

## SALARY SURVEY

**The Next Rung****Designing your own career ladder to reach the next level**

by Max Christian Hansen

The methods and mindset of quality take some time to learn—not just for organizations, but individuals as well. Yet, the time and effort seem to be well spent: When manufacturers increase their focus on quality, for instance, they can reduce scrap, rework and downtime, and even the need to redesign products. In theory, quality can lead to increased sales and increased customer and client retention.

Organizations that achieve these results through quality are usually the ones that reward the individuals who help them do it.

For the third year in a row, the quality professionals who responded to the *Quality Progress* Salary Survey reported a modest increase, on average, in their salaries. Because most respondents work in the United States, we use the average salaries of full-time U.S. employees as the benchmark for the earning power of the entire profession.

Since last year's survey, that large group of respondents reports a 1.5% increase in average salary, to an average of \$93,036, as shown in Table 1.

**TABLE 1**

**Historical average salaries of U.S. respondents**

		Change	Percentage change
2004	\$69,704	—	—
2005	72,318	\$2,614	3.75%
2006	77,049	4,731	6.54
2007	80,207	3,158	4.10
2008	81,480	1,273	1.59
2009	83,442	1,962	2.41
2010	85,383	1,941	2.33
2011	87,086	1,703	1.99
2012	86,734	(352)	-0.40
2013	88,606	1,872	2.16
2014	88,423	(183)	-0.21
2015	90,878	2,455	2.78
2016	91,659	780	0.86
2017	93,036	1,377	1.50

Table 1 includes results for: x Full-time employees, \_ Part-time employees, x U.S. employees, \_ Canadian employees, \_ International employees

[Table 1](#)

While it's pleasant to be able to report a gain in average salary for the third year in a row, things could be better. Gains were better, for example, each year from 2005 through 2011. During that time, the smallest reported gain in average salary was 1.59%, which happened in 2008, the year the first dim warnings of a major recession hit the world economy. Even that year's small gain, however, was larger than this year's increase.

The recession was a shock to many industries and to the quality profession that helps make them profitable. Although things have improved since 2014—the last time average salaries went in the negative direction—many quality professionals still long for the kind of growth we saw in the years before 2008.

In the long term, however, the picture has been one of growth, even if it hasn't been steady. The growth curve for Canadian respondents, shown in red in Figure 1, is even bumpier than for U.S. respondents. But that's a situation in which the relatively small numbers of respondents make any given year's reported average diverge significantly from the likely true average salary.

FIGURE 1

## Historic average full-time salaries: U.S. and Canada respondents

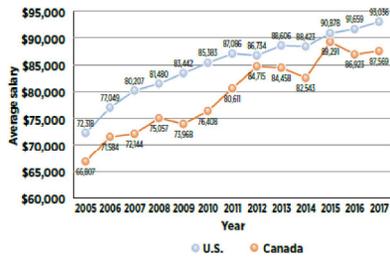


Figure 1 includes results for: x Full-time employees, \_ Part-time employees, x U.S. employees, x Canadian employees, \_ International employees

[Figure 1](#)

## Where have you been? Where are you going?

Each year since 2011, Quality Progress editors have added a few new questions to the salary survey questionnaire to be able to examine different variables related to quality professionals' salaries. The sidebar, "Take a Closer Look," provides a rundown of the special analysis performed each year from 2011 to 2015. In addition, section 26 of this year's report gives an overview of parts of those results. Past salary survey reports are available online, too, for those who want to take a deeper dive into the five topics covered in those past reports.

## Take a Closer Look

In each year from 2011 through 2015, we took a closer look at variables that help determine whether a quality professional will be well paid and happy in his or her position. The topics were:

- **ASQ certifications (2011).** We performed a rigorous analysis of the circumstances under which holding an ASQ certification pays the best dividends.
- **Formal education (2012).** We examined the value of degrees to quality professionals. Spoiler alert: They pay off gradually, showing the most benefit in mid-career.
- **Soft skills (2013).** We asked hiring managers what they look for in candidates for hire or promotion. We received an extensive catalog of answers.
- **Cultures of quality (2014).** We looked at how employers show they're serious about quality, and—no surprise—found that quality professionals are happiest in organizations that walk the talk.
- **Satisfaction (2015).** We asked our respondents not only how much they're making, but also whether they're happy with their salaries and other aspects of their jobs. We found several correlates of satisfaction.

