

ROI Report

The U.S. Patent and Trademark Office's Enterprise Training Division

The Supervisor Certificate Program

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September 2019

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1 General Information

1.1 Executive Summary

This report determines the return-on-investment (ROI) of the 2019 Supervisor Certificate Program (SCP) Redesign. The SCP is a mandatory training program managed by the U.S. Patent and Trademark Office's (USPTO) Enterprise Training Division (ETD). The SCP trains all new USPTO supervisors within the first year of being hired.

In the last three years, ETD contracted with a vendor to provide the content, training materials, and facilitator for the SCP. After receiving criticism of the SCP training design and delivery, ETD worked with the vendor to redesign elements of the SCP such as reordering the sequence of topics and introducing more interactive training elements.

Using survey data from the 2017 and 2018 SCP cohorts and combining that data with the Federal Employee Viewpoint Survey and the USPTO's Gallup Q¹² Next Gen People Survey, ETD established a baseline of the effectiveness of the SCP. ETD then compared the baseline data to 2019 SCP survey data to determine if the 2019 SCP Redesign had a positive effect. There were significant increases in every survey measure from the participants' satisfaction with the training, their use of the knowledge gained in training, to how they perceived their effectiveness as a supervisor.

ETD concludes that the 2019 SCP Redesign is a step in the right direction, and we recommend continuing to enhance the SCP program. ETD believes that the 2019 SCP Redesign will aid the USPTO in improving employee engagement, morale, workplace trust, and the productivity of the USPTO employees.

1.2 Background

The Office of Personnel Management (OPM) is the agency charged with implementing requirements of the Federal Workforce Flexibility Act. OPM established regulations for supervisory training through 5 CFR Part 412 ("Supervisory, Management, and Executive Development"). Federal supervisor training is required by the Federal Workforce Flexibility Act of 2004, which mandates training on four specific management topics within one year of the new supervisor's appointment. The four topics are:

- Mentoring employees;
- Improving employee performance and productivity;
- Conducting employee performance appraisals; and
- Assisting employees with unacceptable performance.

Other than requiring training on the four specific management topics at the beginning of the new supervisor's appointment and refresher training every three years after, OPM gives the federal agencies wide latitude in structuring their supervisory training programs. Agencies are encouraged to add to the core four topics and to use a wide variety of training methods in implementing the supervisory training programs.

The U.S. Patent and Trademark Office's (USPTO) Enterprise Training Division (ETD) is tasked with implementing and managing the Supervisor Certificate Program (SCP) for all newly-appointed USPTO supervisors. The SCP consists of eight six-hour sessions of instructor-led training for two on-campus cohorts of new USPTO supervisors with one virtual cohort of ten instructor-led online four-hour training sessions. The courses are mostly PowerPoint presentations with some group work.

According to course evaluations collected from the SCP 2017 cohorts and the 2018 cohorts, participants do not find the concepts presented in training to apply to their current supervisory work. Also, a 2017 focus group gave many criticisms of the program design and training delivery. Only 47% of the 63 participants in the 2017 SCP completed the training within the OPM-mandated one year. Of the 52 participants in the 2018 SCP, 28 participants will not complete the program by the end of 2018. Most absences were due to work conflicts, sickness, or personal reasons.

Because of the surveys and the focus group report, the SCP Manager is examining different training methods, technologies, and techniques to improve the perception and effectiveness of the SCP while increasing the number of training opportunities throughout the year

1.3 Objectives of the Study

This study determines the impacts of redesigning SCP courses and assignments.

Specifically:

- Rearranging the sequence of course topics.
- Compressing the scheduling of the eight courses.
- Reducing the number of PowerPoint lectures and increasing the number of interactive exercises.
- Transforming Human Capital Day from a daylong series of presentations by subject matter experts to a half-day expo with booths representing the Office of Human Resources departments.

2 Evaluation Planning

2.1 Levels of Evaluation

A full ROI study consists of five levels of evaluation:

Level 0 – Inputs and Indicators: Measures are the number of program participants per course and cohort; program costs. Collects 100% of the data. The goal in five years is to continue 100% of the data.

Level 1 – Reaction and Planned Action: Measures program participants' reactions per course. Collects 100% of the data. The goal in five years is to continue 100% of the data. The plan is to automate the collection and analysis of the Level 1 data.

Level 2 – Learning: Measures what program participants learned. Collects 100% of the data based on the courses' learning objectives. The goal in five years is to continue 100% of the data. The plan is to automate the collection and analysis of the Level 2 data.

Level 3 – Application: Measures progress of the use of information and skills by the course participants. Collects self-reported data from 63% of the program participants. The goal in five years is to gather self-reported data from at least 30% of the program participants. The plan is to supplement the self-reported data with a survey of the program participants' supervisors.

Level 4 – Business Impact: Measures changes in selected items from the Federal Employee Viewpoint Survey (FEVS) and the 2019 Next Gen USPTO People Survey ("People Survey") to determine progress in employee engagement and positive perceptions of supervisors by the USPTO employees. For the FEVS, there was a 55% response rate for all Department of Commerce employees. For the People Survey, there was a 48% response rate of the USPTO employees.

Level 5 – ROI: Measure the monetary benefits of the SCP program. The SCP has a fixed budget paid annually to the vendor.

