

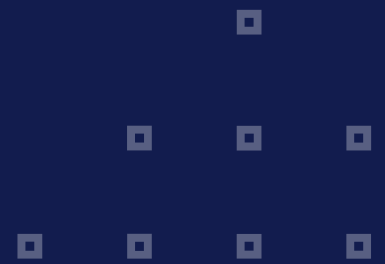


# Workplace Resilience Study

## Full Research Report

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# Workplace Resilience Study

**1** Workplace Resilience: What It Is and Why We Study It

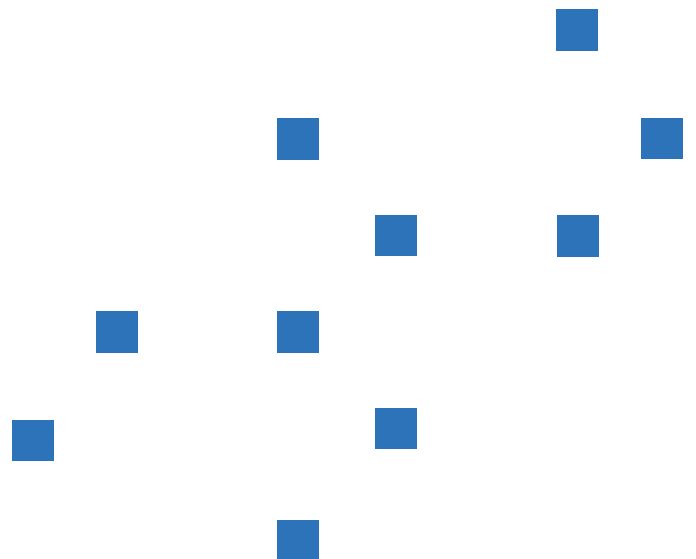
**2** How We Measured Workplace Resilience

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# 1

## **Workplace Resilience: What It Is and Why We Study It**

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# Introduction

The feeling that we are living in “unprecedented times” has precedents. Google’s Ngram tool (which analyzes the frequency of words used in published works) shows that the term “unprecedented times” spikes in usage around tumultuous periods we studied in school, such as in 1812, 1917, and 1942 — but also in less obviously “historical” years such as 1827 and 1921. This is not to argue that those less iconic years did not present any unfamiliar challenges — and still less that our own time does not. Instead, what it indicates is that the ups and downs of life are a constant, that uncertainty is one of the few certainties.

Dealing with such turbulence matters to organizations, because setbacks and challenges will inevitably happen to every organization, and to every person within it. The question is not whether circumstances will, on occasion, “pull people under,” for they assuredly will. The question, instead, is how fast people can resurface.

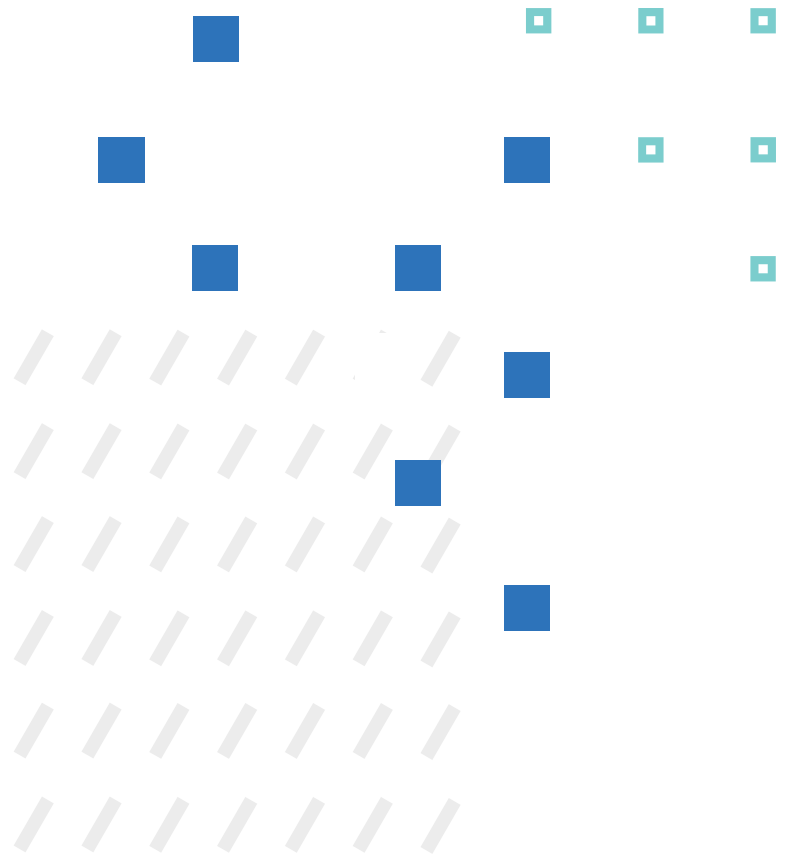
**We broadly refer to this capacity to persevere through or recover from setbacks as “resilience.”**

Much academic research has been conducted on resilience. While researchers have not settled on a single definition, there are common threads. It has been defined as “the ability to maintain or regain mental health after experiencing stress and adversity” (e.g., Herrman et al., 2011), “the relative capacity for healthy adaptation to life adversities” (e.g., Sahi & Raghavi, 2016) and “the ability of individuals to successfully function despite significant life adversities” (e.g., Werner & Smith, 1982; Rutter, 1987; Scoloveno, 2017). What these definitions have in common is a person’s ability to respond to (and “bounce back” from) adversity.

The purpose of this study was to investigate the components of resilience in the workplace, and to design a survey instrument to measure these components.

We define Workplace Resilience as: **the capacity of an individual to withstand, bounce back from, and work through challenging circumstances or events at work.**

The study revealed numerous key insights into Workplace Resilience.



# 2

## How We Measured Workplace Resilience

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Our past research on engagement has revealed a lot about productive employee behaviors (related to voluntary turnover, lost workdays, accidents on the job, etc.) and trust in the workplace. Connecting to that research and using the same methodology, we set out to identify the components of Workplace Resilience. The connection between Workplace Resilience and engagement proved to be valid, and eye-opening: it turns out that roughly 50% of the variance in engagement is explained by resilience.

It is important to note that when we are measuring resilience, we are not simply measuring personality. Research has shown that some people do, indeed, have ingrained traits that lend themselves more to behaviors that we might call resilient (Grafton, Gillespie, Henderson, 2010). But while those traits may set the range of an individual's resilience dial, it is also possible to move the needle within that range. In those aspects of resilience where the dial can move, a person can develop capacity. That is, it is possible to think of resilience as not only a trait but also a state. We aimed our research at these state-like elements of resilience, because they are what our actions can affect and improve.

**We designed our survey items according to three criteria.  
Each item had to represent:**

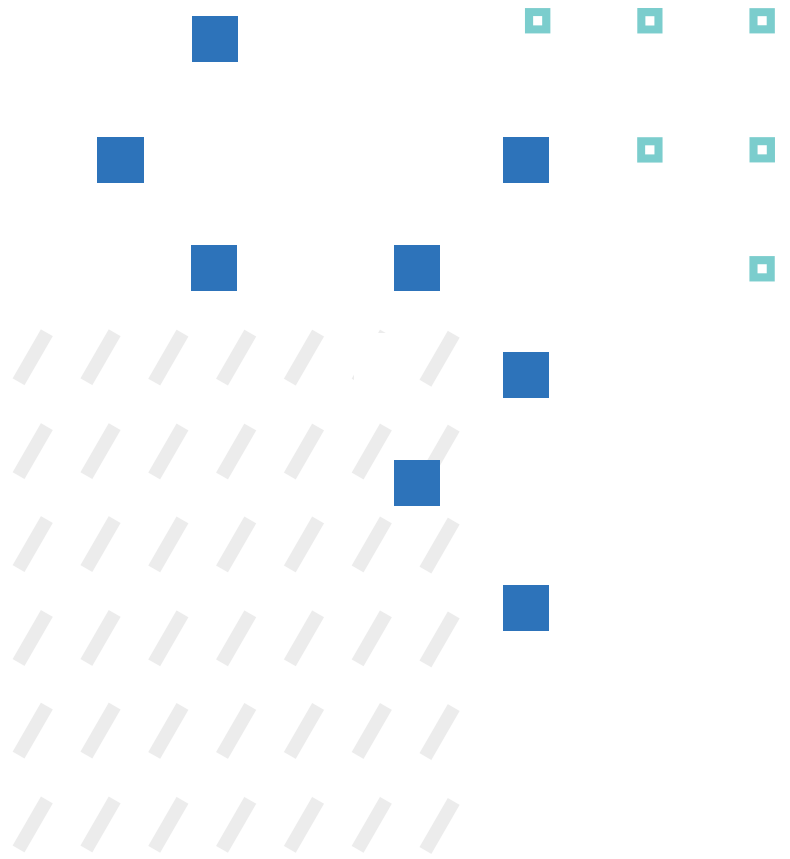
- 1. A single thought** (to avoid muddying what exactly was being measured)
- 2. Extreme wording** (to evoke strong responses)
- 3. “Me rating me”** (to bypass the Idiosyncratic Rater Effect)



We then tested 24 initial items with samples of working adults in the general population to help us learn how each one “works” with real data and in relation to each other item. When we found items that work well together and measure the most important facets of Workplace Resilience, the third step of our process was to test those items with a second general population sample to make sure they perform consistently.

The result was a final set of ten items representing three facets of Workplace Resilience, yielding an overall model that can be used to compute a summary score. The final instrument produces a quantitative measure of resilience and identifies the key factors at work that enable individuals to weather adverse experiences while remaining productive and engaged.

For more detail on this study's model and methodology, see Appendix A.



# 3

## The 10 Key Components of Workplace Resilience

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**Figure 1: 10 Workplace Resilience Items**



### Self

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1. I have all the freedom I need to decide how to get my work done.
2. No matter what else is going on around me, I can stay focused on getting my work done.
3. In the last week, I have felt excited to work every day.
4. I always believe that things are going to work out for the best.



### Team Leader

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5. My team leader tells me what I need to know before I need to know it.
6. I trust my team leader.
7. I am encouraged to take risks.



### Senior Leaders

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8. Senior leaders are one step ahead of events.
9. Senior leaders always do what they say they are going to do.
10. I completely trust my company's senior leaders.





# 4

## **Components of Workplace Resilience: Detailed Analysis**

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The picture that emerges from these items is that Workplace Resilience is an interactive system of feelings about oneself, one's team leader, and one's senior leaders. What do you need to feel about each of these to be resilient at work?

## Self

In terms of self, the key themes that emerge are:

### 1. Personal Agency

To be able to resist or bounce back from setbacks, people need to understand where they have some control. At work, this manifests in having a measure of autonomy to approach one's tasks in a way that works best for oneself to produce the desired result (**"I have all the freedom I need to decide how to get my work done"**). One of the hallmarks of providing this autonomy is to standardize the ends, but individualize the means — focusing on outcomes, rather than on micromanaging how people get their work done. This approach also enables people to put their talents to work in a way that energizes and engages them (**"In the last week, I have felt excited to work every day"**).

### 2. Compartmentalization

Specific difficulties can influence one's overall mindset even in areas that aren't directly affected. The ability to keep challenges in their own "boxes" (**"No matter what else is going on around me, I can stay focused on getting my work done"**) can contribute to progress and efficacy in other areas, which can energize and strengthen an individual, creating more durability and positivity overall (**"I always believe that things are going to work out for the best"**). This is not about denial or being an ostrich, but rather about being able to prevent one element of one's life from cross-contaminating others that need not be affected.

