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8 FACTORS
OF ENGAGEMENT

White Paper & Analysis

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INTRODUCTION

The purpose of this document is to provide an overview of Sicora Consulting, Inc (SCI)'s *8 Factors of Engagement* (8FE) model. The paper will include a brief history of the inspiration and motivation for creating the 8FE model along with a discussion of its theoretical background. The concept of engagement has taken many forms since its inception as an organizational construct, and this document will review its origin along with its progression from a specific construct to a broader term that encompasses multiple factors.

This document will also cover methodology involved in creation of the 8FE model, the continuous improvement of the model, and a discussion of current limitations and future directions. Further, current applications of the model will be discussed, including its utility in providing organizational impact analysis, quarterly pulses, and employee led action planning.

Finally, as a complement to its theoretical underpinnings, some statistical analyses of the 8FE data are conducted to further assess the reliability and validity of the model. Analyses include an assessment of item-total correlations, inter-item correlations, Cronbach's α (overall and for each factor), and a confirmatory factor analysis.

BACKGROUND

To begin, let us look at some of the background that inspired SCI toward for creating a model of engagement.

Dr. Sicora worked as a human resources business partner and analyst working with global corporations for almost 20 years. During this time, he was exposed to a range of company cultures including those with high engagement and those filled with toxicity and disengagement. For nearly eight years he led a global initiative at Carlson Companies using the Gallup Q12 assessment to measure engagement for 175,000 employees worldwide. As a result of this experience, Dr. Sicora became an expert in the use of the Q12 while gaining insight into the potential for new engagement models to measure things like quality of work processes, customer engagement and other organizational outcomes.

Dr. Sicora went on to lead organization development initiatives at Eaton corporation and Cargill – many of which had a significant emphasis on employee engagement. Later, he went independent and began to work with a variety of organizations, using his experience to help build cultures of continuous engagement and improved performance. He initially helped these organizations using the Q12 assessment but was actively exploring other ways of measuring engagement while looking for opportunities to help employees become accountable for taking action on their own scores.

In 2010, Dr. Sicora spent time bringing together many of the models he had worked with during his corporate experiences, models that included the Balanced Scorecard and Service Profit Chain, as well as various leadership development, change, culture and team effectiveness models. As a result of his efforts he created the *LeaderShip at the Helm* model that was later called *Leading from the Helm* in 2019.

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8 Factors of Engagement

Leading from the Helm – Organizational
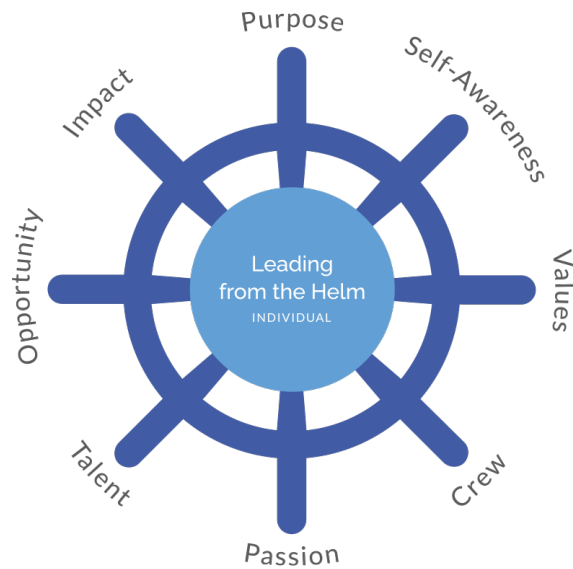
Leading from the Helm - Personal

The *Leading from the Helm – Organizational* model was the first to be developed, and it includes employee Engagement as the foundation of the model. Later, in 2018, the *Leading from the Helm – Personal* model was created to help individuals go deeper in finding purpose in life and allow themselves to better align to the overall mission and strategy of the organization they are a part of.

With Engagement being the foundation of the *Leading at the Helm* model, in early 2016 Dr. Sicora began work mapping the Q12 and a few other popular engagement models to the 8 Styles of Personality, knowing that the 8 Styles showed evidence of being a balanced model of personality. A full analysis was done looking at all engagement models that were available for review. Dr. Sicora was careful to remove any statements that were outcome measures and not leading indicators of Engagement. The idea was to come up with a model that was completely balanced, consisted of leading indicators, and could be used on a quarterly basis to demonstrate organizational performance using a balanced scorecard.

The *8 Factors of Engagement* model improved upon existing models in a variety of ways including an emphasis on Trust, Agility, and Purpose. There are no open-ended questions, making it easier for organizations to pulse their employees more frequently. It also provides an opportunity for employee led initiatives in the area of action planning to take ownership of their engagement. Additionally, the conscious decision to focus on leading indicators ensures the user or organization is provided with information that is specific and actionable, empowering positive change.

Before we delve into the creation of our model, let us look at the origin of engagement as a construct, and how it evolved and adapted to something that we use today in organization development.

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PRE-BUILD LITERATURE REVIEW

The conceptualization of engagement, like many organizational constructs, has evolved over time since its inception in the early 1990s. In fact, there are still considerable differences in how different researchers and organizations define it. In order to understand where the engagement community stands today, it is beneficial to start from the beginning and discuss some of the major shifts in the construct's interpretation.