Before 2019, the ETD collected data from Levels 1 to 3. The collected data was only used internally by ETD for planning. Recently, it was decided by the ETD management to expand to Levels 4 and 5 to persuade decision-makers to approve changes in the SCP. Levels 1 to 3 data is collected by paper forms and online surveys which are analyzed manually. Level 4 data is provided to ETD by the U.S. Office of Personnel Management and the USPTO's Strategic Consulting Team. The SCP Manager is working on automating the collection and analysis of the Levels 1 through 4 data.

The most significant barrier toward collecting data are survey fatigue. The USPTO employees are subjected to numerous surveys throughout the year, and thus, participation rates are low. For SCP participants, ETD requires completion of Levels 1 and 2 surveys before awarding the completion certificate. The participation rate for the Level 3 survey is encouraged by constant reminders. Level 4 data is provided by external actors, and ETD has no control over the participation rate.

2.2 Impact Study ROI Methodology

The ETD uses end-of-course surveys to collect Levels 1 and 2 data. Surveys, in this case, are the easiest and most cost-effective way to collect data. Questionnaires could be used but, historically, the response rate has been lower for questionnaires than for surveys. Observation, interviews and focus groups are challenging to do because of resistance by employees and their supervisors. Also, employee unions add a dimension of complexity whenever bargaining unit employees are involved.

There are three additional ways to collect Level 2 data: test/quizzes, demonstrations, and simulations. Again, the complexity and time involved in creating test/quizzes, demonstrations, and simulations preclude collecting Level 2 data that way.

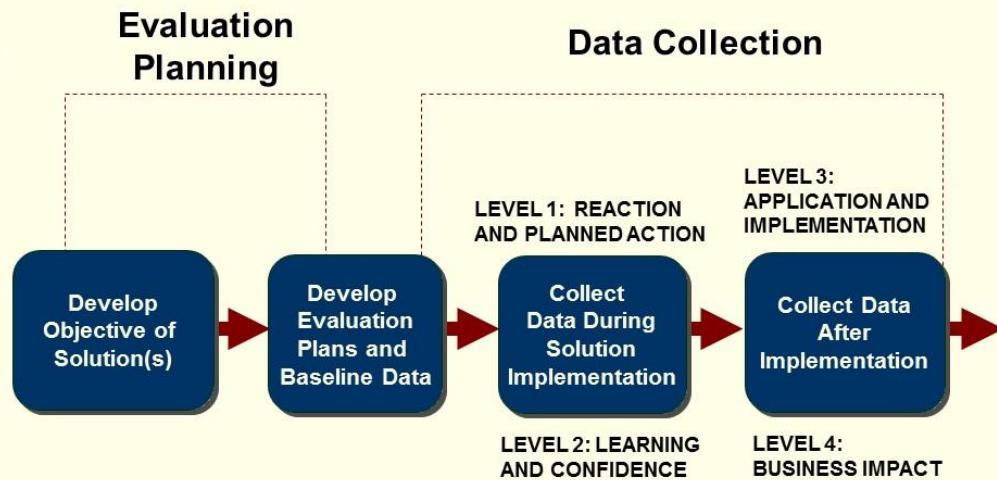
The same data collection concerns that affect Levels 1 and 2 also influence Level 3. Thus, the decision by ETD to use the SCP vendor to disseminate and analyze the Level 3 survey data. Besides, performance contracting, and performance monitoring are significantly constrained due to sensitivity around federal regulations on measuring government employee performance. ETD is discussing the use of action plans in future SCP courses but, action plans are not currently used.

For Level 4, survey data is collected by third parties in the FEVS and the People Survey. The information is freely available to ETD, so it was decided to save time and cost savings to using that data rather ETD collect Level 4 data on its own.

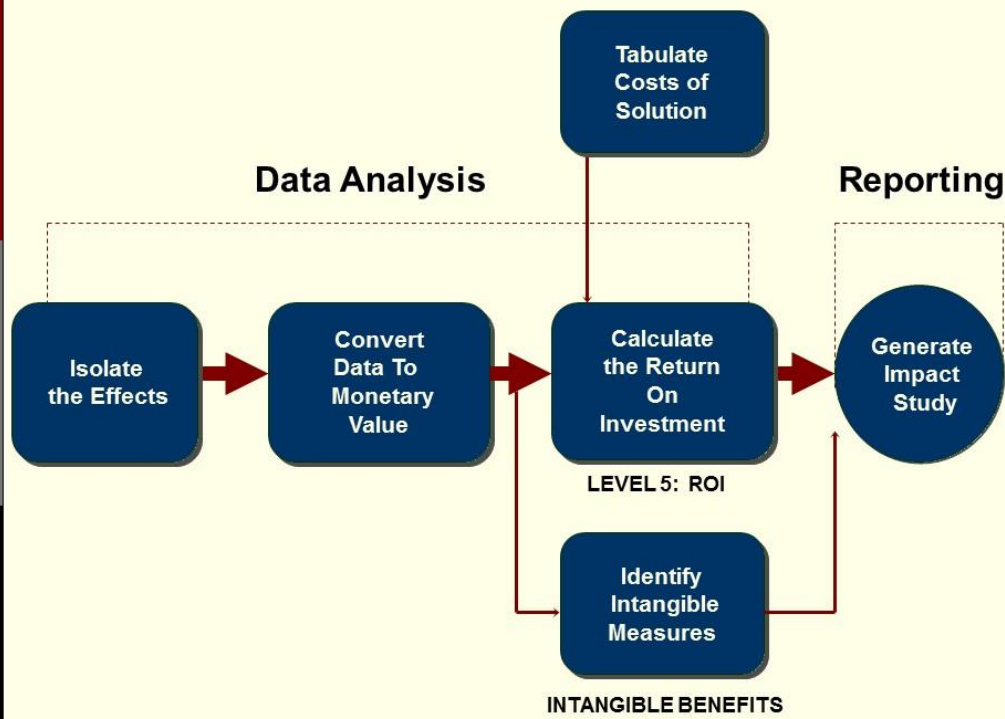
The survey instruments for Levels 1 to 3 are in the appendix. The analysis from FEVS and the People Survey are also in the appendix.