### 3. Strength from the Work Itself

The work itself — what someone is doing every day — is an all too frequently neglected part of the picture. We tend to think of resilience as dealing with external forces that annoy us or knock us back. But people's work tasks in and of themselves can build energy, or deplete it. The more people are able to work on what makes them feel strong, i.e., their strengths, the more work itself can be a source of resilience. When people feel that their work is meaningful, interesting, and successful, it can help them withstand challenges more effectively, because what they are working on actually energizes and fuels them (**"In the last week, I have felt excited to work every day"**).



## Team Leader

Outside of self, the team leader is the ingredient that has the most potential to influence people's experiences and perceptions of how they will overcome disruption at work. The effect of the team leader on Workplace Resilience emerges in two key themes:

### 1. Psychological Safety

It is difficult for people to build capacity for resilience when they feel like they always have to watch their backs. The conditions for resilience therefore include a need for trust in the workplace, and the first level of trust occurs in the individual's relationship to the team leader ("**I trust my team leader**"). Team leaders generate trust not only by demonstrating reliability and keeping confidences, but also by creating psychological safety. We know that increased vulnerability is a key aspect to trust (Tzafirir & Dolan, 2004), and people need space to try things and share ideas without fear of reprisal or blame for failure ("**I am encouraged to take risks**").

### 2. Anticipatory Communication

Surprises and last-minute changes of direction can be a source of frustration at work. The most honest and protective team leader can still undermine trust if team members find themselves constantly playing catch-up because they haven't been informed about important data or organizational outcomes, or because their own leader seems to be out of step with more senior executives. Providing the right information at the right time ("**My team leader tells me what I need to know before I need to know it**") is crucial.



## Senior Leaders

The need for individuals to trust senior leaders ("**I completely trust my company's senior leaders**") resembles what they need from team leaders, but it manifests in different ways. How does a senior leader build trust five levels away from an individual contributor? What does trust mean in this context?

### 1. Visible Follow-Through

People need to believe that they can count on what senior leaders say ("**Senior leaders always do what they say they are going to do**"). This matters regardless of whether a particular action or initiative directly impacts an individual. Senior leaders need to ensure that they highlight how they have lived up to their commitments, both to employees and to clients/customers. The word "always" is notable here (follow-through that is not consistent does not engender feelings of dependability), as is the extreme language of "completely" in the direct trust item ("**I completely trust my company's senior leaders**").

### 2. Vivid Foresight

As with team leaders, so with senior leaders it is not enough to be seen as honest and forthright. People also depend on their senior leaders to lead — to be out in front and pulling the organization into an unseen future ("**Senior leaders are one step ahead of events**"). They want to know that leaders are able to see around the corner and anticipate what others may not have foreseen. This enables them to remain focused on their work without worry. It's possible to get work done on your laptop in the passenger seat of the car — but only if you trust the driver to get you where you're going.

**Figure 2: Workplace Resilience Themes**



**Self**

- |    |  |       |                             |
|----|--|-------|-----------------------------|
| 1. | I have all the freedom I need to decide how to get my work done.                       | ----- | <b>Agency</b>               |
| 2. | No matter what else is going on around me, I can stay focused on getting my work done. | ----- | <b>Compartmentalization</b> |
| 3. | In the last week, I have felt excited to work every day.                               | ----- | <b>Strengths in Work</b>    |
| 4. | I always believe that things are going to work out for the best.                       | ----- | <b>Compartmentalization</b> |



**Team Leader**

- |    |   |       |                                   |
|----|---|-------|-----------------------------------|
| 5. | My team leader tells me what I need to know before I need to know it. | ----- | <b>Anticipatory Communication</b> |
| 6. | I trust my team leader.   | ----- | <b>Psychological Safety</b>       |
| 7. | I am encouraged to take risks.  | ----- | <b>Psychological Safety</b>       |



**Senior Leaders**

- |     |  |       |                               |
|-----|--|-------|-------------------------------|
| 8.  | Senior leaders are one step ahead of events.                 | ----- | <b>Vivid Foresight</b>        |
| 9.  | Senior leaders always do what they say they are going to do. | ----- | <b>Visible Follow-Through</b> |
| 10. | I completely trust my company's senior leaders.              | ----- | <b>Visible Follow-Through</b> |

Founded on these 10 items, this model of Workplace Resilience is unique because it **contextualizes resilience within the organization**. Existing measures of resilience focus largely on the characteristics of an individual apart from the organization, ignoring the enormous effects of one's psychological and emotional experiences at work on the ability to "power through" during times of hardship, or "bounce back" from them. This model takes into account not only that the individual is the primary level at which resilience exists, but also that resilience is shaped by everyday experiences at work (with team leaders) and the overarching impact that comes from a company's senior leaders. This model does not assume that people's level of resilience should be constant regardless of where they work or who is leading them. Every team member has a level of resilience that is shaped by both a uniquely individual outlook and specific experiences at work.



# 5

## Ten Key Findings

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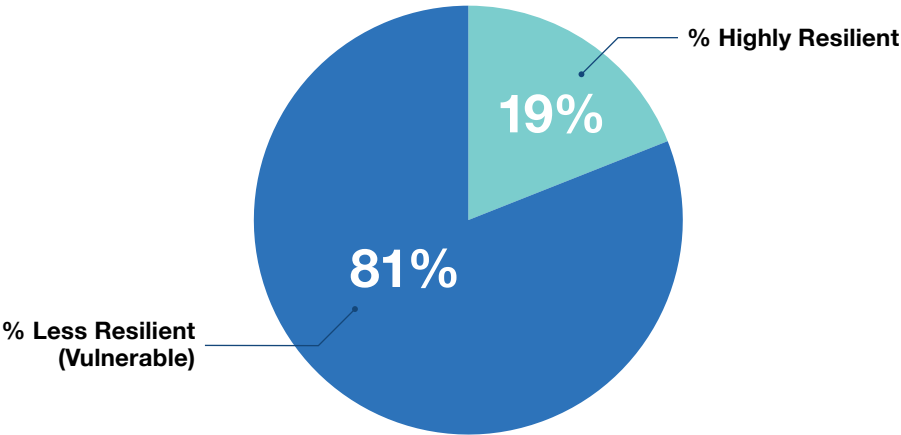
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# 19% of U.S. Workers Are Highly Resilient

With a sound construct in place, we were able to establish what constitutes high resilience. In our earlier research on Engagement (see *Engagement Pulse: Team Leader Effectiveness Through the Eyes of Employees*), we found that the most important difference in the measurement is not in the gradation of scores but in the difference between the highest scoring individuals (dubbed “Fully Engaged”) and everybody else who was “just coming to work.” So, too, with Workplace Resilience, we observed a binary distinction between those who score at the highest levels, the “Highly Resilient,” and everyone else, who might be called the “vulnerable.”

Overall, within this framework, we found that 19% of current U.S. workers can be described as Highly Resilient, which leaves 81% of workers in the less resilient or “vulnerable” category.

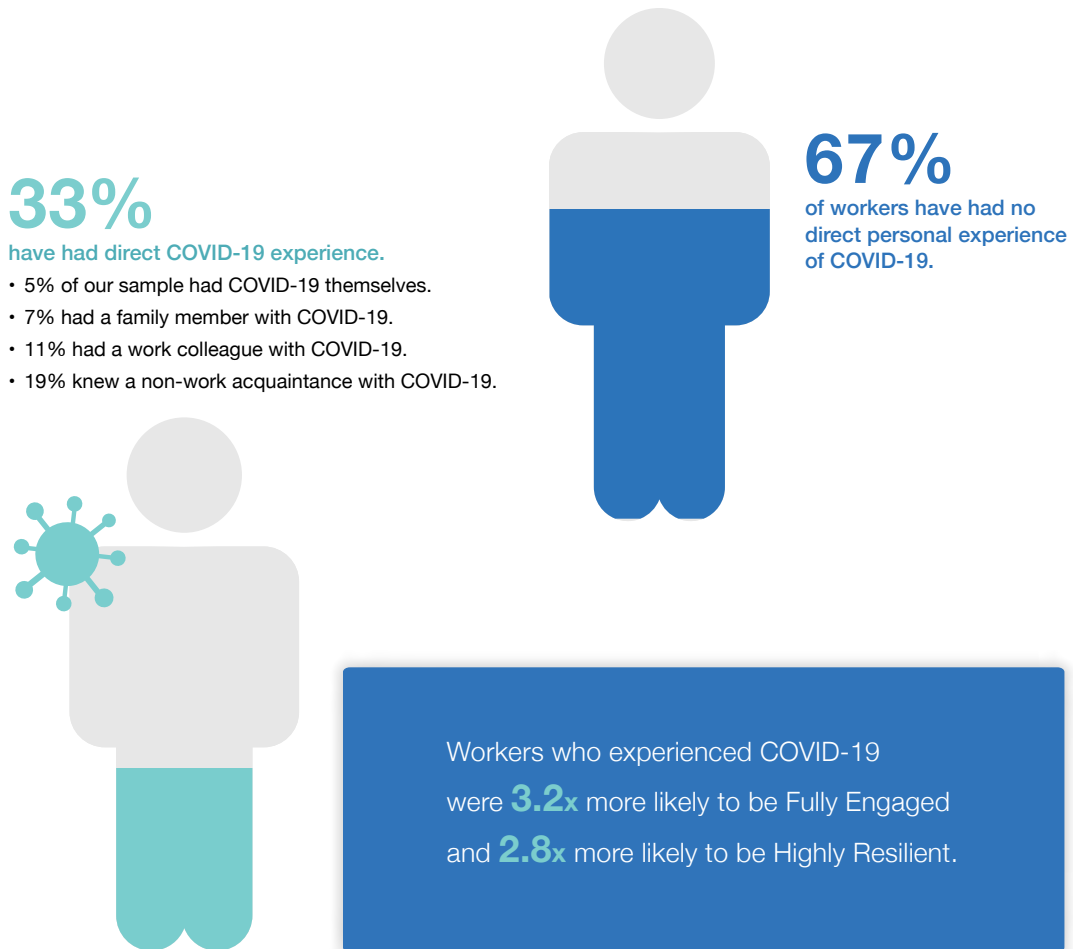
**Figure 3: Percentage of U.S. Workers Who Are Highly Resilient**



This distinction is based on the observation that people who scored above a certain threshold on survey items were more likely to self-report efficacy and high personal capacity even when faced with real-world challenges such as personal or family exposure to COVID-19, or recent job changes.

In fact, although we expected to find that people’s vulnerability might be higher the closer their experience of COVID-19 was, we found the exact opposite. People with more direct experience of COVID-19 were more Highly Resilient.

**Figure 4: Resilience and COVID-19 in the United States**



It would seem that, counterintuitively, being exposed to the realities of COVID-19 actually seems to help generate resilience. While this is surprising, it is not inexplicable. Fear of the unknown is one of the most powerful negative influences on people's mental wellbeing. Experience of COVID-19 shifts it from an unknown to a known phenomenon, and presents people with clear real-world examples of how they can meet the challenges that it presents. It gives people the opportunity to demonstrate their own resilience to themselves. What this means for team leaders and business leaders is that attempting to address people's real anxiety about COVID-19 (about anything) by ignoring it, or taking an overly optimistic, Pollyanna approach, is not a winning strategy. Instead, our findings indicate that facing challenges realistically and openly will build people's capacity for resilience, rather than diminish it.