The construct was conceived as a result of a study in which researchers were investigating employees' roles at work (Kahn, 1990). The study was meant to generate some theory that could describe when employees tend to employ their 'whole self' and engage their personal interests in their work roles physically, cognitively, and emotionally. Previous research had observed the levels at which employees described their commitment to their organization (Mowday, Steers, Porter, 1979) and their level of job involvement (Lodahl & Kejnar, 1965), but this study was the first to describe an individual's personal sense of engagement in their work.

During the same time period, research was being conducted regarding employee wellbeing; specifically, around the concept of burnout. Maslach & Jackson (1981) conceptualized burnout as including three factors: emotional exhaustion, cynicism, and a lack of efficacy. Eventually, the wellbeing literature began to investigate wellbeing as a continuum with burnout on the negative side and engagement on the positive side. A new measure, the Utrecht Work Engagement Scale (UWES), was developed that measured engagement with a three-factor structure modeled as opposites of the three burnout factors: vigor, dedication, and professional efficacy (Schaufeli & Bakker, 2004). This scale (and variants of it) have continued to be used as a measure of employee engagement in academia since its creation.

While academic research continued to use the UWES, many organizations and practitioners were beginning to see the potential for employee engagement measures as tools for gauging employee work attitudes and predicting organizational outcomes.

While the UWES was primarily used in academic settings, analytics organizations and practitioners like IBM and Gallup were adapting the concept of engagement and expanding on the existing model to include other factors that might describe engagement in a manner that could have more application in organizational decision-making. Although these models began to investigate multiple factors of engagement, the scales were typically kept quite succinct. For example, IBM's *Employee Engagement Index*, which was part of an employee opinion survey in 2012, contained four items. Each item represented one factor in their scale- Pride, Satisfaction, Advocacy, and Commitment. Similarly, Gallup's Q12 assessment consists of only 12 items.

Both Gallup and IBM originally set out to measure general workplace opinions and attitudes, and eventually whittled their measures down to something that was meant to specifically measure employee engagement and aspects of it. Over the last few years, these organizations, with strong content and consulting SMEs, began to partner with start-up technology companies to leverage more powerful technology for survey administration, reporting, and action planning tools. SCI took a similar approach in this regard to allow for a wider suite of tools, while maintaining the value of validated content and sound research methodologies. SCI also moved away from the typical annual engagement cadence towards a more actionable pulse model where engagement scores are updated quarterly.

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Using some of these existing employee engagement models as guidance, SCI went beyond what previous practitioners had developed. Based on Dr. Sicora's 20+ years of experience working in the field, the SCI Crew spent time focused on developing a new model of engagement based around new factors like Trust, Purpose, and Agility as differentiators to sustain employee engagement.

Additionally, our model's primary focus on leading indicators and pulse survey cadence enables business agility in a period where it is arguably more critical than ever. Organizations are facing more rapid and disruptive change, including evolving technological advances, and we need to be innovative and more agile with how we listen and act on the voice of the employee. Our model enables organizations to be more agile in the execution of strategy, developing leadership, and building organizational culture.

BUILDING THE MODEL

In addition to his work in employee engagement, Dr. Sicora has spent years of work in the areas of strategy, self-awareness, leadership, cultural transformation, team effectiveness, and process management (refer to the *Leading at the Helm* model of organizational effectiveness). At the core of self-awareness is the use of personality styles and traits to better understand self and those around you. Creating a sense of appreciative inquiry along with diversity and inclusion. Dr. Sicora's work on personality styles and trust was the focus of his 2013 doctoral dissertation study.

The area of personality style is far reaching, but at the core of Dr. Sicora's work are models derived from:

- Carl Jung's work, which is the foundation of Myers-Briggs MBTI model
- W. M. Marston's work, which is the basis of the DiSC model
- Tupes and Christal, then later Digman's work on the Big 5 personality traits, or the Five Factor Model

As a result of working with these models, there has been a consistent use of four standard color energies and eight personality styles that create a universally balanced model of personality.

The four color-energies are:

Blue | **introverted thinking** | exact, precise, detailed, questioning, & formal

Green | **introverted feeling** | caring, patient, relaxed, depth of relationship, & trust-based

Yellow | **extraverted feeling** | social, energetic, enthusiastic, breath of relationship, & persuasive

Red | **extraverted thinking** | driven, competitive, task focus, results focus, & purpose

When you begin to blend and create combinations of the color energies, the 8 styles of personality begin to form. The theory behind this is that everyone has all four of the color energies within them, and they have all eight of the personality styles within them. It is the unique combination of these color energies and styles that make up the uniqueness of the individual. Here is one example of the model that SCI has come up with:

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8 Factors of Engagement

The hypothesis was that if we have all eight styles of personality within us, then if we address the engagement need within each style, we would create a model of engagement that was balanced as well.