In developing this report, ETD followed the standard ROI Process:

The ROI Methodology



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The objectives of the SCP redesign is to improve the program participants' reactions to the courses so they will be more receptive to the knowledge and skills in the program. The evaluation plans were based

on using data from the 2017 and 2018 SCP cohorts to establish a baseline for measuring the effects in the 2019 SCP cohorts.

The surveys were used for all four levels of analysis. Survey data was collected throughout the 2018 SCP. In section 4, ETD will explain the collection of the data, isolating the effects of the 2018 SCP redesign, and the calculation of ROI.

2.3 Data Collection and ROI Analysis Plan

The purpose of the data collection plan was to determine the effects of the SCP redesign. The only data collection method available was surveying the participants. ETD paired the SCP participant responses with data from the two external surveys. Data collection was continuous from the beginning of the SCP till the end of the 2018 SCP second cohort in August 2019. ETD collects and analyzes the SCP data. The external data collectors have been identified in this document.

As discussed in Section 4.1, isolating the effects of the program relied on the estimates of the SCP participants supplemented by estimates of ETD experts. Determining costs for the program is based on the annual contract cost plus the average hourly salary rate for the supervisors who participated in the program. The hourly average wage rate was calculated from the U.S. Office of Personnel Management pay tables. The cost calculations are explained in greater detail in Section 4.2.

Compliance with Levels 1 and 2 data collection was a matter of withholding the completion certificate until the participant completed the evaluation. For Level 3 data collection, several persuasive emails were sent. External entities handled the Level 4 data collection.

Given the nature of the pilot, the SCP manager relied more upon showing progress with the intangible benefits. Thus, ETD relied on demonstrating a positive impact on employee engagement and the USPTO employees' perceptions of their supervisor. This impact will be shown in the FEVS and People Survey data.

3 Data Collection

3.1 Response Profile

The individuals providing the data are newly-hired supervisors at the USPTO. The U.S. Office of Personnel Management requires that all new supervisors undergo training within their first year. Thus, for Levels 1 through 3, all the data comes from the SCP participants. For the Level 4 data, the data comes from all the USPTO employees.

The target response is 100% for Levels 1 and 2. For Level 3, ETD set 50% as the target response rate. For Level 4 data, ETD preferred 30% or better response rate although ETD had no control over the response rate. As written earlier, ETD expected that the most significant barrier would be survey fatigue. During a calendar year, most USPTO employees receive survey invitations on their training needs, the FEVS, the People Survey, their satisfaction with their work environment, a course evaluation for every course they take, evaluations after all-hands meetings, wellness surveys, and sometimes, business-unit specific surveys.

Another barrier is the data that can be collected; specifically, the individual performance data. Collecting individual performance data is regulated by federal personnel regulations which limit the performance details that ETD can ask.

3.2 Satisfaction and Planned Action

The SCP participants completed a survey at the end of each SCP course. The Level 1 survey asked these ten questions:

- 1 I understood the learning objectives
- 2 This course was easy to follow
- 3 There was sufficient amount of time in this course for me to learn the content
- 4 The information in this course was relevant and applicable to my job
- 5 The connection between the course content and the USPTO environment was clear
- 6 The knowledge and experiences shared by the instructor enhanced my learning experience
- 7 I was given ample opportunity to participate in this course
- 8 The materials aided in my learning
- 9 My knowledge and skills increased as a result of this course
- 10 I plan to apply the knowledge and skills learned in this course

The scale is: 1 – Strongly Disagree | 2 – Disagree | 3 – Agree | 4 – Strongly Agree

These tables show the average Level 1 score for all eight courses in the SCP segmented by the two 2019 SCP cohorts and the 2018 second SCP cohort. The data for the 2018 first SCP cohort was not available.