## 2

# Loving Work Matters

When it comes to Workplace Resilience, love matters more than performance. We asked our respondents the following question:

Most of the work we do fits into one of the four groups below. Read each option and think about how much of your work in your current job fits into each group. Rank the options so that a rank of “1” indicates the type of tasks you spend the most time on, and a rank of “4” indicates the type of tasks you spend the least time on.

- Things you love to do and are great at doing.
- Things you love but have to work to do well.
- Things you do not love, but are great at doing.
- Things you do not love and have to work at to do well.

What we found is that those who love what they do, regardless of whether they excel easily at it (those who gave their top rank of “1” to either of the first two questions) were 3.2x more likely to be Fully Engaged and 3.9x more likely to be Highly Resilient than those who said they spend most of their time on work they do not love doing.

**Figure 5: The Impact of Loving Work**

	% HR	% FE
Things you love to do and are great at doing.	23%	27%
Things you love but have to work to do well.	25%	28%
Things you do not love but are great at doing.	9%	11%
Things you do not love and have to work at to do well.	6%	0%

**Loving the work you do each day is a contributing factor to being Highly Resilient.**



### 3

## Trust in the Team Leader Is a Crucial Part of Resilience

One of three team leader-related items in the Workplace Resilience survey directly asks respondents to evaluate whether they trust their team leaders: “I trust my team leader.” Looking at the other two components of team leader resilience, team members rate their team leader higher on communication and opportunities to take risks when they exhibit higher levels of trust.

**Figure 6: Team Leader Trust**



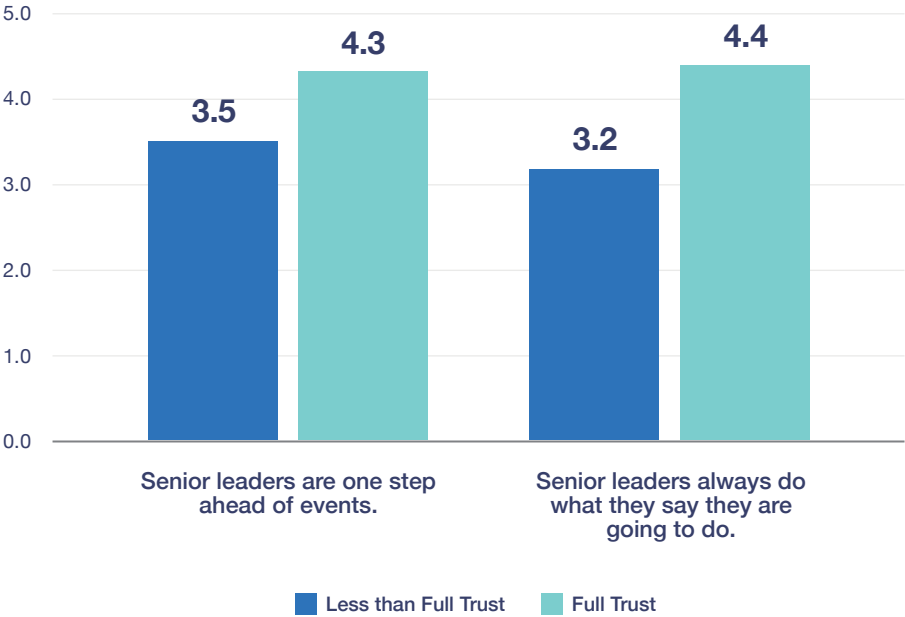
We can say with confidence that **trust** in one’s team leader is highly related to anticipatory communication and psychological safety.

4

# Trust in Senior Leaders Also Contributes to Resilience

Workers who have full trust in their senior leaders, just as with team leaders, respond significantly higher to the other two items on the senior leader sub-scale of resilience.

**Figure 7: Senior Leader Trust**

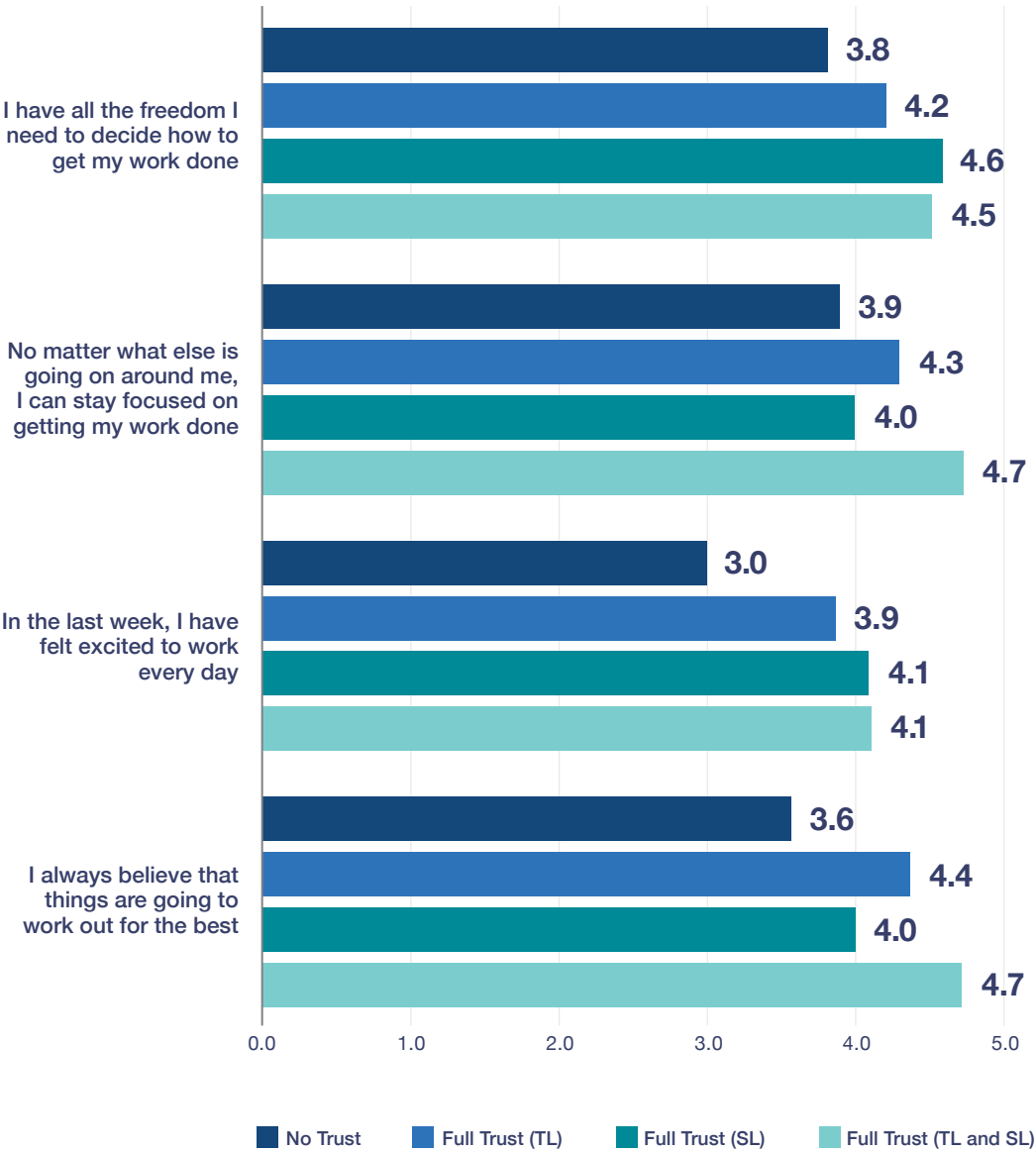


5

# External Resilience Factors Correlate to Internal Resilience

Trust in team leaders and senior leaders has a direct relationship to the “self” level of resilience a person feels.

**Figure 8: Compounded Relationships of Trust to Self-Resilience**



## 6

# The Type of Work You Do May Have an Impact on Resilience

We wanted to measure whether the type of work that a person does (knowledge work, cyclical work, or hybrid) affects levels of resilience. Our study revealed significant differences in the resilience levels of people based on their perception of their daily job complexity. It may mean that there is a different starting point for what each group does.

**Figure 9: Relationship of Job Complexity on Resilience**

Which of the following best describes a typical day at work?	% HR
I have a level of freedom to use my expertise to create something new.	28%
I use a level of expertise to solve similar problems each day.	18%
I do similar repetitive tasks each day.	12%

## 7

# Resilience Varies by Job Level

Generally speaking, the higher one's level within a company, the more likely one is to be Highly Resilient. This finding mirrors what we see with engagement.

**Figure 10: Resilience by Job Level**

	% HR
Upper Management (including Owner)	37%
Middle Management	25%
Frontline Management	20%
Individual Contributor	14%
Intern / Temporary Employee	10%
<b>Total</b>	<b>19%</b>

8

## Gender Does *Not* Predict Resilience

Gender does not seem to have any predictive value when it comes to Workplace Resilience. While we see small differences, they fall within the data's margin of error.

**Figure 11: Resilience by Gender**

Gender	% HR
Male	21%
Female	17%
<b>Total</b>	<b>19%</b>

9

## Neither Does Age

Resilience does not discriminate by age. A Millennial is no more or less likely to be Highly Resilient than a Baby Boomer. Again, while small differences show up in the data here, they are not statistically significant.

**Figure 12: Resilience by Age**

Age	% HR
Gen Z	14%
Gen Y	20%
Gen X	17%
Boomers	13%
Mature	13%
<b>Total</b>	<b>17%</b>

10

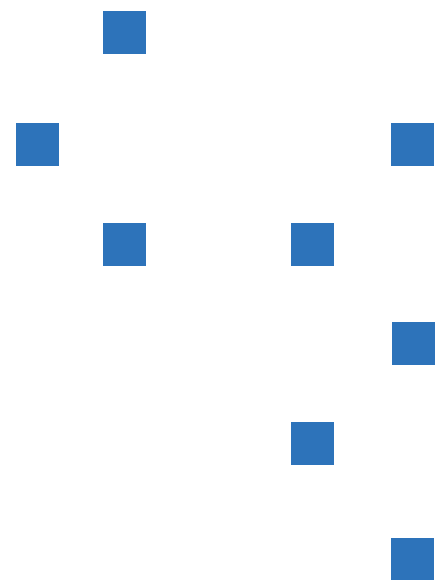
## Being on a Team Does Not Increase Resilience

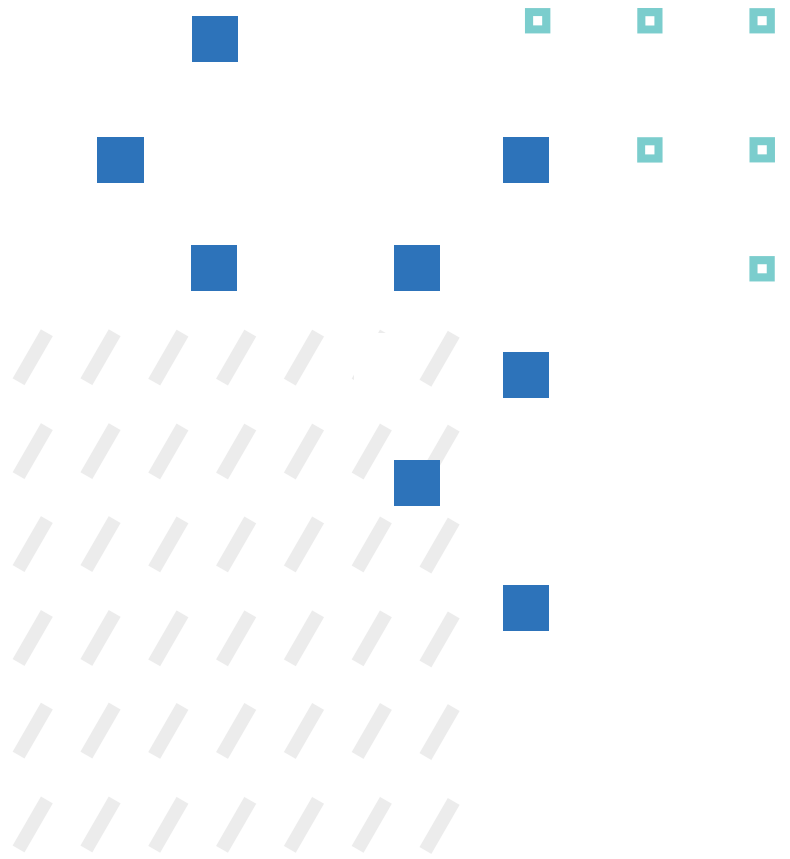
Unlike engagement, Workplace Resilience is not dependent on being on a team. It is more dependent on self, team leaders, and senior leaders.