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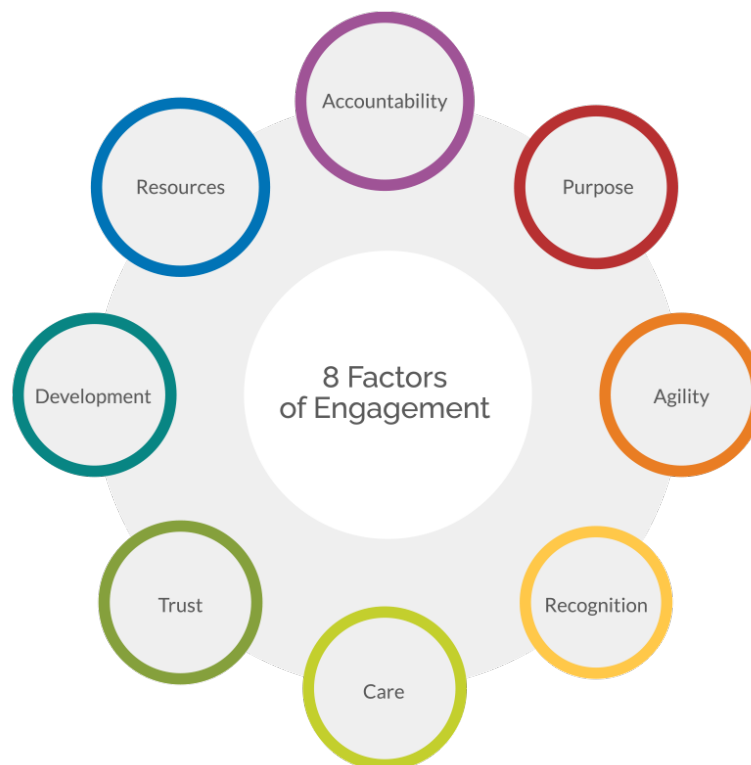
8 Factors of Engagement

As a result of thorough analysis of engagement models mapped against the eight styles of personality, the following 8 Factors were determined as being core to engagement. SCI created statements that were capable of both measuring and defining each factor. As a result, each of these factors consist of three items that describe a participant's engagement at individual, team and organization levels.

Item 1

Purpose	Every day I have the opportunity to do work that I am passionate about.
Accountability	I have clear expectations for doing great work.
Resources	I have the necessary resources to get my work done.
Trust	I have someone at work that I completely trust.
Care	My supervisor cares about me.
Recognition	I am recognized in the right way for the work that I do.
Development	I receive discussions at least quarterly on my performance and development.
Agility	I feel encouraged to find new and better ways of doing things.

Item 2

Purpose	I clearly know how my work aligns to the goals of the organization
Accountability	Staff is held accountable for the quality of work they produce
Resources	I have access to the right people to do my job
Trust	Team members trust each other to get things done
Care	People genuinely care about each other at work
Recognition	Recognition is distributed fairly when the team wins
Development	My organization provides me with the development necessary to be successful at work
Agility	My team adapts quickly to change

Item 3

Purpose	My job gives me purpose towards accomplishing the mission/vision of the organization
Accountability	My organization sets and maintains high standards for performance
Resources	I have access to the right information to do my job
Trust	Leadership in the organization is consistent with what they say and what they do
Care	We care about the people we serve

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Recognition	Our culture promotes, listens, and acknowledges when opinions are shared
Development	My organization provides opportunities to develop knowledge and skills outside of my work area
Agility	My organization creates new and challenging work assignments

BRIEF HISTORY

2010

- LeaderShip at the Helm model was created
- Gallup's Q12 was the primary source of measuring engagement

2013

- Breakthrough research on *Personality Styles and Trust* was started working with over 20 organization and 1,300 participants in the study

2014

- Dissertation research was completed, defended, and presented on *Personality Styles and Trust.*

2016
- 8 Factors of Engagement model of employee engagement was created
  - Gaps were identified in the research around engagement – specifically with agility
  - Initially created and piloted with two statements per factor
  - After piloting the model with many organizations and teams, focus and action planning sessions were conducted and helped to determine a third statement was necessary to fully capture the data necessary to measure each factor
- Statements were written at the Individual, Team/Department, and Organizational level to help triangulate the measurement and gain a more accurate measure of each factor

2017
- First full year quarterly pulse program was kicked off with a global client
- Began conducting data reviews of the data with I/O Psychologies overseeing the analysis
- Qualtrics became the survey administration and reporting partner with the 8FE
- Conducted full analysis of the data at the end of the year to look at validity and other elements of the data
- Multiple focus groups were conducted at the end of the year to review the model and the impact it was having
  - The concept of Belonging (the combination of Purpose and Care) surfaced in many of the millennial sessions as being a critical element of the model
- Established the first normative data set to be used to compare to client data
- Concept of acknowledgement as a form of recognition was confirmed as a strong differentiator of the model
- The use of %4 responses verse %5 responses in the survey is used to show where the greatest opportunity exists to create an Activity Engaged culture

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8 Factors of Engagement

- Hierarchy of the factors were confirmed, noting that Purpose is the foundational Factor for anyone entering into an organization (this proved out as part of the 2019 research)

2018
- The concept of a Composite Baseline was created to measure the lowest of the low scores by every employee for every statement scored on their first two surveys, this becomes the baseline to be used going forward when comparing improvement with the quarterly pulse trend data
- Survey structure follows the hierarchy model, and follows the order of individual, team, and organization for every factor
- The work surrounding Organizational Impact Analysis starts to help organization link employee engagement to other outcome measures such as process and work performance, client engagement, and other organizational impact measures
- The non-business 8FE statements are created to measure engagement in non-business settings
  - A series of studies were conducted with high school students and community health organizations to help test the model