COHORT ONE 2019	Overall
I understood the learning objectives	3.88
This course was easy to follow	3.90
There was sufficient amount of time in this course for me to learn the content	3.81
The information in this course was relevant and applicable to my job	3.83
The connection between the course content and the USPTO environment was clear	3.82
The knowledge and experiences shared by the instructor enhanced my learning experience	3.90
I was given ample opportunity to participate in this course	3.92
The materials aided in my learning	3.72
My knowledge and skills increased as a result of this course	3.77
I plan to apply the knowledge and skills learned in this course	3.86
Number of Respondents	28
COHORT TWO 2019	

I understood the learning objectives	3.19
This course was easy to follow	3.23
There was sufficient amount of time in this course for me to learn the content	3.21
The information in this course was relevant and applicable to my job	3.27
The connection between the course content and the USPTO environment was clear	3.25
The knowledge and experiences shared by the instructor enhanced my learning experience	3.26
I was given ample opportunity to participate in this course	3.30
The materials aided in my learning	3.20
My knowledge and skills increased as a result of this course	3.16
I plan to apply the knowledge and skills learned in this course	3.19
Number of Respondents	9
COHORT TWO 2018	
I understood the learning objectives	2.73
This course was easy to follow	2.64
There was sufficient amount of time in this course for me to learn the content	2.73
The information in this course was relevant and applicable to my job	2.54
The connection between the course content and the USPTO environment was clear	2.54
The knowledge and experiences shared by the instructor enhanced my learning experience	2.77
I was given ample opportunity to participate in this course	2.91
The materials aided in my learning	2.54
My knowledge and skills increased as a result of this course	2.51
I plan to apply the knowledge and skills learned in this course	2.52
Number of Respondents	18

The next table summarizes the percentage increase in Level 1 satisfaction between the 2018 Cohort Two and the two 2019 Cohorts.

	2019 Cohort One	2019 Cohort 2
I understood the learning objectives	42%	17%
This course was easy to follow	48%	22%
There was sufficient amount of time in this course for me to learn the content	39%	17%
The information in this course was relevant and applicable to my job	51%	29%
The connection between the course content and the USPTO environment was clear	50%	28%

The knowledge and experiences shared by the instructor enhanced my learning experience	41%	18%
I was given ample opportunity to participate in this course	35%	14%
The materials aided in my learning	46%	26%
My knowledge and skills increased as a result of this course	50%	26%
I plan to apply the knowledge and skills learned in this course	53%	27%

3.3 Learning

These tables show each course and its objectives segmented by the two 2019 cohorts. As seen, the gain in learning after each class was positive and ranged from 21% to 167%. This data was collected by having the participants estimate their knowledge before the course and after the session.

	2019 Cohort One			2019 Cohort Two		
	Before	After	Difference	Before	After	Difference
Establishing Yourself in the Role						
Describe the characteristics of an effective supervisor	3.00	4.03	26%	3.11	4.11	32%
Describe key leadership characteristics and competencies	2.93	3.97	26%	3.00	4.11	37%
Recognize the effects of different leadership styles in the workplace	3.13	3.97	21%	3.00	4.00	33%
Balance managerial and technical leadership responsibilities	3.03	3.93	23%	3.22	4.00	24%
Anticipate and address issues commonly associated with the transition to a supervisory role	2.97	3.93	25%	3.00	4.22	41%
Communicate Effectively	Before	After	Difference	Before	After	Difference
Recognize the importance of purpose, audience, and channel in making communication effective	2.50	3.80	34%	2.62	3.62	38%
Apply the 5 "S" Strategies for impactful communication, [short, simple, strong, sound, savvy]	2.13	3.67	42%	2.00	3.62	81%
Identify barriers to effective communication and overcome them	2.43	3.73	35%	2.38	3.62	52%
Apply active listening techniques	2.60	3.80	32%	2.62	3.77	44%
Ask and apply impactful questions	2.60	3.73	30%	2.69	3.62	34%
Address the content and value of regular staff/workgroup meetings and follow-through	2.47	3.63	32%	2.54	3.46	36%
Foster Employee Engagement	Before	After	Difference	Before	After	Difference
Discuss employee engagement - what matters and why	2.61	3.50	26%	2.58	4.08	58%

Address the importance of values assessment and the implications for job satisfaction over time	2.54	3.46	27%		2.67	4.17	56%
Apply tools to build relationships with employees and foster growth and development	2.64	3.50	24%		2.92	4.33	49%
Establish the impact of emotional intelligence for leadership and staff success	2.21	3.36	34%		2.50	4.08	63%
Identify ethical shadows and possible implications for overall trust and engagement	2.18	3.39	36%		2.08	4.17	100%
Get Results through Others	Before	After	Difference		Before	After	Difference
Focus on the USPTO's vision and mission	2.78	4.00	30%		3.00	4.18	39%
Establish meaningful SMART goals	2.63	3.88	32%		2.82	4.27	52%
Delegate assignments to build on workforce capability	2.69	3.75	28%		2.82	4.45	58%
Identify strategic behaviors to build a culture of accountability and collaboration	2.63	3.88	32%		2.55	4.09	61%
Coaching and developing yourself and others	Before	After	Difference		Before	After	Difference
Establish distinctions among managing up, down and sideways at USPTO-applying the circles of concern and influence	2.10	3.76	44%		3.00	4.00	33%
Discuss and apply the BRIE feedback model	1.62	3.72	56%		2.00	3.80	90%
Discuss and apply the GREAT coaching model	1.69	3.72	55%		2.40	4.00	67%
Provide World Class Customer Service	Before	After	Difference		Before	After	Difference
Encourage workgroup members to address development needs	2.92	4.16	30%		0.00	0.00	0%
Help employees improve their performance and capabilities	3.04	4.20	28%		0.00	0.00	0%
Identify project stakeholders	3.12	4.28	27%		0.00	0.00	0%
Address customer expectations	3.44	4.40	22%		1.67	3.56	113%
Gauge customer service quality by applying six key dimensions	3.04	4.32	30%		1.33	3.56	167%
Manage Change	Before	After	Difference		Before	After	Difference