**Figure 13: Resilience by Team**

	% HR
Belong to a team	18%
Not part of a team	14%

These findings are the first step in building our overall picture of Workplace Resilience, not just in the United States, but around the world. We will continue our research, deploying the survey globally and exploring whether these initial results hold steady across countries and across time.





# 6

## Conclusion

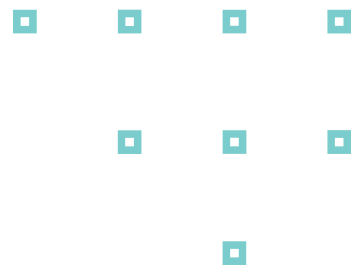
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Faced with high levels of stress and rapid change worldwide, organizations are placing increased emphasis on understanding the mindset of employees and helping them to navigate through turbulence.

**This study had two primary objectives:**

1. To determine whether people's ability to withstand and bounce back from trying circumstances was affected by leaders in the workplace.
2. To measure workers' current level of resilience.

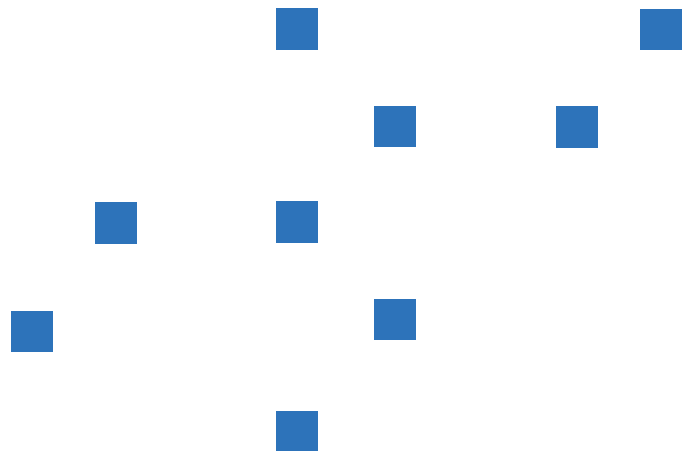
**We found that people's personal level of resilience in the workplace is closely related to their immediate team leader and their organization's senior leaders. In the United States, 19% of workers exhibit high levels of resilience as measured against real-world stresses that are prevalent parts of the current working environment.**





# Summary

- 1** Resilience is a reaction to a perceived and/or real challenge. It describes a person's ability to withstand that challenge and continue to move forward or be productive.
- 2** Although current levels of Workplace Resilience in the U.S. are not high, our findings point to some areas in which individuals or their leaders can take action to increase it.
- 3** The three sources of Workplace Resilience are:
  - Oneself
  - One's team leader
  - One's senior leaders
- 4** Whether someone is a member of a team does not seem to affect levels of Workplace Resilience. Instead, the most important factors are trust in one's team leader and senior leadership, and the ability to feel agency within, to take risks within, and draw strength from the work itself.





## Appendix A

# ADPRI Measure of Workplace Resilience

Item Testing Study, April 2020

## 1. Purpose of Study

The purpose of this study was to test an initial pool of items intended to measure 3 aspects of “Workplace Resilience”: confidence in self, perceptions of team leaders, and perceptions of senior leadership/organizational preparedness.

### Conceptual Model of Workplace Resilience

The conceptual model of Workplace Resilience consists of three levels: the self (internal influence on resilience), team leaders (external influence on resilience), and senior company leaders (external influence on resilience).

Resilience of the self comprises the internal characteristics that allow an individual to be ready to withstand challenges or “bounce back” from them. This includes an internal locus of control in which one can interpret the world around oneself as contextualized or catastrophic.

The Team Leader (Direct Leader) is the layer outside of the self that has the most potential to influence a person’s experiences at work. This is the first layer of external influences that shape an individual’s perceptions of how a company will survive disruption.

The Senior Leader (Organizational Leader) is a second layer outside the self that can have both a direct effect on a person’s experiences at work and an indirect effect by touching first the team leader and then the self. This layer of external influences considers individuals’ perceptions of those who are making choices for the greater good of the organization.

## 2. Survey Methodology in Brief

Survey Monkey Audience Panel was used to deploy an online questionnaire to a general population sample. Respondents who indicated they were not employed were excluded from the remainder of the questionnaire. Data were collected from a sample of  $n = 517$  individuals. Only response sets with data for all items were used for item testing and selection,  $n = 475$ . The data were collected April 24–25, 2020.

In addition to the initial item pool of 24 resilience items, the online questionnaire included the 8 Engagement Pulse items, 4 standard Engagement Pulse calibration items (one other calibration item was included as part of the resilience item pool), 4 items measuring team connectedness, and 10 demographic items.

## Initial Item Pool for Resilience Instrument

### Self Level of Resilience, Items Tested and Accepted

- I have all the freedom I need to decide how to get my work done. [q15]
- No matter what else is going on around me, I can stay focused on getting my work done. [q16]
- In the last week, I have felt excited to work every day. [q18]
- I always believe that things are going to work out for the best. [q42]

### Self Level of Resilience, Items Tested and Rejected

- I look for the good in any situation. [q14]
- Even when things are tough, I can perform quite well. [q17]
- Pressure at work is manageable every day. [q27]
- I have the flexibility to do my job the way it works for me. [q28]
- In the last week, I have not felt really stressed out at work. [q43]
- Despite how quickly the outside world changes, I know that my choices matter most. [q44]
- At work, I love what I do every day. [q45]

### Team Leader Level of Resilience, Items Tested and Accepted

- My team leader tells me what I need to know before I need to know it. [q30]
- I trust my team leader. [q32]
- I am encouraged to take risks. [q39]

### Team Leader Level of Resilience, Items Tested and Rejected

- I can say what I want to my team leader without fear. [q29]
- My team leader keeps no secrets from me. [q31]
- I know I can raise any issue on my team. [q40]
- My input always matters. [q41]

### **Senior Leader Level of Resilience, Items Tested and Accepted**

- Senior leaders are one step ahead of events. [q33]
- Senior leaders always do what they say they are going to do. [q36]
- I completely trust my company's senior leaders. [q37]

### **Senior Leader level of Resilience, Items Tested and Rejected**

- Senior leaders are always planning for the future. [q34]
- Senior leaders never make a promise they can't keep. [q35]
- I know senior leaders will give me what I need to do my job excellently. [q38]

### **Engagement Pulse**

- I am really enthusiastic about the mission of my company. [ep1]
- At work, I clearly understand what is expected of me. [ep2]
- In my team, I am surrounded by people who share my values. [ep3]
- I have the chance to use my strengths every day at work. [ep4]
- My teammates have my back. [ep5]
- I know I will be recognized for excellent work. [ep6]
- I have great confidence in my company's future. [ep7]
- In my work I am always challenged to grow. [ep8]

### **Additional Items**

#### **Calibration Items**

- My workload is manageable. [q10]
- The work I do is important to the success of the company. [q11]
- At work, I am satisfied with my job responsibilities. [q12]
- I am provided opportunities for growth and development. [q13]

### **Team Connectedness Items**

- My teammates always share information. [q06]
- We learn from each other on my team. [q07]
- I believe everyone on my team values my opinion. [q08]
- When my team collaborates, we always create something great. [q09]

### **Demographic Questions**

Which of the following best describes your employment status? If you have more than one job, please describe your primary employment. [employ]

- In which industry are you currently employed for your primary work? [industry]
- Which of the following best describes your level within your primary company? [level]
- Would you say you are a member of a team at work? [team]
- What best describes a typical day at work for you? [cycle]
- How long have you held your current job? [tenure]
- What percentage of the work you do for your employer is done virtually? [virtual]
- What percent of the work you do for your employer was done virtually before the COVID-19 crisis caused companies to change how work gets done? [previrtual]
- My work is very different from what it was before the COVID-19 crisis. [change]
- Have you or someone in your immediate community been infected with COVID-19? [infected]

### **Panel Demographic Information**

- Respondent Age [age]
- Respondent Gender [sex]
- Device Type [device type]

### 3. Resilience Item Selection Process & Results

The initial item pool of resilience items was developed with the intent that each item would measure one of three specific aspects of resilience: confidence at the level of oneself, perceptions of team leaders, and perceptions of senior leaders. The item selection and model development process were guided by this theoretical structure, an acceptable model was identified for each of the three aspects of resilience, then an overall factor structure was identified. This process makes it possible to calculate a score for each of the three areas as well as an overall score for resilience.