2019
- Working with additional independent I/O Psychologists, it was determined that the "I care about the people I serve" statement needed to be adjusted to "We care about the people we serve" to be more inline with the organizational level statement it was assigned to
  - This also helped to reduce the inflation in the scores that were being measured
- It was determined that three years of past data would be used to calculate the normative data set
- Dr. Sicora was asked to present at the HR Tomorrow conference at the University of Minnesota's Carlson School of Management
  - The most interesting finding was that Purpose was the strongest factor in determining overall all engagement, but that was only true when a healthy level of trust was present
- The *LeaderShip at the Helm* model became the *Leading from the Helm* model to honor the fact that everyone stands at the helm of their own life, and that everyone has leadership within them

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- The personal helm was also created, helping to link individual purpose and self discovery as an important tenant to engagement and organizational effectiveness

SUPPLEMENTARY LITERATURE REVIEW

As a result of the experiential-based beginnings of the 8FE model's development, the SCI Crew takes a step back to have another look at current engagement literature on an annual basis. This helps to provide our model with opportunities for continuous improvement based on ever-changing shifts in engagement research. 2019 has been a watershed year for SCI and the 8FE model while we continue our commitment to doing our due diligence in ensuring a valid engagement model.

In this section of the paper, we will review engagement literature with a focus on articles published since 2017. Primarily, we will look at work that has been done involving other engagement measures and their relationship to concepts that are a part of our 8FE model. This can help to provide further evidence of the model structure by showing a sort of content validity.

Of particular interest in this review are the factors of Purpose and Trust. In preparation for the HR Tomorrow Conference in 2019, a review of the 8FE model revealed potential for its factors to be broken down further or combined into indices that predict organizational impact. A key finding in this review showed that purpose and trust were the most predictive factors of overall engagement, but only when they were both present at the same time within an employee.

Recent literature has provided further evidence of purpose and trust's relationship with engagement. One study showed that an employee's strategic alignment with organizational goals (an aspect of purpose) is important for maintaining engagement over time (Biggs, Brough & Barbour, 2014). Other studies have examined the ability of leadership styles to promote employee engagement. Specifically, recent articles have shown a positive relationship between transformational leadership styles and employee engagement (Breevaart & Bakker, 2018; Caniels, Semeijn & Renders, 2018). Transformational leadership is often characterized by leaders that inspire their employees and look to develop some level of personal trust with them. Other studies have shown a more direct link between engagement and trust by showing the ability of trust in leaders to predict an employee's work engagement (Engelbrecht, Heine & Mahembe, 2017).

Other literature has investigated engagement's relationships with other factors within the 8FE model, both directly and indirectly. Resources are another part of the *8FE* model that have been investigated in relation to other versions of engagement. Job Demands-Resource Theory (JD-R) suggests that employees require resources at work in order to combat the negative effects that can come about from excessive job demands (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). According to JD-R literature, employee resources can be some of the most important predictors of employee engagement (Halbesleben, 2010; Christian, Garza & Slaughter, 2011). It is important to note, however, that the conceptualization of employee resources within the JD-R model differ from that of SCI. In JD-R, resources are a general term that could refer to anything that helps an employee do a job or even reduce the psychological burden of doing a job. Resources in this model include anything from physical tools like a computer to abstract concepts like social support or opportunities for professional development.

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Considering the JD-R model's classification of social support as an employee resource, the relationship that Care, Trust, and Recognition have with engagement in our model is unsurprising. The development factor is also an interesting one when considering the potential for developmental opportunity to act as a job resource.

This has been a short review of recent literature pertaining to engagement and the factors that it consists of within the 8FE. We plan to continue updating this section as we fulfil our 2019 commitment to re-examining current engagement literature. In the next section, we will discuss some of the positive impact that the use of our model has had on our clients.

ORGANIZATIONAL IMPACT

While there has been research connecting the impact of employee attitudes to business results since the 1990s, very few engagement models and vendors include organizational impact analysis in their solutions. A paper published by the Institute of Employment Studies (IES) in 1990 '*From People to Profits, the HR link to the service-profit chain*' was among the first instances showing how positive employee attitudes improve customer retention and employee sales performance.

Traditionally, organizations would need to have a team of Industrial/Organizational Psychologists to demonstrate the statistical connection between employee engagement and the organizational performance. As survey confidentiality and ethical best practices keep vendors from sharing employee-level survey data with internal analytics teams, many organizations are not able to demonstrate how engagement impacts the bottom line.

In 2018, SCI sought to develop an easier way to provide these analytical services into solutions for customers. We began collecting individual and organizational demographic data along with data measuring Key Performance Indicators (KPIs) of specific interest to the employee base we surveyed. Any data measuring balanced scorecard KPIs can be used in organizational impact analysis. As sales KPIs are generally tracked, observable, and quantifiable, they are the easiest to include in organizational impact analysis.

Link Employee Engagement to Organizational Outcomes

PERFORMANCE & SUCCESSION
Determine how employee experience regarding engagement, trust, and corporate strategy correlate with employee performance and potential.

CUSTOMER EXPERIENCE
Understand how employee engagement impacts customer satisfaction, Net Promoter Score, and retention.

TALENT & ENGAGEMENT
Recognize how the employee experience and employee engagement predict retention.

OPERATIONAL & ORGANIZATIONAL PROCESS
Discover how employee engagement relates to how well the organization is running and whether products/services are exceeding expectations.

FINANCIAL & STRATEGIC GOALS
Gather insight into how employee engagement drives the financial performance of your organization.

