) in every case, the 2016 standard group average was significantly <u>lower</u> than the average for the 2007 standard group. The lower "Use" score may be related to the fact that the current standard group is more managerial/professional (i.e., less hands-on) than the overall work population.

As with the no-difference table in the previous section, we used the same code to indicate the outcome of the 2001 vs. 2007 analysis. This information tells us that Reflecting & Patience was lower for 2016. Problem Solving and Neutral Communication continued the trend of a declining average. While the average for Shared Responsibility was higher in 2007 than in 2001, the trend reversed with 2016 being lower than 2007.

Significant Differences

The last table shows the iWAM scales for which there were significant statistical (t-test) differences between the 2016 and 2007 standard groups. In addition to identifying the relevant scales, Table 10 provides three kinds of information:

- The middle column shows the p-value (probability) for the respective t-test and whether the variance (f-test) was significant for this scale (asterisks).

- Whether the 2016 mean was higher or lower than the 2007 mean (right-hand column)

- The results of the t-test for the 2001 vs. 2007 analysis (Left-hand column */+/-)

Table 10: iWAM Scale Tests of Significance for 2016 vs. 2007

iWAM Scale	p-value from t-test	2016 vs. 2007
2016 average is significantly higher than the 2007 average		
Goal Orientation*	0 (VIP)	2016 is 2% higher
External Reference*	0 (VIP)***	2016 is >1% higher
Follow Procedures*	0 (VIP)***	2016 is 6% higher
Breadth (+)	0 (VIP)	2016 is 2% higher
Sole Responsibility (-)	0.029 (SIG)***	2016 is >1% higher
Structure (+)	0 (VIP)	2016 is 1% higher
Assertiveness (+)	0 (VIP)	2016 is >1% higher
Compliance (+)	0 (VIP)	2016 is 3% higher
Convinced by Reading*	0 (VIP)***	2016 is 4% higher
Convinced by Consistency (+)	0 (VIP)***	2016 is 3% higher
Focus on Tools (-)	0 (VIP)	2016 is 2% higher
Focus on Systems*	0.003 (VIP)***	2016 is 1% higher
Focus on Place (-)	0 (VIP)***	2016 is 1% higher
Focus on Time (+)	0 (VIP)	2016 is 4% higher
2016 average is significantly lower than the 2007 average		
Individual Motives (+)	0 (VIP)***	2016 is 4% lower
Alternatives (-)	0 (VIP)***	2016 is 4% lower
Affective Communication*	0 (VIP)	2016 is 2% lower
Individual Environment (+)	0 (VIP)	2016 is 5% lower
Difference*	0 (VIP)	2016 is 2% lower
Concept (+)	0 (VIP)	2016 is 1% lower
Present *	0 (VIP)***	2016 is >1% lower
Affiliation*	0 (VIP)	2016 is 2% lower
Achievement (+)	0 (VIP)***	2016 is 4% lower
Indifference*	0 (VIP)	2016 is 3% lower
Tolerance (-)	0 (VIP)	2016 is 4% lower
Convinced by Hearing*	.037 (SIG)***	2016 is 2% lower
Convinced by Doing*	0 (VIP)***	2016 is 3% lower
Convinced Automatically (-)	0 (VIP)	2016 is 2% lower
Focus on Money (-)	0 (VIP)	2016 is 4% lower
Focus on Information*	.0483 (SIG)***	2016 is 1% lower

*** Indicates that variance (f-test) was significant at p = 0

*No difference between 2001 and 2007 standard groups

(+) 2007 standard group was significantly higher than the 2001 standard group

(-) 2001 standard group was significantly higher than the 2007 standard group

In addition to the statistical information and direction of the difference, we added color coding to indicate where the shifts in some patterns or scales may be more meaningful than for others:

White = Magnitude of change was less than 2%

Gray = Magnitude of change was ≤ 2% > 3% (Notable Change)

Rose = Magnitude of change was ≤ 3% (Major Change)

The following sections describe the differences in Table 10 and the possible explanation for or implication of the results.

Meaningful Differences between the 2016 and 2007 Standard Groups

The previous section documented the statistical comparison of the 2016 and 2007 U.S. Standard Groups. This section addresses the differences that may be meaningful in interpretation; that is, to identify the changes that are large enough to have implications for major shifts in the standard group profile. The two measures of difference are the t-test and the comparison of the average percentage for the respective standard group.