Connect change and transition-situational and psychological impact	2.33	3.88	40%		2.70	4.40	63%
Identify change style preferences-conservator, pragmatist, originator	2.08	3.88	46%		2.70	4.40	63%
Plan for change applying Kotter's 8 Step Change Model	1.79	3.71	52%		2.20	4.30	95%
Address intelligent risk taking and risk mitigation	2.38	3.79	37%		2.70	4.20	56%
Share tools/concepts to facilitate innovative thinking	2.29	3.71	38%		2.50	4.30	72%
Conflict Management Styles	Before	After	Difference		Before	After	Difference
Discuss navigating conflict-and the preferences associated with different styles	2.38	3.79	37%		0.00	0.00	0%
Pull together ideas from across the SCP sessions and address personal stance moving forward	2.42	3.67	34%		0.00	0.00	0%

3.4 Application of Skills / Knowledge

The Level 3 data was collected and analyzed by the vendor. ETD contacts SCP graduates six months after completing the program and sends them a Level 3 survey link. At the time of this report, ETD only had data from the 2017 cohorts and the first cohort of 2019. Thus, the following table uses the 2017 cohort data to establish the baseline to measure any improvements in the 2019 SCP. (SD, D, NDA, A, and SA means Strongly Disagree, Disagree, Neither Disagree or Agree, Agree, and Strongly Agree)

	2017 Cohort One		2017 Cohort Two	
	Score	N	Score	N
I increased my knowledge/skill level by completing this program (SD - 1, D - 2, NDA - 3, 4 - A, 5 - SA)	4.18	11	3.61	18
I have successfully applied the knowledge/skills learned in this program to my job (SD - 1, D - 2, NDA - 3, 4 - A, 5 - SA)	4	10	3.5	18
How critical are the knowledge and skills you learned in this training to your success as a federal supervisor (0% = not at all, 100% = extremely critical)	68.20%	11	66.10%	18
How much of this training have you used on your job?	60.90%	11	61.10%	18
If you have NOT successfully applied the knowledge and skills, why not?				
Prevented or discouraged from using	0.00%	0	0.00%	0

No opportunity	50.00%	2	16.67%	1
I didn't have the right tools or other resources needed to apply it	25.00%	1	16.67%	1
Other higher priorities	25.00%	1	50.00%	3
Other	75.00%	3	66.67%	4
The training has improved my job performance as a supervisor (SD - 1, D - 2, NDA - 3, 4 - A, 5 - SA)	3.73	11	3.44	18
Given all factors, including this training, how much has your job performance as a supervisor improved since you completed the program?	50.00%	11	50.60%	17
Based on your response to the prior question, how much of the improvement was a direct result of completing this program?	40.00%	11	45.30%	17
The program had a significant impact on:				
Increasing quality	20.00%	2	30.77%	4
Increasing productivity	20.00%	2	7.69%	1
Increasing employee engagement	60.00%	6	69.23%	9
Enhancing communication	80.00%	8	53.85%	7
Increasing customer satisfaction	10.00%	1	23.08%	3
Decreasing cycle time	0.00%	0	7.69%	1
Decreasing risk	0.00%	0	23.08%	3
Other	10.00%	1	30.77%	4
On-the-Job Support (SD - 1, D - 2, NDA - 3, 4 - A, 5 - SA)				
The course materials have been useful on the job	3.27	11	3.31	16
After completing the program, my supervisor and I discussed how I use the learning on my job	2.64	11	3.19	16
I was provided adequate resources (time, money, equipment) to successfully apply what I learned on my job	3.45	11	3.81	16
Return On Investment (SD - 1, D - 2, NDA - 3, 4 - A, 5 - SA)				
Attending the Supervisor Certificate Program was a worthwhile investment in my managerial career development	3.64	11	3.44	16

The Supervisor Certificate Program is a worthwhile investment for my employer	3.55	11	3.44	16
Would you recommend this program to someone else who needs to learn about being a supervisor at USPTO?				
(1 - Definitely Not, 2 - Probably Not, 3 - Maybe, 4 - Probably, 5 - Definitely)	3.91	11	3.39	18

The following table is from the Level 3 survey of the first cohort of 2019. As seen, there is a substantial improvement in every measure after the 2019 SCP Redesign.

	2019 Cohort One	
	Score	N
I increased my knowledge/skill level by completing this program (SD - 1, D - 2, NDA - 3, 4 - A, 5 - SA)	4.47	17
I have successfully applied the knowledge/skills learned in this program to my job (SD - 1, D - 2, NDA - 3, 4 - A, 5 - SA)	4.41	17
How critical are the knowledge and skills you learned in this training to your success as a federal supervisor (0% = not at all, 100% = extremely critical)	83.00%	17
How much of this training have you used on your job?	69.00%	17
If you have NOT successfully applied the knowledge and skills, why not?		
Prevented or discouraged from using	9.09%	1
No opportunity	45.45%	5
I didn't have the right tools or other resources needed to apply it	9.09%	1
Other higher priorities	27.27%	3
Other	9.09%	1
The training has improved my job performance as a supervisor (SD - 1, D - 2, NDA - 3, 4 - A, 5 - SA)	4.18	17
Given all factors, including this training, how much has your job performance as a supervisor improved since you completed the program?	61.00%	17
Based on your response to the prior question, how much of the improvement	54.00%	17