Make sure to take a closer look at these respective articles, but first start with section 26 of this year's report, which gives overviews of those pieces. There's plenty of food for thought to help you see where you are, and how you might gain footing and climb to the next rung on the ladder.

—M.C.H.

In addition to the snapshots of salaries we take every year, we chose this year to examine career paths taken by those who responded to our survey. While following thousands of individual career ladders would be difficult and time consuming, we sought to gain insight simply by asking people what their employment situation had been before they took their current jobs. This allowed us to compile the analysis shown in Tables 2-5.

TABLE 2  
Prior employment status by current title

Count	Median time for this title as last position	Last prior employment status (percentage of respondents)						
		Unemployed in school or on leave	No prior employment (this is the respondent's first job)	In a different position with the same employer (this is a promotion)	With a different employer in the same industry	With a different employer in a different industry	With a former employer, but in a different industry	
All respondents	5,084	3 yrs. 6 mos.	2.1%	1.6%	37.7%	24.7%	30.6%	37.3%
Analyst	146	2 yrs. 6 mos.	2.7	4.1	37.7	24.9	31.5	35.5
Associate	181	2 yrs. 6 mos.	8.0	2.5	45.7	24.7	33.9	42.0
Author	279	4 yrs. 11 mos.	1.4	1.1	41.3	24.7	25.9	36.0
Black Belt	113	2 yrs. 6 mos.	1.8	2.7	34.9	18.5	33.2	56.6
Calibration technician	33	3 yrs. 6 mos.	15.2	32.5	42.4	15.2	35.2	39.3
Champion	14	3 yrs. 6 mos.	0.0	0.0	33.3	14.3	35.4	62.9
Consultant	101	3 yrs. 6 mos.	7.9	0.0	29.7	31.7	28.7	42.4
Coordinator	145	2 yrs. 23 mos.	4.8	0.7	41.2	15.9	32.4	48.3
Director	43	3 yrs. 6 mos.	5.8	0.5	41.8	36.3	25.9	56.1
Educator/instructor	42	3 yrs. 6 mos.	4.8	0.0	28.6	24.2	40.5	66.7
Green Belt	39	2 yrs. 6 mos.	0.0	2.4	25.6	36.8	43.0	71.9
Manager	181	3 yrs. 6 mos.	5.0	2.3	38.0	23.5	34.4	41.8
Manager	1,401	3 yrs. 6 mos.	2.8	0.7	39.2	28.6	28.8	37.5
Master black belt	11	3 yrs. 6 mos.	2.0	0.0	33.3	27.5	33.3	64.7
Other	43	3 yrs. 6 mos.	3.0	0.0	39.7	25.8	33.5	37.1
Process/manufacturing/project engineer	166	3 yrs. 6 mos.	1.8	18.8	39.8	26.5	34.6	54.5
Quality engineer	439	3 yrs. 6 mos.	3.1	2.4	39.1	23.1	34.7	65.4
Reliability/quality engineer	57	3 yrs. 6 mos.	0.0	0.0	36.8	26.3	36.8	43.2
Software quality engineer	48	2 yrs. 10 mos.	0.0	0.0	31.3	41.7	27.1	68.4
Specialist	319	3 yrs. 6 mos.	1.4	1.4	41.1	30.7	23.2	53.9
Statistician	25	7 yrs. 6 mos.	0.0	32.0	40.0	16.0	32.0	48.0
Supervisor	196	3 yrs. 6 mos.	2.6	1.3	33.3	21.2	23.7	44.9
System quality engineer/professional	165	3 yrs. 11 mos.	4.2	1.3	34.9	22.4	31.5	52.7
Technician	214	3 yrs. 6 mos.	2.8	5.3	40.7	14.4	35.0	52.4
Vice president/executive	131	4 yrs. 6 mos.	0.0	0.0	41.2	38.7	38.3	58.0