Through our initial case study with one of our top clients, we found items in the Care, Purpose, and Development factors significantly predicted performance on-the-job. This means that employees who care more about the people they serve, feel passion for their work, and receive regular

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performance discussions had higher performance than other employees. We also found items in the same factors to predict tenure to a statistically significant degree. This means employees at this organization with longer tenure cared more about the clients they served, had more favorable opinions about their development opportunities, and felt more passion and alignment to organizational goals. The organization was able to use these insights to action plan and improve in the areas of Care, Purpose, and Development with the goal of improving employee performance and improving the experience for lower tenured employees.

Example Slides from the HR Tomorrow conference in April 2019:

Key Turnover Driver Analysis

Analyze: Determined predictors of turnover

Gather turnover data
Gather 8FE data
Descriptive/Predictive analytics

Act: Executed retention strategy around statements most predicting turnover

Top 3 prioritize statements
Targeted improvement plans
Increase in 8FE scores

Impact: Reduction in voluntary turnover rates and associated operational cost

10% decrease in voluntary turnover
$750k cost reduction

Linking Engagement to Scorecard Metrics

Analyze: Determined relationship between engagement and scorecard metrics

Gather balanced scorecard data
Gather 8FE data
Descriptive/Predictive analytics

Act: Targeted action plans by function, focus on statements most correlated with scorecard metrics

Financial: Improved scores for drivers of engagement (Sales employees)
Operational: Improved scores for drivers of engagement (Operations/Support employees)
Customer/Talent: Improved scores for drivers of engagement (all employees)

Impact: Engagement scores integrated into balanced scorecard reporting, more favorable metrics

Financial: 6% increase in net revenue
Operational: 5 point increase in safety scores
Customer: 7 point increase in Net Promoter Score
Talent: 7% decrease in absenteeism

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SUMMARY RESULTS OF THE 8 FACTORS OF ENGAGEMENT

When reflecting on the past three plus years of application of the 8FE model, here are some interesting data points (as of November 2019):

- 243 different organizations have experienced the 8FE in some way
- 4,049 of employees have measured their engagement using the 8FE
- 93.5% is the average participation when the 8FE survey is conducted
- 6.4% is the average increase in score between the composite baseline and the first measure after 6 months of employee led action planning
- Care on average is the highest scoring factor
- Recognition on average is the lowest scoring factor
- 'We care about the people we serve' is the highest scoring statement
- 'I have someone at work that I completely trust' is the second highest scoring factor
- 'Leadership in this organization is consistent with what they say and what they do' is the lowest scoring statement
- Statements most predictive of "I am completely engaged":
    - Purpose - Opportunity to do work I am passionate about
    - Purpose - Know how my work aligns to the goals of the organization
    - Trust - Team members trust each other to get things done
- Factors most predictive of "I am completely engaged":
    - Purpose - stronger predictive relationship with engagement compared to the other 7 factors
    - Trust - controlling for the impact of Purpose, Trust is more predictive of engagement

Example Slide of Action Planning from the HR Tomorrow conference in April 2019:

Case Example – Action Planning focused on Accountability, Trust, and Recognition


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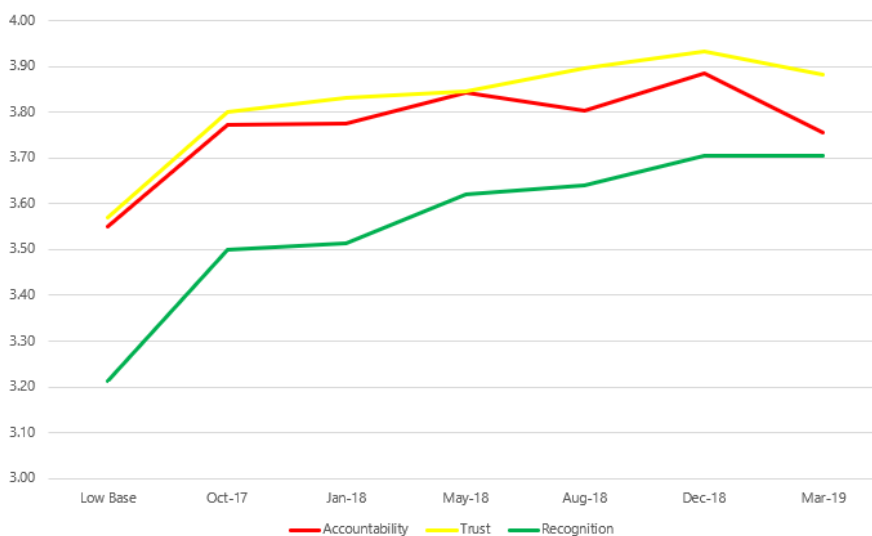
Scoring Scale used to measure engagement of the 8FE model:

Scoring Color Code

Blue	Actively Engaged 4.50 or higher
Green	Engaged 4.00 to 4.49
Yellow	Cautiously Engaged 3.50 to 3.99
Orange	Nearing Disengaged 3.00 to 3.49
Red	Actively Disengaged less than 3.00

Normative Data set used to compare to client data, 2019:

Normative Benchmark
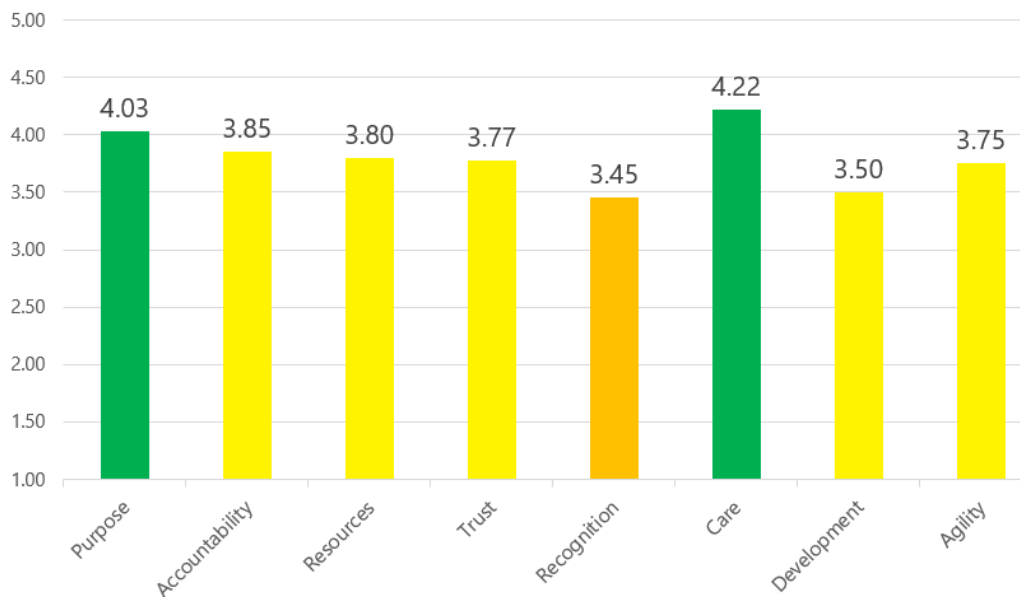
Normative Data Set N= 1451 responses

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TESTING THE 8FE MODEL

In this section, we will walk through various statistical analyses that will help to shed light on the reliability and validity of *8FE*. First, we will report some descriptive statistics and then discuss the following analyses: Item-Total Correlations, Inter-Item Correlations, Internal Consistency, and Confirmatory Factor Analysis. (N=2,585 for all analyses)

1. **Descriptive Statistics**

The table below shows average scores and standard deviations for each item. Each item was measured using a 5-point Likert scale. Participants typically responded positively for each item, but standard deviations are generally greater than 1, suggesting decent variability in responses. However, there are a few items we would like to examine further when considering an update to the model or changes in wording. One potential problem is the organization-level item in *Care* which had an average score of 4.566 and a standard deviation of only 0.697. These numbers are worrisome because of the very high responses and low variability. However, as mentioned previously, this item has been altered since the time this data was collected (see **Limitations & Future Directions** section).

Item	Factor	Average	SD
1	Purpose	3.989	1.021
2	Purpose	4.095	1.003
3	Purpose	4.071	0.985
1	Accountability	4.130	0.954
2	Accountability	3.542	1.146
3	Accountability	3.750	1.085
1	Resources	3.716	1.113
2	Resources	3.916	1.009
3	Resources	3.813	1.051
1	Trust	4.212	1.076
2	Trust	3.846	1.042
3	Trust	3.275	1.240
1	Recognition	3.452	1.192
2	Recognition	3.464	1.199
3	Recognition	3.397	1.205
1	Care	4.070	1.082
2	Care	3.983	1.015
3	Care	4.566	0.697
1	Development	3.584	1.323
2	Development	3.625	1.116
3	Development	3.468	1.213
1	Agility	3.936	1.128
2	Agility	3.656	1.138
3	Agility	3.694	1.084

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The next table provides further descriptive statistics at a factor level. The average scores and standard deviations are shown below for each. Again, positive responses were typical, but standard deviations near or above 1 suggest solid variability in responses. *Care* was the highest rated factor and had the least amount of variability, which is reason for SCI to take another look at this factor.

Item	Average	SD
Purpose	4.052	1.004
Accountability	3.807	1.092
Resources	3.815	1.061
Trust	3.778	1.187
Recognition	3.438	1.198
Care	4.206	0.980
Development	3.559	1.221
Agility	3.762	1.123

Skew and Kurtosis

As another indicator of our model's strength, we would like to go through skew and kurtosis measures for each of our items to look at participants' response tendencies for each.

Skewness is essentially the level of asymmetry that a dataset has. In other words, a completely symmetrical dataset would have a skewness of zero. In terms of our data set, which is measured on a Likert scale from 1-5, skew can be understood as the tendency for most responses to be positively endorsed (i.e. Agree, Strongly Agree) or negatively endorsed (i.e. Disagree, Strongly Disagree). Typically values between -1 and 1 are considered acceptable for skewness. Notably, the care factor is beyond typically accepted levels of skew, which can be seen in the frequency distributions on the following page.

Kurtosis, on the other hand, measures the tendency for most responses to fall around a small set of values. Typically, graphs with high levels of kurtosis will look as if they have a "peak" where most responses occurred. Values between -3 and 3 are generally considered acceptable for kurtosis.