was a direct result of completing this program?		
The program had a significant impact on:		
Increasing quality	6.82%	3
Increasing productivity	11.36%	5
Increasing employee engagement	25.00%	11
Enhancing communication	34.09%	15
Increasing customer satisfaction	13.64%	6
Decreasing cycle time	4.55%	2
Decreasing risk	2.27%	1
Other	2.27%	1
On-the-Job Support (SD - 1, D - 2, NDA - 3, 4 - A, 5 - SA)		
The course materials have been useful on the job	12 Agree or Strongly Agree (71%)	17
After completing the program, my supervisor and I discussed how I use the learning on my job	7 Agree or Strongly Agree (41%)	17
I was provided adequate resources (time, money, equipment) to successfully apply what I learned on my job	11 Agree or Strongly Agree (65%)	11
Return On Investment (SD - 1, D - 2, NDA - 3, 4 - A, 5 - SA)		
Attending the Supervisor Certificate Program was a worthwhile investment in my managerial career development	14 Agree or Strongly Agree (82%)	17
The Supervisor Certificate Program is a worthwhile investment for my employer	15 Agree or Strongly Agree (88%)	17
Would you recommend this program to someone else who needs to learn about being a supervisor at USPTO?		
(1 - Definitely Not, 2 - Probably Not, 3 - Maybe, 4 - Probably, 5 - Definitely)	4.59	17

Especially heartening is the 14% gain in the participants' estimation of the direct usefulness of the 2019 SCP Redesign.

3.5 Business Impact

According to the U.S. Office of Personnel Management's (OPM) guidance:

Supervisors and managers are the nexus between Government policy and action and the link between management and employees. For this reason, the supervisor's proficiency in both technical and leadership skills is important for success. Effective supervisors increase employee motivation, communicate expectations, and ultimately increase organizational performance. Investing in supervisory learning and development will save money in the future and improve work quality, professional development and job satisfaction throughout all levels of the Federal workforce. ("[Supervisory Leadership Development](#)," n.d.)

OPM measures the impact of supervisor training as part of its "[Employee Engagement Index](#)" (EEI), which is calculated using these questions from the FEVS:

Leaders Lead

Question 53. In my organization, senior leaders generate high levels of motivation and commitment in the workforce.

Question 54. My organization's senior leaders maintain high standards of honesty and integrity.

Question 56. Managers communicate the goals and priorities of the organization.

Question 60. Overall, how good a job do you feel is being done by the manager directly above your immediate supervisor?

Question 61. I have a high level of respect for my organization's senior leaders.

Supervisor

Question 47. Supervisors in my work unit support employee development.

Question 48. My supervisor listens to what I have to say.

Question 49. My supervisor treats me with respect.

Question 51. I have trust and confidence in my supervisor.

Question 52. Overall, how good a job do you feel is being done by your immediate supervisor?

Intrinsic Work Experiences

Question 3. I feel encouraged to come up with new and better ways of doing things.

Question 4. My work gives me a feeling of personal accomplishment.

Question 6. I know what is expected of me on the job.

Question 11. My talents are used well in the workplace.

Question 12. I know how my work relates to the agency's goals and priorities.

The FEVS data files are freely available from the OPM website. ETD used the 2018 FEVS data file to establish the EEI baseline for the USPTO. The scores are the average response based on a five-point scale [5 – Strongly Agree; 4 – Agree; 3 – Neither Agree nor Disagree; 2 – Disagree; 1 – Strongly Disagree].

2018 FEVS Data	Leaders Lead	Supervisor	Intrinsic Work Experience	EEI
USPTO	3.7726	4.3217	3.8937	3.9960
Department of Commerce	3.6401	4.1815	3.8917	3.9044
U.S. Government Overall	3.5059	4.0450	3.8380	3.7963

As seen from the table, the USPTO’s EEI has a higher average overall and with each subcomponent of the EEI than both the Department of Commerce and the U.S. Government overall. The ETD has set a goal of raising the *Supervisor* subcomponent to 4.5 or better in the next three years. For the *Intrinsic Work Experience*, the goal is to increase that average above 4.0 in the next three years. In the next three years, the ETD wants to see that the EEI be above 4.1

The business impacts on the USPTO will be:

1. Improved employee engagement
2. Increased morale
3. Increased trust in the workplace
4. Increased employee productivity – specifically, an increase in the number and quality of examined patent and trademark applications.

The 2019 FEVS data should be released in October/November of 2019. ETD will use the 2019 FEVS data to measure the impact of the SCP on the USPTO’s EEI.

A supporting data source will be the 2019 Next Gen USPTO People Survey (“People Survey”) which uses the Gallup Q¹² score to measure employee engagement. The People Survey was administered early during the 2019 SCP. Thus, it is reasonable to assume that the 2019 People Survey would not be affected by the 2019 SCP. The People Survey uses the same five-point scale that the FEVS does. The overall employee engagement score was 3.77, based on averaging 6,203 responses. Of the twelve questions, only Question Five specifically mentions the supervisor – “My supervisor, or someone at work, seems to care about me as a person.” The average score was 4.05 based on 6,059 responses.

ETD interprets the People Survey Question Five to encapsulate the first three business impacts listed above. USPTO will administer the People Survey again in 2020, so ETD hopes to see positive increases in the overall People Survey score and the Question Five score.