The model identification and selection processes were completed using the following steps to ensure the particular characteristics of this sample of data did not shape a factor model that is unlikely to withstand use in other populations or over time:

1. Descriptive statistics for item response sets
  - a. Review of frequency distribution of responses for each item
  - b. Review of inter-item covariance matrix (within each subscale, across instrument)
2. Model identification via simulated data to avoid theoretical overuse of sample data and introduction of sample bias into measurement and structural models
  - a. 27 populations of 100,000 response sets for each possible combination of sample characteristics (3 variations each for means, variances, covariances)
  - b. Random sample of 1,000 cases from each population used to test and compare multiple models
  - c. 250 random samples of 500 cases from each population used to test “best” models
3. Confirmatory Factor Analysis of selected models with sample data
4. Comparison of models including alternative items with sample data

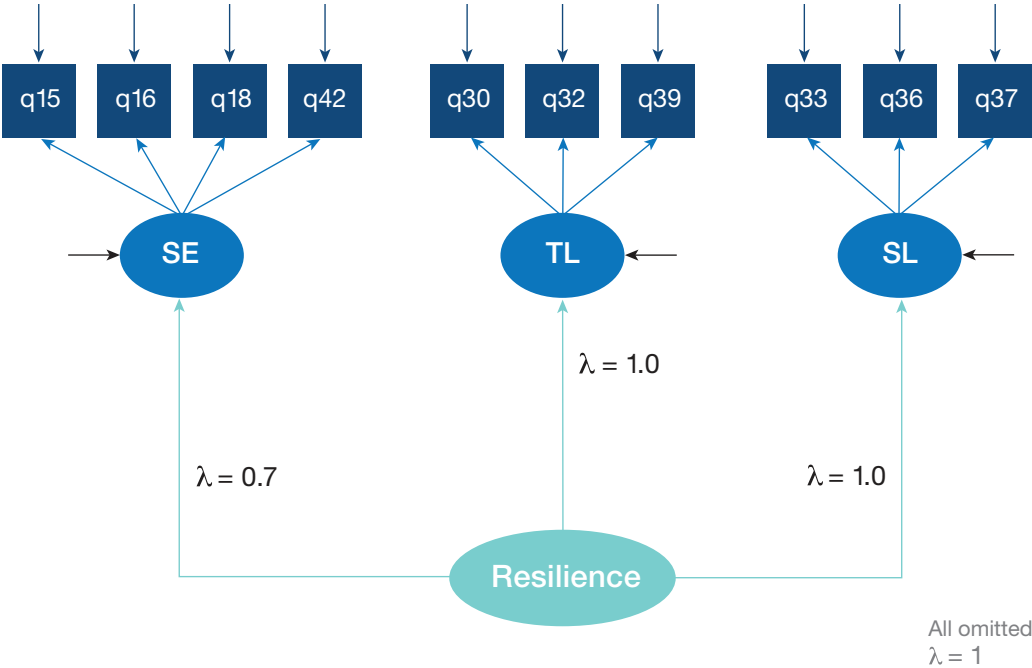
The model selected for each aspect of resilience includes 4 items for the self-level of the model and 3 items each for the direct leader and senior leader that serve as reflective indicators of a unique latent construct. Factor scores derived from each of the 3 subareas of resilience are then considered reflective indicators of the global hierarchical latent construct. For each of the 3 subarea models, the assumptions of congeneric, essentially  $\tau$ -equivalent, and parallel indicators were not relaxed, thus allowing factor scores computed as a simple average or sum of responses to each item set. The assumptions of essential  $\tau$ -equivalence and parallel indicators were relaxed slightly to fit an overall structural model to the different variations of population data characteristics. Therefore, the overall resilience factor score is computed using item weights and a linear equation.

The assumption of congeneric indicators means that the specified items measure a unidimensional construct. The assumption of  $\tau$ -equivalence means that the items are found to load equally onto their shared latent variable. The assumption of parallel indicators means that the reflective indicators (i.e., the Workplace Resilience items) have approximately equal error variances. When these assumptions are met, it is appropriate to conclude that a summary score composed of a simple mean or average is both meaningful and interpretable.

A traditional confirmatory factor analytic (CFA) approach with maximum likelihood estimation was selected for this study because it is a conservative technique, requiring that the imposed models be closer to the observed relationships for the resulting fit statistics to be of acceptable levels. Fit statistics are indices of the quality of the overall fit between a theoretical model and a set of data. The better the fit statistics, the more confidence one has that the conceptual model is a sound representation of the relationships that exist between the included variables. Using a conservative approach means we are less likely to find significance where none exists, and that our instrument is more likely to perform as expected across populations.

Evaluation of CFA models for this study was done in part by considering the following fit indices and the common guidelines associated with them: CFI  $\geq .95$ ; TLI  $\geq .95$ ; RMSEA  $\leq .08$  with  $p \geq .05$ ; and SRMR  $\leq .08$ . Together, these fit indices comprise consideration of different aspects and approaches to understanding model fit. Chi-square ( $\chi^2$ ) fit statistics are also reported within this document as a matter of standard practice, where  $p \geq .05$  indicates good model fit. Due to the sensitivity of chi-square to sample size, this indicator of model fit was used to inform the model development process but was not used to exclude otherwise well-fitting models.

**Figure 1. Factor Model of Workplace Resilience**





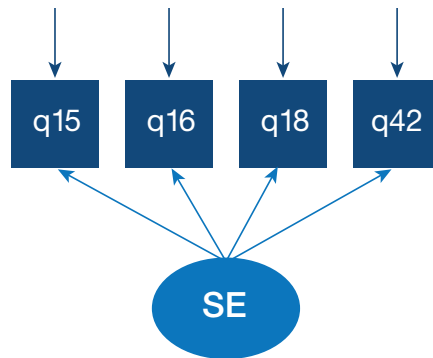
## Self Level of Resilience

The items included in the final model of the Self level of resilience are:

1. I have all the freedom I need to decide how to get my work done. [q15]
2. No matter what else is going on around me I can stay focused on getting my work done. [q16]
3. In the last week, I have felt excited to work every day. [q18]
4. I always believe that things are going to work out for the best. [q42]

The model was found to fit the data (Figure 2):  $\chi^2(7) = 9.20, p > .05$ ; CFI = .99; TLI = .99; RMSEA = .03,  $p > .05$ ; and SRMR = .04.

**Figure 2. Factor Model for Self Level of Resilience**



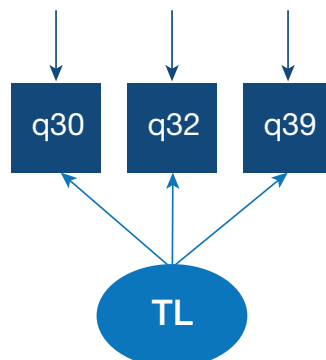
## Team Leader Level of Resilience

The items included in the final model of the Team Leader level of resilience are:

5. My team leader tells me what I need to know before I need to know it. [q30]
6. I trust my team leader. [q32]
7. I am encouraged to take risks. [q39]

The model was found to fit the data (Figure 3):  $\chi^2(2) = 7.457, p < .05$ ; CFI = .99; TLI = .98; RMSEA = .08,  $p > .05$ ; and SRMR = .05. Items in this model were allowed to covary.

**Figure 3. Factor Model for Team Leader Level of Resilience**



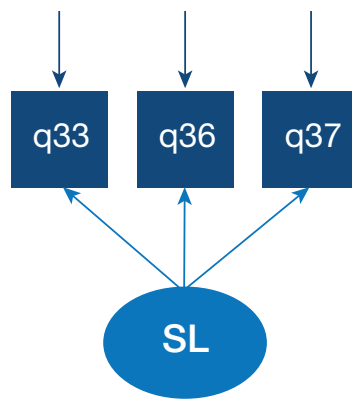
## Senior Leader Level of Resilience

The items included in the final model of the Senior Leader level of resilience are:

8. Senior leaders are one step ahead of events. [q33]
9. Senior leaders always do what they say they are going to do. [q36]
10. I completely trust my company's senior leaders. [q37]

The model was found to fit the data (Figure 4):  $\chi^2(2) = 3.62, p > .05$ ; CFI = .99; TLI = .99; RMSEA = .04,  $p > .05$ ; and SRMR = .01. Items in this model were allowed to covary.

**Figure 4. Factor Model for Senior Leader Level of Resilience**



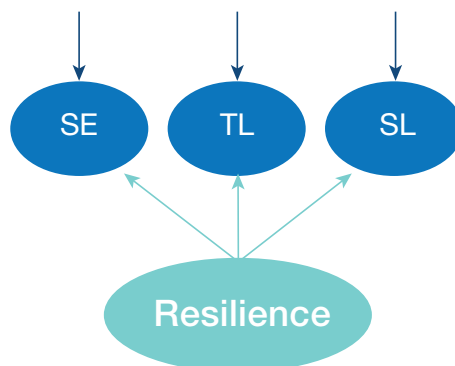
## Overall Resilience

The items included in the final model of Workplace Resilience are:

1. Factor score for Self level of resilience
2. Factor score for Team Leader level of resilience
3. Factor score for Senior Leader level of resilience

The model was found to fit the data (Figure 1):  $\chi^2(1) = 0.081, p > .05$ ; CFI = .99; TLI = .99; RMSEA = .00,  $p > .05$ ; and SRMR = .01. Items in this model were allowed to covary.

**Figure 5. Factor Model for Workplace of Resilience**



## 4. Frequency Statistics for All Items

### Resilience Instrument: Items Tested and Accepted

#### Self Level of Resilience

- I have all the freedom I need to decide how to get my work done. [q15]
- No matter what else is going on around me, I can stay focused on getting my work done. [q16]
- In the last week, I have felt excited to work every day. [q18]
- I always believe that things are going to work out for the best. [q42]

	q15		q16		q18		q42	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	123	24.4	138	27.3	86	17.0	127	25.2
Agree	244	48.3	242	47.9	163	32.3	229	45.5
Neither Agree nor Disagree	86	17.0	76	15.0	155	30.7	103	20.5
Disagree	40	7.9	38	7.5	73	14.5	33	6.6
Strongly Disagree	12	2.4	11	2.2	28	5.5	11	2.2
<b>Total</b>	<b>505</b>		<b>505</b>		<b>505</b>		<b>503</b>	

### Team Leader Level of Resilience

- My team leader tells me what I need to know before I need to know it. [q30]
- I trust my team leader. [q32]
- I am encouraged to take risks. [q39]

	q30		q32		q39	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	121	24.1	146	29.0	78	15.5
Agree	179	35.7	192	38.2	169	33.5
Neither Agree nor Disagree	121	24.1	101	20.1	140	27.8
Disagree	57	11.4	40	8.0	86	17.1
Strongly Disagree	24	4.8	24	4.8	31	6.2
<b>Total</b>	<b>502</b>		<b>503</b>		<b>504</b>	

### Senior Leader Level of Resilience

- Senior leaders are one step ahead of events. [q33]
- Senior leaders always do what they say they are going to do. [q36]
- I completely trust my company's senior leaders. [q37]

	q33		q36		q37	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	90	17.9	84	16.8	106	21.2
Agree	201	40.0	187	37.3	196	39.2
Neither Agree nor Disagree	140	27.9	134	26.7	127	25.4
Disagree	49	9.8	67	13.4	44	8.8
Strongly Disagree	22	4.4	29	5.8	27	5.4
<b>Total</b>	<b>502</b>		<b>501</b>		<b>500</b>	

## Resilience Instrument: Items Tested and Rejected

### Self Level of Resilience, Items Tested and Rejected

- I look for the good in any situation. [q14]
- Even when things are tough, I can perform quite well. [q17]
- Pressure at work is manageable every day. [q27]

	q14		q17		q27	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	154	30.4	146	28.9	104	20.7
Agree	236	46.6	277	54.7	244	48.6
Neither Agree nor Disagree	76	15.0	60	11.9	92	18.3
Disagree	33	6.5	17	3.4	50	10.0
Strongly Disagree	7	1.4	6	1.2	12	2.4
<b>Total</b>	<b>506</b>		<b>506</b>		<b>502</b>	

- I have the flexibility to do my job the way it works for me. [q28]
- In the last week, I have not felt really stressed out at work. [q43]
- Despite how quickly the outside world changes, I know that my choices matter most. [q44]
- At work, I love what I do every day. [q45]

	q28		q43		q44		q45	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	139	27.7	93	18.5	92	18.3	120	23.9
Agree	231	46.1	165	32.7	217	43.2	192	38.2
Neither Agree nor Disagree	65	13.0	112	22.2	139	27.7	128	25.4
Disagree	54	10.8	88	17.5	38	7.6	40	8.0
Strongly Disagree	12	2.4	46	9.1	16	3.2	23	4.6
<b>Total</b>	<b>501</b>		<b>504</b>		<b>502</b>		<b>503</b>	