Table 1 includes results for 2 full-time employees, 2 part-time employees, 2 U.S. employees, 2 Canadian employees, 2 international employees. Non-responders in this time spent in the position named when the last time given as last title. For all other columns, the title is the respondent's current job title. The table shows what people were doing before starting in their current position. The title in each row indicates the respondent's current position. The "Median time for this title as last position" column shows the expected time in this position before moving on; it is taken from the data on the last position held because there is no other source for this data. Color code: Blue highlights the highest values in a column. Beige highlights the lowest values in a column. Note: The color and beige highlights are not applicable to all cells. Blue allows you to quickly see which job titles are most often held as a respondent's first-ever job.

Table 2

Table 2 shows the basic employment situation of respondents as we sliced the data set by current job title. Each row shows a job title currently held by our respondents—except in one column. There, we used the job titles to tell a different story. In the column labeled "Median time for this title as last position, we take each job title as being the last prior job title before the current one. Because we asked respondents how long they had held their last previous job, we could report the average length that respondents tend to stay in each job title before moving to another one.

In all the other columns, the rows correspond to the position currently held. We see, for example, how many people came to their current job after a period of non-employment. This might be unemployment due to a layoff or a leave of absence for any reason, including for schooling.

Another column shows the percentage of respondents whose current job title is their first job. In each column, the blue cells highlight the highest values in the column, and the beige cells show the lowest. We see four job titles most often held as the first job among our respondents: calibration technician, statistician, process/manufacturing/project engineer and technician.

Table 3 shows the highest level of formal education among the respondents holding these four titles. We see that a degree beyond a bachelor's degree is rare for those holding the technician title, and nonexistent for the sample of calibration technicians. This suggests that these may be truly entry-level positions. Because they require little formal education, perhaps they also require little prior experience.

TABLE 3  
Highest education level for selected job titles

	Two-year degree or less	Bachelor's degree	Master's degree	Doctorate
Calibration technician	93.5%	6.5%	—	—
Process/manufacturing/project engineer	9.4	50.8	38.3%	1.6%
Statistician	—	12.5	50.0	37.5
Technician	62.6	29.6	6.5	1.0

This table examines the four jobs most often held as someone's first-ever employment. It allows you to guess that calibration technician and technician are probably classic entry-level positions. The table also allows you to guess that for the other two positions, the prime qualifications are learned in school rather than on the job. In addition, these are the jobs you can get straight out of a specialized college or graduate program. The columns show the highest level of education of actual holders of the title—as opposed to those reporting that a certain level of education was required to take the job. That information was taken from 2016 results and used in Table 5.

Table 3

The other two titles in Table 3 are a different matter. Respondents holding a title such as process/manufacturing/project engineer are likely to hold a four-year degree or higher. Only 9.4% of them have achieved less than a bachelor's degree.

Statisticians, as a group, have even more education: None holds less than a bachelor's degree, and 87.5% hold a master's degree or higher. You might guess that these are jobs requiring skills or knowledge taught in academic settings, and those school-taught skills are more important than on-the-job training. So, these are entry-level positions but they require what colleges and universities happen to teach.

Table 4 is a cross-tabulation of job titles currently held (rows) with titles held in one's most recent prior position. Here, note that for any title currently held, the last title held is likely, in many cases, to be the same title. There are a couple of reasons for this.

- Many job changes involve a change of employer, Table 2 shows. For example, for all respondents taken together (top row), 57.3% moved to a new, different employer in taking their current position. In many of

these cases, it may be expected that the new organization gave the respondent the same title he or she had held at the previous employer.