4 Data Analysis

4.1 Isolating the Effects of Training

Isolating the effects of the SCP training was difficult. A significant reason is that ETD is constrained by federal personnel regulations about privacy concerns and collecting employee performance data. ETD considered each isolation method but, settled on using survey data from the participants or supplied by the OPM.

Control groups were not used because of the OPM mandate that all newly hired supervisors receive training. Thus, the ETD is prohibited from forming a control group of newly hired supervisors who would NOT be in the SCP. Also, creating control groups would disrupt the USPTO work environment. ETD even considered using observations by supervisors, but observation was also considered too disruptive.

Trend-line analysis might be possible once ETD can recover the missing Levels 1 through 3 data from 2017 and 2018. The SCP vendor began the first year of the five-contract in 2017. For the first two years of the contract (2017 and 2018), the program design was nearly identical. Thus, ETD can compare the change in Levels 1 through 3 data from 2017 to 2018 and extrapolate the trend from 2018 to 2019 if the program design hadn't been revised. Forecasting may be more difficult given the difficulty of isolating the effects of the SCP training and the limited Levels 1 through 3 data for the SCP.

Because the easiest and least costly method was using participant estimation from the survey data, the ETD solely used estimation as the sole isolation technique. Ideally, the best strategy would be to combine two or more isolation techniques. If it is possible to recover the lost 2017 and 2018 SCP data for the trend analysis, ETD can increase the accuracy and credibility of the effects of the SCP on the USPTO's Level 4 business impacts.

According to participant estimates from the 2017 Level 3 surveys, Cohort One participants estimated that the SCP was responsible for a 40% increase in their supervisory abilities. Cohort Two participants rated that the SCP was accountable for a 45% increase in their supervisory skills. Thus, the average estimated increase in supervisory ability is 43%.

4.2 Converting Data to Monetary Value

Included in the cost of the SCP was the hourly salary rate. This data is easily obtained from the federal government pay tables supplied by OPM. For 2019, the average hourly pay rate for a GS-14 supervisor is \$63.64. ETD calculated the average by using the hourly pay rate for a GS-14 Step 5 rank. The SCP is capped at 40 hours of training. Therefore, the total salary cost per participant is \$2,545.60. Multiplying the total salary cost per participant by the 29 participants in 2019 comes to \$73,822.40 in salary costs.

4.3 Cost of the Intervention

The primary cost of the SCP is a yearly payment made to the vendor over the five-year contract period. This is a fixed cost which includes all participant manuals, presentations, and a facilitator.

Another cost of the SCP is the salary of the SCP manager. ETD estimates that the SCP manager spends 1,000 hours a year on the SCP. Using \$63.64 as the average hourly rate, the cost of the SCP manager's salary is \$63,640.

Other costs such as the room, supplies, and copying/printing is not broken out separately from the general ETD budget. Thus, the additional costs to the ETD program were not considered.

For September 6, 2018, to September 5, 2019, the SCP payment made to the vendor was \$245,106.00.

The total cost of the SCP by year is found by adding the yearly payment to the vendor, the SCP manager's salary, the participants' 2019 salary costs. The total cost of the 2019 SCP is \$382,568.40.

4.4 Assumptions (Guiding Principles / ROI Integration)

In calculating the ROI of the SCP, ETD followed the ROI Institute's *Twelve Guiding Principles*:

- 1 When a higher-level evaluation is conducted, data must be collected at lower levels.
- 2 When an evaluation is planned for a higher level, the previous level of evaluation does not need to be comprehensive.
- 3 When collecting and analyzing data, use only the most credible sources.
- 4 When analyzing data, choose the most conservative alternatives for calculations.
- 5 At least one method must be used to isolate the effects of the solution.
- 6 If no improvement data are available for a population or from a specific source, it is assumed that no improvement has occurred.
- 7 Estimates of improvements should be adjusted for the potential error of the estimate.
- 8 Extreme data items and unsupported claims should not be used in ROI calculations.
- 9 Only the first year of benefits (annual) should be used in the ROI analysis of short-term solutions.
- 10 Costs of the solution should be fully-loaded for ROI.
- 11 Intangible measures are defined as measures that are purposely not converted to monetary.
- 12 The results from the ROI Methodology must be communicated to all key stakeholders.

4.5 Results (L1 – L4), Including Barriers and Enablers to Application

Section 3.2 described the survey used to collect the Level 1 results. ETD has ten questions around the quality of the instruction and the facilitator. These are vital questions as participants resist the mandatory training of the SCP. ETD redesigned the course to be more engaging, so the participants are more open to learning the content.

Section 3.3 uses a self-reported pre-and-posttest set of questions to determine what level of understanding the participants had before the training and after the training. Each Level 2 question is based on the course objectives. ETD assumes that positive progress in the pre-and-posttest set of questions will translate into applying the knowledge on the job.

Section 3.4 describes the Level 3 surveys administered six months after the participant completed the SCP. This Level 3 survey is self-reported by the participant and has historically suffered a low response rate. The Level 3 surveys are valuable sources of data given that ETD cannot directly observe the SCP participants in their work. ETD is also restricted from surveying the SCP participants' supervisors.