### Team Leader Level of Resilience, Items Tested and Rejected

- I can say what I want to my team leader without fear. [q29]
- My team leader keeps no secrets from me. [q31]
- I know I can raise any issue on my team. [q40]
- My input always matters. [q41]

	q29		q31		q40		q41	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	136	27.1	95	18.9	117	23.3	123	24.6
Agree	186	37.1	168	33.4	237	47.2	211	42.1
Neither Agree nor Disagree	108	21.6	143	28.4	94	18.7	108	21.6
Disagree	46	9.2	60	11.9	38	7.6	37	7.4
Strongly Disagree	25	5.0	37	7.4	16	3.2	22	4.4
<b>Total</b>	<b>501</b>		<b>503</b>		<b>502</b>		<b>501</b>	

### Senior Leader Level of Resilience, Items Tested and Rejected

- Senior leaders are always planning for the future. [q34]
- Senior leaders never make a promise they can't keep. [q35]
- I know senior leaders will give me what I need to do my job excellently. [q38]

	q34		q35		q38	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	106	21.1	88	17.6	104	20.8
Agree	221	44.0	148	29.5	179	35.7
Neither Agree nor Disagree	122	24.3	157	31.3	140	27.9
Disagree	38	7.6	75	15.0	41	8.2
Strongly Disagree	15	3.0	33	6.6	37	7.2
<b>Total</b>	<b>502</b>		<b>501</b>		<b>501</b>	

## Engagement Pulse

- I am really enthusiastic about the mission of my company. [ep1]
- In my team, I am surrounded by people who share my values. [ep3]
- My teammates have my back. [ep5]
- I have great confidence in my company's future. [ep7]

	ep1		ep3		ep5		ep7	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	123	24.4	134	26.6	124	24.6	153	30.4
Agree	217	43.1	216	42.9	233	46.1	209	41.6
Neither Agree nor Disagree	100	21.8	100	19.8	101	20.0	96	19.1
Disagree	32	6.3	39	7.7	25	5.0	31	6.2
Strongly Disagree	22	4.4	15	3.0	22	4.4	14	2.8
<b>Total</b>	<b>504</b>		<b>504</b>		<b>505</b>		<b>503</b>	

- At work, I clearly understand what is expected of me. [ep2]
- I have the chance to use my strengths every day at work. [ep4]
- I know I will be recognized for excellent work. [ep6]
- In my work I am always challenged to grow. [ep8]

	ep2		ep4		ep6		ep8	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	183	37.0	150	29.8	121	24.0	129	25.5
Agree	238	47.3	227	45.0	224	44.4	202	40.0
Neither Agree nor Disagree	52	10.3	84	16.7	85	16.8	102	20.2
Disagree	17	3.4	26	5.2	50	9.9	55	10.9
Strongly Disagree	10	2.0	17	3.4	25	5.0	17	3.4
<b>Total</b>	<b>503</b>		<b>504</b>		<b>505</b>		<b>505</b>	

## Calibration Items

- My workload is manageable. [q10]
- The work I do is important to the success of the company. [q11]
- At work, I am satisfied with my job responsibilities. [q12]
- I am provided opportunities for growth and development. [q13]

	q10		q11		q12		q13	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	126	25.0	184	36.7	158	31.3	125	24.8
Agree	279	55.2	231	46.0	148	49.1	205	40.6
Neither Agree nor Disagree	64	12.7	66	13.1	61	12.1	105	20.8
Disagree	22	4.4	12	2.4	26	5.1	47	9.3
Strongly Disagree	14	2.8	9	1.8	12	2.4	23	4.6
<b>Total</b>	<b>505</b>		<b>502</b>		<b>505</b>		<b>505</b>	

## Team Connectedness Items

- My teammates always share information. [q06]
- We learn from each other on my team. [q07]
- I believe everyone on my team values my opinion. [q08]
- When my team collaborates, we always create something great. [q09]

	q06		q07		q08		q09	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Strongly Agree	124	24.4	156	30.7	131	25.9	131	25.8
Agree	238	46.9	251	49.4	232	45.8	231	45.6
Neither Agree nor Disagree	74	14.6	60	11.8	88	17.4	103	20.3
Disagree	37	7.3	23	4.5	34	6.7	23	4.5
Strongly Disagree	35	6.9	18	3.5	21	4.2	19	3.7
<b>Total</b>	<b>508</b>		<b>508</b>		<b>506</b>		<b>507</b>	



## Demographic Questions

Which of the following best describes your employment status? If you have more than one job, please describe your primary employment. [employ]

	Frequency	Percent
Part-time work for a company / organization	125	24.2
Full-time work for a company / organization	372	72.0
Self-employed part-time as a contingent worker (a.k.a., independent contractor, consultant, or freelancer)	11	2.1
Self-employed full-time as a contingent worker (a.k.a., independent contractor, consultant, or freelancer)	9	1.7
<b>Total</b>	<b>517</b>	

In which industry are you currently employed for your primary work? [industry]

	Frequency	Percent
Construction and related trades (contractors, project managers, etc.)	51	10.2
Education (primary, secondary, higher education, technical, daycare)	70	14.0
Healthcare (in and outpatient, healthcare professionals)	47	9.4
Healthcare support (family services / patient advocacy, pharmaceuticals, medical devices)	22	4.4
Finance (banking, insurance, exchanges, brokerages)	24	4.8
Real estate (including rentals, leasing, etc.)	5	1.0
Information (publishing, radio, television, telecommunications, motion picture, data processing, hosting, and related services)	12	2.4
Leisure and hospitality (accommodations / hotels, restaurants / food services, amusement or cultural sites [park, camp, casino, museum, historic, sports], artists / athletes or agents / managers)	32	6.4
Manufacturing (apparel, beverage, chemical, machinery, textiles, wood, paper, etc.)	42	8.4
Professional services (advertising / public relations, consulting, business / travel / facilities services, legal, accounting, architectural, engineering, computer systems design, research / scientific / technical services)	55	11.0
Trade (retail or wholesale – apparel, home / furnishings, home improvement, automotive, office supplies / equipment, electronics / appliances, etc.)	52	10.4
Technology (including information, ICT, development, administration, support, robotics, data security, automation, AI, applications, devices, e-commerce, database management, operations, etc.)	39	7.8
Transportation and warehousing (air / rail / water, courier, storage, etc.)	19	3.8
Food service (servers, cooking staff, delivery drivers, etc.)	27	5.4
App-based task employment (Uber, Lyft, DoorDash, Shipt, TaskRabbit, etc.)	4	0.8
<b>Total</b>	<b>501</b>	

**Which of the following best describes your level within your primary company? [level]**

	Frequency	Percent
Intern / Temporary Employee	25	4.9
Individual Contributor	226	44.2
Frontline Manager	48	9.4
Middle Management	153	29.9
Upper Management	59	11.5
<b>Total</b>	<b>511</b>	

**Would you say you are a member of a team at work? [team]**

	Frequency	Percent
No, I am not a member of a team	61	11.9
Yes, I am a member of one team	354	69.3
Yes, I am a member of two or more teams.	96	18.8
<b>Total</b>	<b>511</b>	

**What best describes a typical day at work for you? [cycle]**

	Frequency	Percent
I do similar repetitive tasks each day.	126	24.7
I use a level of expertise to solve similar problems each day.	196	38.4
I have a level of freedom to use my expertise to create something new.	189	37.0
<b>Total</b>	<b>511</b>	

**How long have you held your current job? [tenure]**

	Frequency	Percent
0–1 year (I had to find new employment due to COVID-19)	26	5.2
0–1 year (I secured this job before COVID-19)	70	13.9
1–2 years	56	11.1
3–4 years	112	22.2
5–8 years	89	17.7
More than 8 years	151	30.0
<b>Total</b>	<b>504</b>	

**What percentage of the work you do for your employer is done virtually? [virtual]**

	Frequency	Percent
0%–19%	215	42.8
20%–39%	64	12.7
40%–59%	63	12.5
60%–79%	53	10.6
80%–99%	41	8.2
100%	66	13.1
<b>Total</b>	<b>502</b>	

**What percent of the work you do for your employer was done virtually before the COVID-19 crisis caused companies to change how work gets done? [previrtual]**

	Frequency	Percent
0%–19%	277	55.3
20%–39%	71	14.2
40%–59%	56	11.2
60%–79%	37	7.4
80%–99%	26	5.2
100%	34	6.8
<b>Total</b>	<b>501</b>	

**My work is very different from what it was before the COVID-19 crisis. [change]**

	Frequency	Percent
Strongly Agree	99	19.7
Agree	144	28.7
Neither Agree nor Disagree	107	21.3
Disagree	88	17.5
Strongly Disagree	64	12.7
<b>Total</b>	<b>502</b>	

**Have you or someone in your immediate community been infected with COVID-19? [infected]**

	Frequency	Percent
No one in my immediate community has been infected with COVID-19	331	65.9
A colleague at work has contracted COVID-19	36	7.2
Someone I know outside of work has contracted COVID-19	95	18.9
Someone else in my household has contracted COVID-19 (e.g., spouse, child, parent)	23	4.6
I have contracted COVID-19	17	3.4
<b>Total</b>	<b>502</b>	

**Panel Demographic Information**

**Respondent Age [age]**

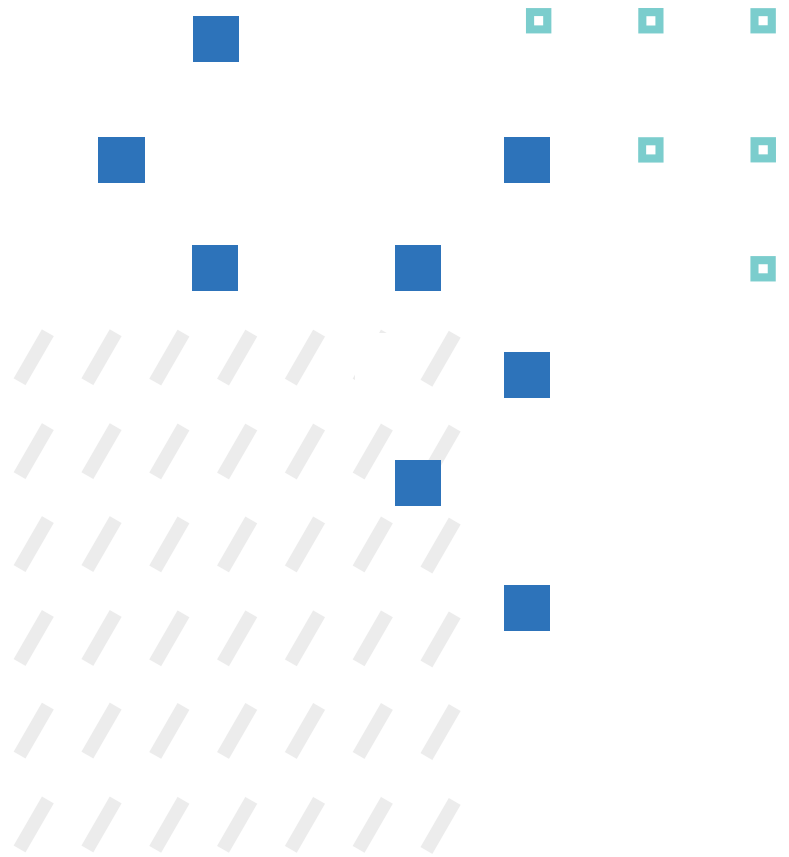
	Frequency	Percent
< 18	13	2.4
18–29	83	15.3
30–44	92	17.0
45–60	193	35.7
> 60	160	29.6
<b>Total</b>	<b>541</b>	

**Respondent Gender [sex]**

	Frequency	Percent
Male	262	48.4
Female	279	51.6
<b>Total</b>	<b>541</b>	

**Device Type [device\_type]**

	Frequency	Percent
iOS Phone / Tablet	155	28.7
Android Phone / Tablet	195	36.0
Windows Desktop / Laptop	146	27.0
MacOS Desktop / Laptop	30	5.5
Other	15	2.8
<b>Total</b>	<b>541</b>	



# Appendix B

# Study Descriptions

Why Team Member Resilience?