Item	Skew	Kurtosis
Purpose	-0.97	0.58
Accountability	-0.65	-0.01
Resources	-0.76	0.21
Trust	-0.74	0.28
Recognition	-0.46	-0.5
Care	-1.08	1.19
Development	-0.4	-0.5
Agility	-0.69	0.07

We will also show frequency distributions for each factor's responses. This will help to show the items and factors that have especially skewed response tendencies. Item-level charts are shown in

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Appendix A, while factor-level charts are shown in this section. Response options 1-5 in a Likert format are shown for each chart. Although most factors show a negative skew, most of them show at least some distribution on either side of the 4th response option. However, the *Care, Purpose, and Trust* factors tend to increase responses continuously up to 5. These factors will be the focus of further investigation.

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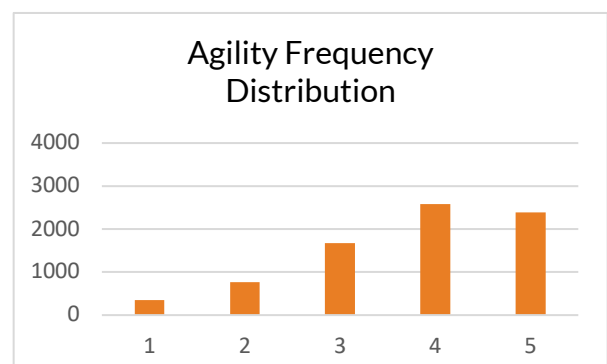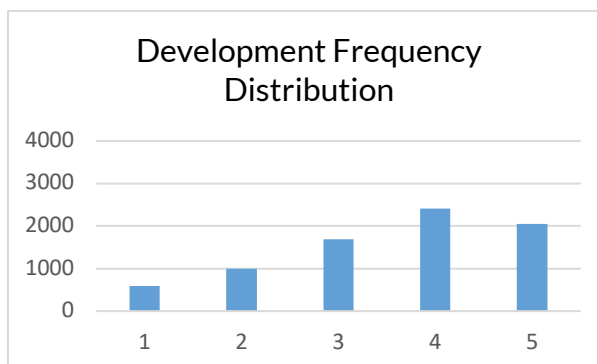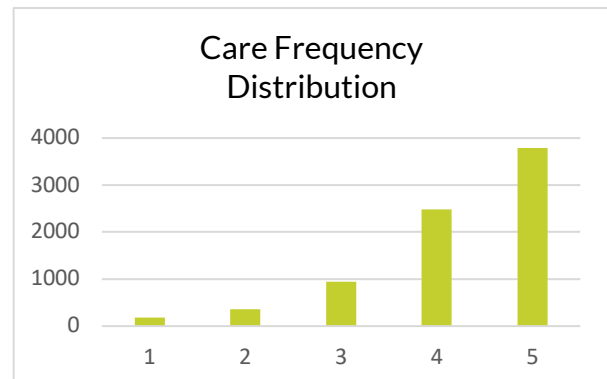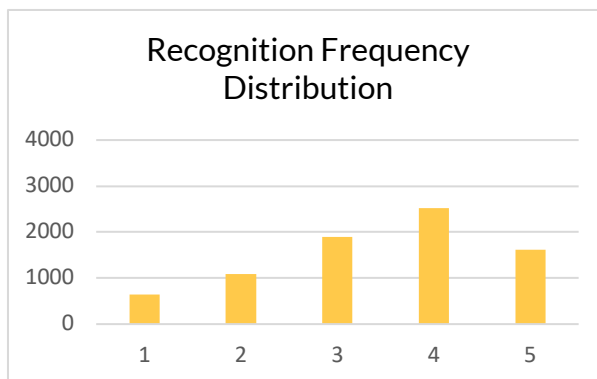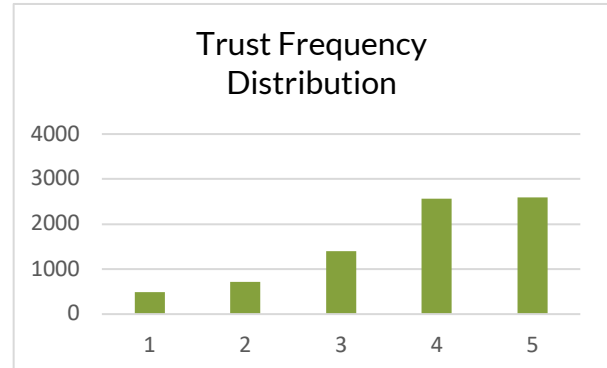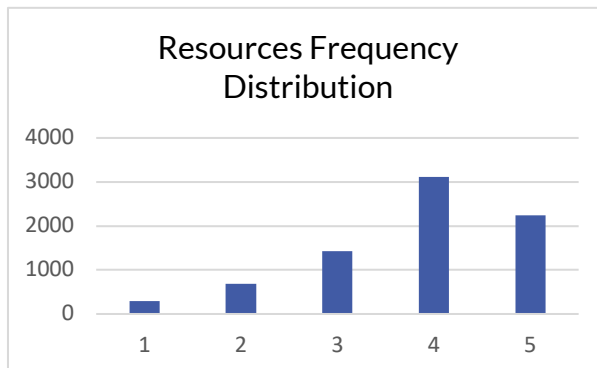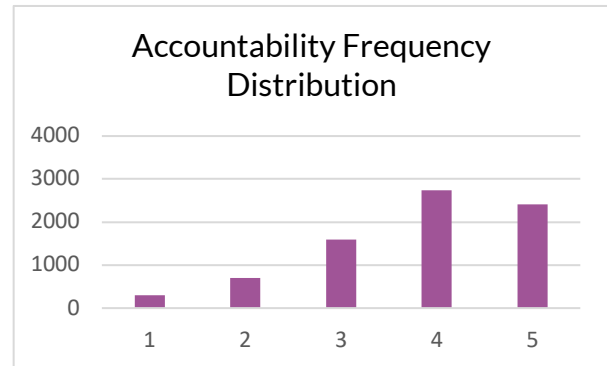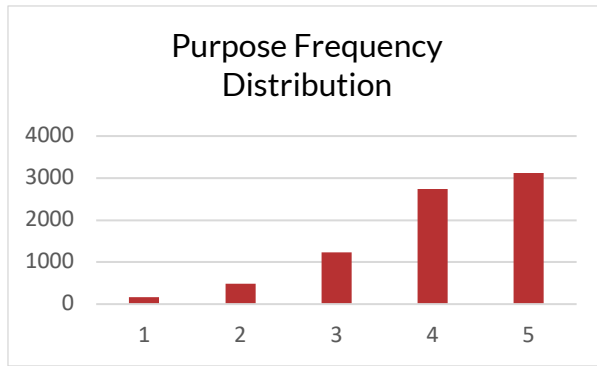
2. Item Total Correlation