In Section 3.5, the ETD describes how two organizations outside of ETD provide Level 4 data. The first data source is the FEVS administered by the OPM; specifically, the EEI. The second data source is the People Survey conducted by the USPTO's Strategic Consulting Team (SCT). The People Survey is based on the Gallup Q¹² survey instrument and helps correlate the findings of the FEVS EEI.

4.6 Level 5 Results (ROI Calculation) and Guiding Principles Applied

Because the primary goal of making our federal supervisors better is to increase employee engagement. ETD does not have the exact costs of disengagement among the USPTO employees. However, ETD can roughly approximate the cost of disengagement using research from Gallup. According to Gallup, a disengaged worker costs [\\$3,400 for every \\$10,000 of their salary](#). According to OPM's Fedscope database (fedscope.opm.gov), the average annual salary at the USPTO is \$123,123.

Performing the calculations, we find the average cost of disengagement per the USPTO employee is \$41,861.82. Multiplying the average cost of disengagement by the total of USPTO employees (approximately 13,000) and ETD found that the total annual cost of disengagement is \$544,203,660.

According to [various research reports](#), between 75 to 70% of government workers are disengaged. If 70% of USPTO employees are disengaged, a one percent increase in engagement will recoup a projected \$7,774,338 in savings for the USPTO. Here are the calculations:

Seventy percent disengagement costs the USPTO \$544,203,660 annually. At 69% disengagement, the annual cost is \$536,429,322. Subtract \$536,429,322 from \$544,203,660 to achieve the \$7,774,338 in savings to the USPTO.

Using the 2019 SCP participants' average estimate of how much the SCP contributed to their success as a supervisor (54%), the ETD could claim that the SCP saved the USPTO \$4,198,143 given a one percent increase in employee engagement among all the USPTO employees.

Given the total cost of the SCP, the ROI is 2,971%, and the Benefits/Cost Ratio (BCR) is 30.71. ETD derived these results by using these formulas.

$$\text{ROI} = (\text{Current Value of Investment} - \text{Cost of Investment}) / \text{Cost of Investment}$$

$$\text{ROI} = (\$4,198,143 - \$382,568.40) / \$382,568.40 = 997\%$$

$$\text{BCR} = \$4,198,143 / \$328,568.40 = 10.97$$

Considering that ETD only had to break-even in its spending for the mandatory SCP, the Level 5 results demonstrate that the USPTO's investment in the SCP is a good investment. For every dollar spent by ETD for the SCP, the USPTO receives nearly \$11 back in value.

4.7 Intangible Benefits

Admittedly, the employee engagement calculations in Section 4.6 are highly speculative. The SCP is a mandatory program and could easily be another "check-the-box" training exercise. However, the ETD wants to create real business impacts for the USPTO, and that is why ETD concentrated on these four intangibles:

1. Improved employee engagement
2. Increased morale
3. Increased trust in the workplace
4. Increased employee productivity – specifically, an increase in the number and quality of examined patent and trademark applications.

ETD considers the above-listed benefits as intangibles because it is difficult (at this time) to measure the links between the SCP and its effects on the intangibles. For the first three intangibles, the USPTO uses the FEVS and the People Survey to measure employee engagement, morale, and workplace trust. Based on the results of the Levels One through Three evaluations, ETD can demonstrate an impact on increasing the skill levels of the USPTO supervisors. How that impact translates into better supervision is difficult to measure because of numerous intervening variables such as increased telework options, the USPTO mentoring program, the increase in affinity group activities, and other workplace initiatives.

The same arguments from the above paragraph can also apply to increased employee productivity. The ETD is one of four internal training divisions. Both the Patents and Trademarks business units have their training divisions which provide supplementary supervisor training. Again, ETD can claim an impact on

productivity based on the SCP but untangling ETD's influence from the other training divisions would be almost impossible. Mainly when ETD and the other training divisions contribute in part to each other's training programs.

5 Reporting

5.1 Conclusions

The SCP redesign has shown early signs of progress based on the results from the SCP Levels One and Two surveys. ETD has established a good baseline from 2017, and 2018 SCP Levels One through Three surveys. For the Level Four measures, the ETD will use the 2018 FEVS results as a baseline to measure any progress toward the four intangibles once the 2019 FEVS results are released later in 2019. The 2020 People Survey will be compared to the 2019 People Survey to corroborate the 2019 FEVS findings.

A promising area of research is to establish a stronger link between the ETD's SCP program and the USPTO's employee engagement level. As demonstrated in Section 4.6, the potential for cost savings by increasing employee engagement is significant. Forging a stronger link between the SCP (actually all of ETD's training programs) will make a strong business case to senior executives for expanding SCP's budget and training programs for all of USPTO.

5.2 Recommendations

1. Continue with the SCP redesign.
2. Tighten up the Levels One through Three surveys process, including better records management and automating the data analysis.
3. Compare the 2019 FEVS results to the 2018 FEVS results to determine the Level 4 impacts on the four intangibles.
4. Develop a survey for the SCP participants' supervisors, use a focus group of the SCP participants' supervisors, or utilize observations of the SCP participants for the Levels 3 and 4. The goal is to establish an evidence-based link between the USPTO's level of employee engagement and the SCP's impact on that level of employee engagement. ETD wants to demonstrate the real monetary impact of the SCP program. Establishing the cost-savings link between the SCP and employee engagement can also serve as a template for calculating the ROI of all ETD's programs.