While researchers do not all agree on a single definition of resilience, the definitions in use indicate that everyone is thinking about it consistently. Others provide such definitions of resilience as “the ability to maintain or regain mental health after experiencing stress and adversity” (e.g., Herman et al., 2011) and “the relative capacity for healthy adaptation to life adversities” (e.g., Sahi & Raghavi, 2016) and “the ability of individuals to successfully function despite significant life adversities” (e.g., Werner & Smith, 1987; Rutter, 1987; Scoloveno, 2017). What these definitions have in common is a person’s ability to respond to (and “bounce back” from) adversity. Anjos (2019) and Capanna (2015) expand this definition to discuss that it is not only an individual characteristic but also one that is interwoven into the social networks that will buffer the impact of stress and adversity. **Workplace Resilience**, then, is commonly understood as the extent to which individuals in a single organization are expected to overcome adverse experiences. There are numerous instruments available for those who wish to measure Workplace Resilience in this way, but they do not take into account the interplay of supportive social networks that interact with an individual’s positive affect within a workplace setting.

The typical approach to measuring and understanding resilience — even Workplace Resilience — focuses on the individual contributors in an organization and/or some seemingly objective characteristics of a company. These conceptualizations of resilience omit an important piece of the puzzle that we at ADPRI know makes all the difference in the world when it comes to shaping one’s experiences at work: one’s team leader.

The purpose of the ADPRI Workplace Resilience Scale is to provide for the measurement of Workplace Resilience as a function not only of individuals within the organization, but of the influence that team leaders and senior leaders have on team member resilience.

Our conceptual model of **Workplace Resilience** consists of one internal level and two external levels: the team member (or, self — internal influence on resilience), team leader (external influence on resilience), and senior company leaders (external influence on resilience). Workplace Resilience comprises both the state of the individual and the process through which this individual interacts with the world of work.

Resilience of the **Self** comprises one’s internal characteristics that allow one to be ready to “bounce back.” This includes an internal locus of control in which one can interpret the world around oneself as contextualized or catastrophic. Resilience is a positive affect or outlook for the world. At the level of the individual person, the resilience construct includes positivity, agency, and protective focus for calming the world around the individual.

The **Team Leader** (Direct Leader) is the layer outside of the self that has the most potential to influence a person’s experiences at work. This is the first layer of external influences that shape an individual’s perceptions of how an individual within a company will survive disruption. Trust is a large component of the model, and the first level of trust occurs here. As with resilience, there is no convergence on the definition of trust. We define trust as something contextual and personal to the relationship of the individual to the leader. Increased vulnerability is a key aspect of trust (Tzafir & Dolan, 2004). This manifests in the model with the encouragement and acceptance of risks to try something new and possibly fail.

The **Senior Leader(s)** (Organizational Leaders) constitute a second layer outside the self that can have both a direct effect on a person's experiences at work and an indirect effect by touching first the team leader and then the self. This layer of external influences considers individuals' perceptions of those who are making choices for the greater good of the organization. Organizational leader trust comes from a proactive space of communication, planning, and follow-through.

This model of Workplace Resilience (and, thereby, this measurement tool) is unique because it **contextualizes resilience within the organization**. Existing measures of resilience focus largely on the characteristics of individuals apart from their organizations, ignoring the enormous effects of one's psychological and emotional experiences at work on one's ability to "power through" during or "bounce back" from times of hardship. This model not only considers the individual as the primary level at which resilience exists, but takes into account how that resilience is shaped by everyday experiences at work (i.e., experiences with team leaders) and the overarching impact that comes from a company's senior leaders. This is an important distinction in that we do not assume that people's level of resilience should be constant regardless of where they work or to whom they report. Every team member has a level of resilience that is shaped by both a unique outlook as an individual and experiences at work.

## Item Development

An iterative process was used for the development of ADPRI Workplace Resilience Scale items. First, a total of 24 items were written to connect to the different aspects of Workplace Resilience within the context of teams described previously. Second, the items were tested with samples of working adults in the general population to help us learn how each one "works" with real data and in relation to each other item. Because our initial item pool included items that we found to work well together and measure the most important facets of Workplace Resilience, the third step of our process was to test those items with a second general population sample to make sure they perform consistently.

To reduce measurement and psychometric error, the ADPRI Workplace Resilience Scale items were intentionally written with four specific criteria in mind: (1) a single thought per item, (2) extreme wording, (3) "me rating me," and (4) practicable for change. Using the same criteria used to develop items for other StandOut resources provides a consistent philosophical approach across StandOut Tools. The "me rating me" perspective of items is of particular importance in the context of measuring team member resilience in the workplace because it intentionally focuses the cognitive process of responding to each item on one's own experiences instead of overall perceptions of others or hearsay about others' experiences within the organization. These criteria are discussed in detail in our **Engagement Pulse** white paper.

In all, the initial item pool included 11 items intended to measure different aspects of the team member (or "self") aspect of Workplace Resilience, 7 items measuring the team leader aspect, and 6 items measuring the senior leaders aspect. Once the initial set of items was developed, we empirically examined how they worked with samples of working adults from the general U.S. population. This part of the process is described below as Study 1 and Study 2.

## Study 1

The purpose of Study 1 was to test the initial pool of items developed to measure the three facets of Workplace Resilience in the context of teams. Study 1 was conducted in three phases: first, data were collected online from a general population sample of working adults; second, a simulation study was conducted to explore the factor structure of each set of items with different distributions of data; and third, confirmatory factor models were fitted to the data collected in Phase 1.

### Phase 1: Data Collection

Survey Monkey Audience Panel was used to deploy an online questionnaire to a general population sample. Respondents who indicated they were not employed were excluded from the remainder of the questionnaire, resulting in a sample of  $n = 517$ . Of these,  $n = 485$  participants provided responses to all 24 items included in the item pool for the new instrument.

Women made up 51% of the sample. Full-time employees accounted for 73% of the sample, 24% were part-time employees, and the remaining 3% described themselves as self-employed. A majority (81%) of the sample have been at their current jobs for more than a year and 89% indicated they are members of one or more teams at work. Half the sample (51%) described themselves as frontline, middle, or upper managers, 44% identified as individual contributors, and the remaining 5% were interns or temporary employees.

### Phase 2: Simulation Study

A simulation study was incorporated into Study 1 to allow a more rigorous approach to identifying the best items for the ADPRI Workplace Resilience Scale. In addition to exploring inter-item relationships for data with the same shape and characteristics of the data collected in Phase 1, the use of simulated data also allowed exploration of those same inter-item relationships for data that look a little different. This was important because it is possible for response patterns to look different across samples.

Using the data collected in Phase 1 as a starting point, we simulated larger alternate populations of data in which: average responses were up to 5% higher; average responses were up to 5% lower; there was up to 5% more variance in responses; there was up to 5% less variance in responses; the relationships between items were up to 5% stronger; and the relationships between items were up to 5% weaker.

We then conducted a lengthy series of model comparisons for data sets from each simulated population until we identified a set of items for each facet of our conceptual model that performed well under all conditions. Model fit was evaluated by examination of common fit indices, including CFI, RMSEA, and SRMR. Model fit indices are statistics that describe how well a model fits the data. In our case, this helped us to understand how closely the theoretical relationships between each set of items fit the actual relationships between items in our data. The final item sets used in Phase 3 of this study were found to fit well to each population of data simulated for this Phase.

This process allowed us to compare different sets of items to identify those that are most likely to work under a variety of conditions. This increases the odds that our instrument will retain good measurement qualities across different populations and over time. We wanted to ensure that our instrument for measuring resilience would remain useful, produce reliable data, and lead to valid inferences regardless of the conditions under which it is used.



### **Phase 3: Confirmatory Factor Analysis**

The “best” item set for each facet of the ADPRI Workplace Resilience Scale was fit to the data collected in Phase 1 using confirmatory factor analysis (CFA). A traditional CFA approach with maximum likelihood estimation was selected for this study because it is a conservative technique. This means the imposed models must be closer to the observed relationships for the resulting fit statistics to be of acceptable levels. Using a conservative approach means we are less likely to find significance where none exists, and that our instrument is more likely to perform as expected across samples, populations, and time.

Evaluation of CFA models for this study was done by considering the following fit indices and the common guidelines associated with them: CFI  $\geq$  .95; TLI  $\geq$  .95; RMSEA  $\leq$  .08 with  $p \geq$  .05; and SRMR  $\leq$  .08. Together, these fit indices comprise consideration of different aspects and approaches to understanding model fit and provide a comprehensive understanding of the model. Chi-square ( $\chi^2$ ) fit statistics are also reported within this document as a matter of standard practice, where  $p \geq$  .05 indicates best model fit. Due to the sensitivity of chi-square to sample size, this indicator of model fit was not used to exclude otherwise well-fitting models. Composite reliability (omega,  $\omega$ ) is also reported as a measure of internal consistency reliability.

Each set of “best” items identified in Phase 2 was found to fit well to the data collected in Phase 1. This resulted in not only a final set of items for each of the 3 facets of Workplace Resilience, but also an overall model that can be used to compute a summary score for the instrument. The models are depicted graphically in Figure 1 below; fit statistics are summarized in Table 1 below. The following items were selected as the final components of the ADPRI Workplace Resilience Scale:

#### **Team Member Subscale Items**

1. I have all the freedom I need to decide how to get my work done.
2. No matter what else is going on around me, I can stay focused on getting my work done.
3. In the last week, I have felt excited to work every day.
4. I always believe that things are going to work out for the best.

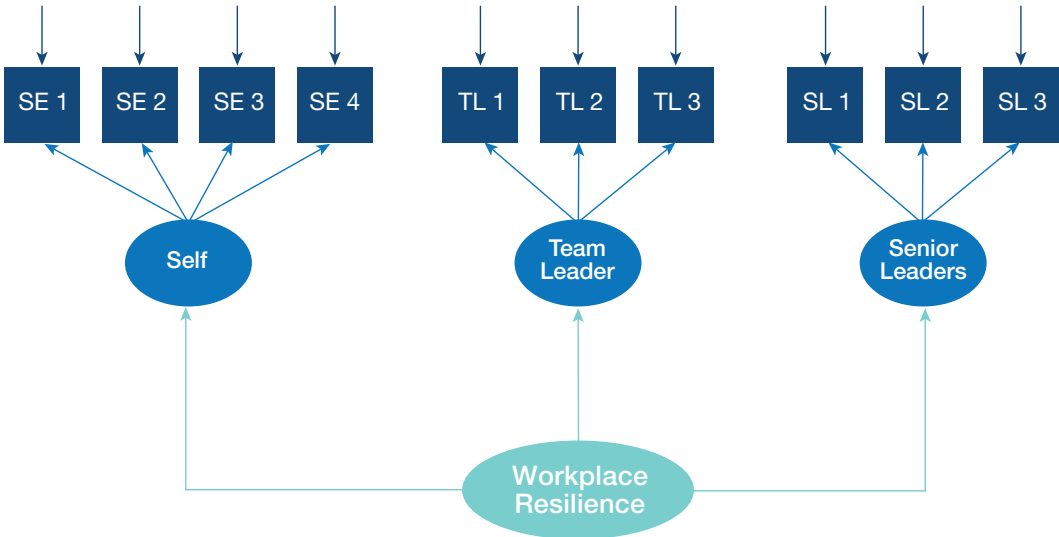
#### **Team Leader Subscale Items**

5. My team leader tells me what I need to know before I need to know it.
6. I trust my team leader.
7. I am encouraged to take risks.