We reviewed the results in Table 10 and created two major groupings we call "Notable Shifts" and "Major Shifts." Each has two subcategories regarding the 2016 Standard Group—Stronger Patterns (higher than 2007) and Weaker Patterns (lower than 2007).

To create the categories, we considered the outcomes based on the size (%) of the difference. If the difference was less than 2% (<2%), it is not included in the discussion. If the difference was 2% or more, but less than 4%, we called the shift "Notable." If the difference was 4% or more, we called the shift "Major".

The subcategories (Stronger and Weaker) were based on whether the average for the 2016 Standard Group was higher or lower than for the 2007 Standard Group.

Major Shifts

Stronger Patterns

The strongest shift in 2016 was a 6% increase in the average for "Procedures." This may be a result of adding more individuals who are required to follow procedures in the execution of their work.

There were also increases in "Compliance" (3%), "Convinced by Reading" (4%), and "Convinced by Consistency" (3%). These three patterns, along with Tolerance (see the "Weaker" category below), may tend to be in the recorded directions in certain kinds of work. An example of work emphasizing these patterns would be an industry such as with nuclear power. A counter-example (low procedures, lower compliance, low consistency, etc.) might be a high-tech operation such as Google.

Weaker Patterns

There was a decrease in "Individual Environment", the desire to work alone (5%).

Other motivational and attitudinal patterns for which there was a significant decline were:

Individual Motives – 4% lower

Alternatives – 4% lower

Achievement – 4% lower

Focus on Money – 4% lower

Indifference – 3% lower

Tolerance – 3% lower

Convinced by Doing – 3% lower

The combination of the lower "Individual Motives" (desire to make your own decisions) and slightly higher "External Reference" (desire to get input or feedback from others) indicates a shift away from wanting to make the decision to wanting more input when a decision is to be made.

It was interesting to see the decrease in "Focus on Money" (wanting to work with money/finance or to keep score as part of your job) given the increase in the proportion of individuals who indicated Accounting/finance as their area of work. The possible explanation lies in the fact that we often encounter people in a field whose patterns are somewhat counter-intuitive to what we might expect. One example is human resources. On a number of occasions we have found senior HR executives with low scores on "Focus on People." We account for this by the fact that at the senior level, the individual's job interest may be in managing systems, tools, and information that impact people rather than interacting with people as part of the job. This doesn't mean that the individual does not like people or that she or he is not good at working with people (a competency), but rather that the focus of their work is on something other than the interaction with people.

We have had similar findings with people in finance and accounting. While a number of them are low on "People" (they prefer working with things), they are sometimes low on "Focus on Money." When exploring the finding, we reach a conclusion parallel to that reached with senior HR executives who are low on "People." If the individual wanted to work with money she or he would still be an accountant or auditor—a role that is directly related to dealing with money.

Notable Shifts

Stronger Patterns

Two of the stronger patterns—"Goal Orientation" (2%) and "Breadth" (2%) tend to show up in individuals in management/executive and professional roles. Since this standard group has a higher representation than the population, it is not surprising that the trend is toward stronger patterns.

The only other scale in this category is "Focus on Tools" (2$). This may be a result of weaker "Focus on Money" and "Focus on Information" patterns for 2016.

Weaker Patterns

There are five patterns in this category:

> Affective Communication (2%)
>
> Difference (2%)
>
> Affiliation (2%)
>
> Convinced by Hearing (2%)
>
> Convinced Automatically (2%)

The shifts indicate a slight shift away from feelings or emotions (Affective and Affiliation). Other changes indicate a lesser interest in big changes (Difference) and making assumptions or filling in the blanks (Convinced Automatically).

General Observations of the 2016 vs. 2007 Comparison

When we look at the overall picture, here's what we see (Table 11).

Table 11: Overall Differences in iWAM Scales for 2016 vs. 2007

iWAM	2007 > 2016	2007 = 2016[1]	2016 > 2007
No. of Scales	16	18	14
Major Shifts	8	N/A	5
Notable Shifts	5	N/A	3

[1]We combined the number of scales for which there was no statistical difference between the 2007 and 2016 standard groups (N = 13) with the scales in which were "Borderline" (N = 5) all of which had the same pattern of the 2007 group mean being higher than the mean for the 2016 group.

The balance among the scales that changed and did not change suggests that as the population of U.S. iWAM test takers grows, there is a balanced evolution of the patterns. That is, some are getting stronger, others weaker, and some appear to be about where they will be for this population.

The continuing growth of the iWAM database for the United States is a positive for creating a meaningful reference group for interpreting the results of the Inventory for Work Attitude and Motivation.