- The titles given here are generalized titles. For each one, there may be a more specific title that falls into the same category. To demonstrate this, we asked that respondents, in addition to choosing a title from our prepared list, submit their exact job title. Among the 1,401 people who gave both pieces of information and whose title from the survey questionnaire's prepared list in the survey was manager, there were more than 600 discrete job titles when responses were worded more precisely. An employee who held a title such as associate manager may have been promoted to senior manager. Although the latter is a new position for that person, both positions will fall into the generalized title of manager as chosen from the prepared list.

These two factors give us, for many current titles, a good percentage of holders whose last title was the same. These situations are highlighted by the gray cells in Table 4. For each title currently held, this table shows the most commonly held prior title, highlighted in green. For each prior title, the table highlights the most common current title. But there are two colors that serve this function.

Here's why: We discussed earlier why a job change might not involve a change of title. In Table 4-Part A, for example, in the row marked "manager," 571 people holding that title also held the same title previously (the gray cell). Notice that in that same row, there are several orange cells.

We used orange in each column to show for prior titles what is the most common current title. In this special case, the most common title is manager. We did this because in most cases, it is, in fact, manager. This is because manager is perennially the most common title among our respondents. This year, they make up more than a quarter of all the quality professionals who took the survey. The result is that in many job changes, the current title is more likely to be manager than anything else.

So, we used two different colors to highlight the most common current title: orange if that title happens to be manager, and pink for the most common current title other than manager.

In a few instances, a cell is both green and pink, or green and orange. This occurs when the same cell denotes both the most common prior title for its row and the most common next title for its column.

For example, for those currently holding the title of manager (the row with all the orange), the most common prior title (leaving out manager) is quality engineer, with 163 people making that transition. For those whose last title was quality engineer, the title they most commonly hold now is manager, and those job-changers fall in the same cell, requiring the cell to be orange as well as green.

TABLE 4 - PART A  
Cross-tabulation of current and prior job titles

Current title in row. Prior title in column.	Current	Associate	Analyst	Back End	Calibration Technician	Change	Coordinator	Director	Education/Instructor	Green Belt	Inspector	Manager
Analyst	42	2	1									
Associate	7	22	3									
Analyst	7	2	32									
Back End	1	1	28									
Calibration technician	1											
Champion	1	2	1	4								
Coordinator	2	9	2									
Director	5	2	5	4								
Educator/Instructor	1											
Green Belt	2	6										
Inspector	2	5										
Manager	35	12	24	8	4	27	33	58	7	4	17	571
Master Black Belt	1											
Other	3	2	1									
Business Development/Project Engineer	7	4	4	9								
Quality engineer	11	11	8	7	1	14	12	1	4	1	24	163
Reliability/Safety engineer	1											
Software quality engineer	1											
Specialist	17	20	6	3	1	4	14	5	2	8	11	
Stations	1											
Supervisor	9	13	8	1								
Supplier quality engineer/Inspector	1											
Technician	1	18	2	1								
Vocational/Executive	1											

**Color code**  
 Change in which cell(s) the most common next title for a given next title here is the respondent's current title.  
 Orange highlights the most common next title for each given prior title, if that most common is manager.  
 Green highlights the most common prior title, the most common next title that is not manager. If there is no orange in a column, then pink is highlighting the most common next title.  
 Gray highlights the most common prior title for a given next title here is the respondent's current title.  
 There are a few cells that are colored both pink and green.