#### **Senior Leaders Subscale Items**

8. Senior leaders are one step ahead of events.
9. Senior leaders always do what they say they are going to do.
10. I completely trust my company’s senior leaders.

**Figure 1. Overall Model for the ADPRI Workplace Resilience Scale**



**Table 1. CFA Fit Indices for the ADPRI Workplace Resilience Scale (Study 1)**

	Self Subscale	Team Leader Subscale	Senior Leader Subscale	Overall Resilience
$\chi^2$	9.10	13.48	6.59	81.73
<i>df</i>	6	4	3	29
<i>p</i>	> 0.05	< 0.05	> 0.05	< 0.05
CFI	0.99	0.98	0.99	0.98
TLI	0.99	0.98	0.99	0.97
RMSEA	0.03	0.07	0.05	0.06
<i>p</i>	> 0.05	> 0.05	> 0.05	> 0.05
SRMR	0.05	0.03	0.04	0.06

## Study 2

The purpose of Study 2 was to test the item sets selected in Study 1 against a second sample of participants and to investigate convergent and divergent validity evidence. Survey Monkey Audience Panel was used to deploy an online questionnaire to a general population sample. Respondents who indicated they were not employed were excluded from the remainder of the questionnaire, resulting in a sample of  $n = 537$ . Of these,  $n = 33$  did not provide complete response sets. The response sets of an additional  $n = 89$  participants indicated positive response bias and were omitted from the study (i.e., they provided responses of **Strongly Agree** disproportionately to all items regardless of how positive/negative the wording or how socially desirable/undesirable the statement). The data set used for Study 2 included  $n = 415$  working adults.

Women made up 51% of the sample. A majority of the sample (85%) indicated they are members of one or more teams at work. Nearly half the sample (46%) described themselves as frontline, middle, or upper managers, 48% identified as individual contributors, and the remaining 6% were interns or temporary employees.

## Survey Design

The resilience validity study included Engagement Pulse (see the **Engagement Pulse** white paper), the ADPRI Workplace Resilience Scale, the Brief Resilient Coping Scale (Sinclair & Wallston, 2004), the Expressive Suppression and Cognitive Reappraisal subscales of the Emotion Regulation Questionnaire (Gross & John, 2003), measures of Team Leader Trust and Senior Leader Trust excerpted from the Trust Questionnaire (Tzafir & Dolan, 2004), a subset of items from the Neuroticism subscale of the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 2008), questions measuring the magnitude of COVID-related stress experiences, and demographic items (including level in organization, team membership, perception of one's employment as a "career" or a "job," an item used to determine the extent to which each participant is primarily responsible for cycle work or knowledge work, and a question designed to measure the extent to which the day-to-day activities of one's current job plays into one's strengths).

### Engagement Pulse Items

- I am really enthusiastic about the mission of my company. [ep1]
- At work, I clearly understand what is expected of me. [ep2]
- In my team, I am surrounded by people who share my values. [ep3]
- I have the chance to use my strengths every day at work. [ep4]
- My teammates have my back. [ep5]
- I know I will be recognized for excellent work. [ep6]
- I have great confidence in my company's future. [ep7]
- In my work I am always challenged to grow. [ep8]

## **Workplace Resilience Scale**

### **Self-Resilience Sub-Scale**

- I have all the freedom I need to decide how to get my work done. [res\_se1]
- No matter what else is going on around me, I can stay focused on getting my work done. [res\_se2]
- In the last week, I have felt excited to work every day. [res\_se3]
- I always believe that things are going to work out for the best. [res\_se4]

### **Team Leader Resilience Sub-Scale**

- My team leader tells me what I need to know before I need to know it. [res\_tl1]
- I trust my team leader. [res\_tl2]
- I am encouraged to take risks. [res\_tl3]

### **Senior Leader Resilience Sub-Scale**

- Senior leaders are one step ahead of events. [res\_sl1]
- Senior leaders always do what they say they are going to do. [res\_sl2]
- I completely trust my company's senior leaders. [re\_sl3]

The other scales included are not printed here due to the proprietary nature of the scales. For more details, see the original citations.

## Study 2: Confirmatory Factor Analysis

The data collected for Study 2 indicates that the items identified in Study 1 as the best items with which to measure Workplace Resilience within the context of teams yield reliable data. This indicates that the item sets are likely to perform consistently across measurement instances. A CFA was conducted for each item set using the Study 2 sample. Using the same criteria for evaluating fit as was used for Study 1, we concluded the item sets have desirable psychometric properties. The fit statistics obtained for the sample in Study 2 are displayed in Table 2.

**Table 2. CFA Fit Indices for the ADPRI Workplace Resilience Scale (Study 2)**

	Self Subscale	Team Leader Subscale	Senior Leader Subscale	Overall Resilience
$\chi^2$	12.64	6.20	4.74	75.01
<i>df</i>	6	2	3	31
<i>p</i>	= 0.05	= 0.05	> 0.05	< 0.05
CFI	.98	0.98	0.99	0.97
TLI	.98	0.97	0.99	0.96
RMSEA	.05	0.07	0.04	0.06
<i>p</i>	> 0.05	> 0.05	> 0.05	> 0.05
SRMR	.07	.05	0.02	0.08

## Study 2: Convergent and Divergent Validity

### Neuroticism

Neuroticism was measured using a subset of items from the Neuroticism subscale of the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 2008). This set of items measures stress and one's negative reactions to stress. Individuals who are higher in neuroticism are more likely to experience anxiety, worry, fear, and other negative emotions. The four neuroticism items included in this study were found to have acceptable internal consistency in this sample ( $\alpha = 0.73$ ,  $\omega = 0.85$ ). The relationship between neuroticism and the self-subscale of the ADPRI Resilience Measure was hypothesized to be negative; this expectation was met ( $r = -0.32$ ,  $p < .01$ ).

### Brief Resilient Coping Scale

The Brief Resilient Coping Scale (Sinclair & Wallston, 2004) operationally defines coping as one's own conscious effort to solve personal and interpersonal problems in an attempt to manage stress and conflict. Individuals who have high resilience should also have high coping skills. The four items on the Brief Resilient Coping Scale were found to have acceptable internal consistency in this sample ( $\alpha = 0.64$ ,  $\omega = 0.90$ ). The relationships between the Brief Resilient Coping Scale and the Self, Team Leader, and Senior Leader subscales of the ADPRI Workplace Resilience Instrument were hypothesized to be positive; this expectation was met ( $r = 0.52, 0.40, \text{ and } 0.38$ , respectively; all  $p < .01$ ).

### Emotional Suppression

The Expressive Suppression subscale of the Emotion Regulation Questionnaire (Gross & John, 2003) was used to understand the relationship between resilience and emotions. The suppression of emotional expression is an outward attempt to control one's visible reaction to a situation without necessarily overcoming the inward emotional experience. The four items included in this subscale of the instrument were found to have acceptable internal consistency in this sample ( $\alpha = 0.70$ ,  $\omega = 0.86$ ). We hypothesized that Expressive Suppression subscale scores would correlate positively with the Self subscale of the ADPRI Workplace Resilience Instrument. However, because the suppression of emotional expression is an internal process, we did not necessarily expect the relationships between Expression Suppression and the Team Leader and Senior Leaders subscales to be significant. Our expectations were again met: the Self subscale of the ADPRI Workplace Resilience Instrument was found to correlate significantly and positively with Expressive Suppression ( $r = 0.13$ ,  $p < .05$ ) while the Team Leader and Senior Leader subscales were related to Expressive Suppression in positive but non-significant ways ( $r = 0.13, 0.09, \text{ and } 0.08$ ). When we examined item-level relationships more closely, we found that those who have positive outlooks and are high on resilience do not suppress their positive emotions, but they do suppress their negative emotions. The controlling of negative emotions helps us understand and provide insight into the mechanism of self-resilience.

### Cognitive Reappraisal

Cognitive Reappraisal is another way to reinterpret the way one deals with emotion-eliciting events and was measured using the Cognitive Reappraisal subscale of the Emotion Regulation Questionnaire (Gross & John, 2003). Those high on cognitive reappraisal are able to alter the meaning of emotional events to change the impact of those experiences on themselves. The items included in this subscale of the instrument were found to have acceptable internal consistency in this sample ( $\alpha = 0.79$ ,  $\omega = 0.93$ ). We hypothesized that users higher in resilience would also express higher cognitive reappraisal. As with Emotion Suppression, we also expected this relationship to be more strongly related to the Self subscale (compared to the Team Leader and Senior Leader subscales) of the ADPRI Workplace Resilience Instrument, because it is such an internal strategy. Again, our expectations were met, with correlations ranging from  $r = 0.37$  for the Self subscale to  $r = 0.31$  for the Team Leader subscale and  $r = 0.25$  for the Senior Leader subscale (all  $p < .05$ ).

### Team Leader Trust

A subset of items measuring Team Leader Trust were excerpted from Tzafir and Dolan's Trust Questionnaire (2004) and used to assess the convergent validity of the Team Leader subscale of the ADPRI Workplace Resilience Instrument. This set of items measures aspects of a trusting relationship between the team member and team leader, and was found to have acceptable internal consistency with this sample ( $\alpha = 0.78$ ,  $\omega = 0.87$ ). We hypothesized a positive relationship between the two Team Leader-focused subscales, and our expectations were met. The Team Leader subscale of the ADPRI Workplace Resilience Instrument was found to correlate positively and significantly ( $r = 0.67$ ,  $p < .01$ ) with the Team Leader Trust items excerpted from Tzafir and Dolan's instrument.

### Senior Leader Trust

A subset of items measuring Senior Leader Trust was excerpted from Tzafir and Dolan's Trust Questionnaire (2004) and used to assess the convergent validity of the Senior Leader subscale of the ADPRI Workplace Resilience Instrument. This set of items used to measure aspects of a trusting relationship between the team member and the organization's senior leader(s) was found to have acceptable internal consistency with this sample ( $\alpha = 0.83$ ,  $\omega = 0.87$ ). We hypothesized a positive relationship between the Senior Leader subscale and this set of items. This expectation is met with a significant and positive correlation between scores on the two subscales,  $r = 0.72$  ( $p < .01$ ).

## Conclusion

Workplace Resilience is a complex construct that cannot be fully understood by measuring just the characteristics of employees. To fully understand resilience, we must take into account the context in which each person works and measure the different layers of influence specific to the workplace. For individuals who work in teams, this means understanding their unique combinations of personal beliefs and workplace experiences, and how those are shaped by both their Team Leaders, who shape personal experiences on teams, and an organization's Senior Leaders, who shape the broader context in which teams exist.

The ADPRI Workplace Resilience Scale was designed to measure how resilient employees are through an understanding of how consistently Team Leaders and Senior Leaders practice positive behaviors that promote the growth of individual resilience in the workplace. At each level, the items were written to provide leaders throughout an organization with applicable intelligence to highlight steps that can be taken to build team member resilience.

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