The shift in the proportion of women to men is closer to the proportion in the U.S. workforce than in 2007. The fact that the current standard group is (a) more managerial/professional and (b) more educated than the workforce is an important characteristic to consider when interpreting iWAM results using the relative percentage scores. If the iWAM is being used for a hands-on, trades population (front-line workers), we suggest that you contact the Institute so that we can help do an analysis to see if the patterns of the respective group are substantially different from the standard group.

The current project and report are the basis for the 2016 iWAM Standard Group. If you have any questions about the standard group or this report, please contact:

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Appendix A: 2016 & 2007 Standard Groups Comparisons

iWAM Scale	p-value	2016 vs. 2007	% Difference
Initiation	0.3153	No difference	--
Reflecting & Patience	0.053 (Borderline)	2016 is lower	(~1%)
Goal Orientation	0 (VIP)	2016 is higher	2%
Problem Solving	.0661 (Borderline)	2016 is lower	(2%)
Individual Motives	0 (VIP)***	2016 is lower	(4%)
External Reference	0 (VIP)***	2016 is higher	(1%)
Alternatives	0 (VIP)***	2016 is lower	(4%)
Follow Procedures	0 (VIP)***	2016 is higher	6%
Breadth	0 (VIP)	2016 is higher	2%
Depth Orientation	0.163	No difference	--
Affective Communication	0 (VIP)	2016 is lower	(2%)
Neutral Communication	.063 (Borderline)	2016 is lower	(1%)
Group Environment	0.160	No difference	--
Individual Environment	0 (VIP)	2016 is lower	(5%)
Sole Responsibility	0.029 (SIG)***	2016 is higher	~1%
Shared Responsibility	.062 (Borderline)	2016 is lower	(~1%)
Sameness	0.317***	No difference	--
Evolution	0.379***	No difference	--
Difference	0 (VIP)	2016 is lower	(2%)
Power	0.434	No difference	--
Affiliation	0 (VIP)	2016 is lower	(2%)
Achievement	0 (VIP)***	2016 is lower	(4%)
Use	0.127	No difference	(1%)
Concept	0 (VIP)	2016 is higher	--
Structure	0 (VIP)	2016 is higher	1%
Past	0.3107***	No difference	--
Present	0 (VIP)***	2016 is lower	(1%)
Future	0.389	No difference	--
Assertiveness	0 (VIP)	2016 is higher	1%
Indifference	0 (VIP)	2016 is lower	(3%)
Compliance	0 (VIP)	2016 is higher	3%
Tolerance	0 (VIP)	2016 is lower	(4%)
Convinced by Seeing	0.439	No difference	--

iWAM Scale	p-value	2016 vs. 2007	% Difference
Convinced by Hearing	.037 (SIG)***	2016 is lower	(2%)
Convinced by Reading	0 (VIP)***	2016 is higher	4%
Convinced by Doing	0 (VIP)***	2016 is higher	(3%)
Convinced by Examples	0.1921***	No difference	--
Convinced Automatically	0 (VIP)	2016 is lower	(2%)
Convinced by Consistency	0 (VIP)***	2016 is higher	3%
Convinced after Period of Time	0.305	No difference	--
Focus on People	0.146	No difference	--
Focus on Tools	0 (VIP)	2016 is higher	2%
Focus on Systems	0.0033 (VIP)***	2016 is higher	>1%
Focus on Information	.0483 (SIG)***	2016 is lower	(<1%)
Focus on Money	0 (VIP)	2016 is lower	(4%)
Focus on Place	0 (VIP)***	2016 is higher	1%
Focus on Time	0 (VIP)	2016 is lower	4%
Focus on Activity	0.193	No difference	--

Combination Patterns

Action Level	0.141	No difference	<1%
Action Direction	0 (VIP)	2016 is higher	>1%
Evaluation Reference	0 (VIP)***	2016 is higher	4%
Task Attitude	0 (VIP)***	2016 is higher	6%
Task Scope	.0435 (SIG)	2016 is higher	>1%
Communication Style	0.050 (Borderline)	2016 is lower	(2%)
Work Environment Type	0 (VIP)	2016 is higher	>1%
Work Assignment Type	0.392	No difference	

Levels of Significance

Designation in the table:	p-value (probability)	F-test Significance
Extremely Significant	p = 0.000 - 0.009	***
Very Significant	.009 < p < 0.01	***
Significant	0.01 < p < 0.05	**
Borderline Significant	0.05 < p < 0.10	*