Table 4 Part A

TABLE 4 - PART B  
Cross-tabulation of current and prior job titles

Current title in row. Prior title in column.	Project/Black Belt	Other	Quality engineer	Reliability/Safety engineer	Software quality engineer	Specialist	Supervisor	Technician	Inspector	Manager
Analyst	10	3	5	1	2	9	1	6	1	9
Associate	10	2								
Analyst	10	1	11	1	24	1	18	4	8	1
Back End	9	9	10							
Calibration technician	5									
Champion	5	1								
Coordinator	2	6	2	2						
Director	8	18	6	10	2					
Educator/Instructor	1									
Green Belt	8	3	2							
Inspector	1	10	3	3						
Manager	8	10	42	10	4	5	10	10	10	10
Master Black Belt	17	2	1							
Other	1	20	1	6						
Business Development/Project Engineer	20	18	13	2	1	4	8	8	8	4
Quality engineer	1	77	54	103	4	4	24	3	17	20
Reliability/Safety engineer	4	6	7	25	1	2				
Software quality engineer	4	2		26	1					
Specialist	42	5	13	1	59		25		11	
Supervisor	1	2	2							
Technician	17	4	13	1	5		20		17	
Inspector	7	11	11	2	5		5	40	5	
Manager	8	10	42	10	4	5	10	10	10	10
Technician	1	6	2	2	1	4	1	14	1	42

## Table 4 Part B

## Career transitions

Having picked out some reasonably common transitions from one title to another, we can construct some plausible career ladders for hypothetical quality professionals. Table 5 shows one such ladder.

**TABLE 5**  
**Sample career ladder**

	1	2	3	4	5	6
	Age, average	Years experience in quality, average	Salary, average	Percentage changing employers in this transition	ASQ certification required	Four-year degree required
Director	51	19.5	\$132,760	59.0%	14.4%	76.0%
Manager	47	16.3	\$6,723	56.4	14.7	66.6
Quality engineer	44	14.2	\$5,974	39.1	22.1	72.9
Analyst	42	10.2	\$4,852	58.5	13.9	68.0

Table 5 includes results for: g. Full-time employees, \_ Part-time employees, & U.S. employees, \_ Canadian employees, \_ International employees.  
The table shows a reasonably common sample career path for a quality professional. For example, "Mary Sue" may be an analyst early in her career; it may even be her first job, although the average person holding that title has worked in the quality profession for 10.2 years. She may become a quality engineer. That job is more likely to require a bachelor's degree (72.9% vs. 68%, column 6). On average, it involves a pay increase (column 3). And it is considerably more likely to require at least one ASQ certification (22.1% vs. 13.9%).  
Columns 1-5 are just what they seem: average age, years in quality and salary for the job title.  
Column 4 shows the percentage of respondents who changed employers in making this exact title change (manager to director, for example).  
In column 4, the transition for analysts is from any title. That is, the percentage shown is for all holders of the title analyst, no matter what their prior status was.  
Column 5 shows the percentage of respondents holding the title in 2016 who said that at least one ASQ certification was required to enter or stay in the position.  
Column 6 shows the percentage of respondents holding the title in 2016 who said that at least a bachelor's degree was required to enter or stay in the position.

Table 5

Consider the example of Mary Sue, who starts her quality career as an analyst. It's a plausible first position for someone entering the quality profession right out of college, with about one in 25 analysts having never held any prior job (4.1%, Table 2), but 68% of analysts saying they were required to have a four-year degree to hold the title.

After two to four years, Mary Sue takes a position as a quality engineer. This is almost certainly a promotion because the average salary for a quality engineer is \$85,974—more than \$10,000 higher than the \$74,852 earned by the average analyst (see Table 3 in section 1). There's some likelihood that she got herself certified to take this step up the ladder because 22.1% of quality engineers told us in 2016 that their organization required at least one ASQ certification to be in that position.

So, Mary Sue keeps moving up, from quality engineer to manager, and from there to director. Although her certification might relate to this high-level position, it's likely that her formal education helped her get the job because 76% of directors told us their employers required at least a bachelor's degree to take the position. Even more likely is that her latest promotion was the result of having stuck with the quality profession for quite a while because directors, on average, have been working in the quality field for 19.5 years. And as the salary column shows, Mary Sue is now receiving pretty good financial rewards for her years of learning and experience.

The data in this year's salary report can help you design your own career ladder. You'll get considerable help from the in-depth analysis from earlier reports, in which we looked closely at the value of ASQ certifications, Six Sigma training, formal education and other factors that hiring managers look for when considering new hires and candidates for promotion.

Onward and upward!

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