Item-total correlation provides us with an idea of each item's relationship with the overall scale. As suggested by BrckaLorenz, Chiang, and Nelson (2013), the criteria for a good scale has item-total correlations equal to or greater than 0.50. In the case of 8FE, for example, 'Item 3' for the Recognition factor correlates to the overall scale score at 0.77. In other words, participants that score highly on this item also tend to score quite highly on overall engagement.

This analysis tells us how items are measuring a construct similar to other items that are meant to measure the same construct. This provides us with a sense that we are measuring what we set out to measure (i.e. engagement). Generally, item-total scores above 0.30 are considered good. All 8FE items scored well above our cutoff for a good item.

Item-total correlations (uncorrected) are shown for all items below:
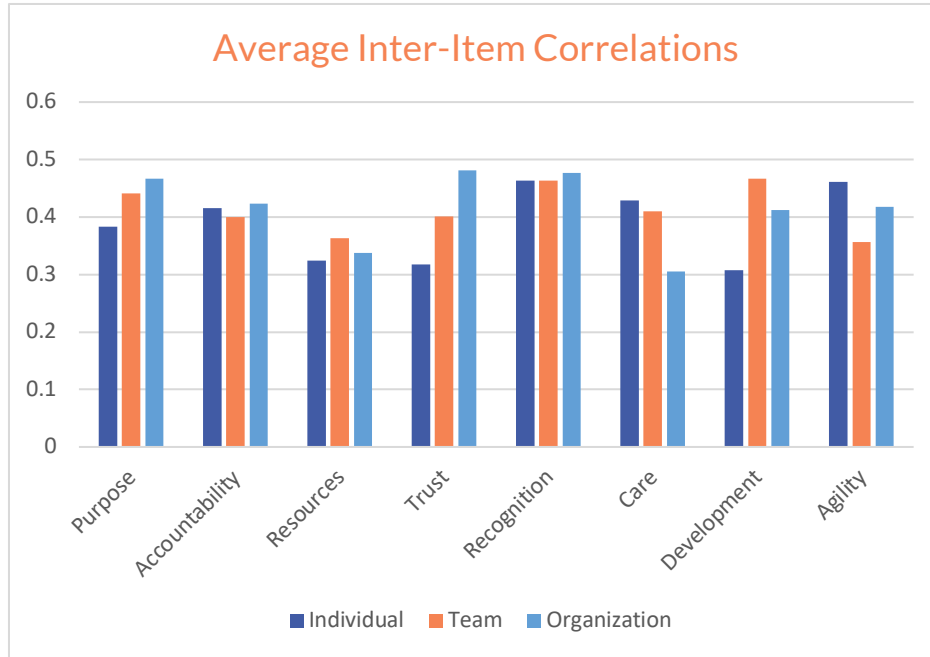
	1	2	3
Purpose	0.612	0.700	0.736
Accountability	0.663	0.652	0.683
Resources	0.538	0.589	0.552
Trust	0.522	0.647	0.776
Recognition	0.749	0.751	0.770
Care	0.691	0.659	0.486
Development	0.526	0.749	0.673
Agility	0.738	0.586	0.675

3. Inter-Item Correlations

Inter-item correlations are used to test whether items are measuring a similar concept. In the case of SCI's 8FE scale, it is assumed that each item would relate to the other items in the overall scale, while continuing to be relatively distinct to account for the eight sub-factors. The average inter-item correlation for each item is calculated by taking the average correlation that item has with every other item in the scale. BrckaLorenz, Chiang, and Nelson (2013), suggested that good scale criteria ranges from 0.15 to 0.50.

Inter-Item correlation data is shown in the graph below. Following typical recommendations, the upper and lower boundaries were chosen to be 0.15 and 0.50. All items fall within this range, with a maximum of 0.48 and a minimum of 0.31. This single test does not confirm nor deny adequate placement of each item within the model, rather it provides a view of potential strong and weak points. Considering the overall range of these data, there is indication that each item shows necessary relation to be grouped under an overarching factor of engagement. Additionally, each item is not so related that it infringes upon the uniqueness for each statement within a sub-factor of engagement.

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8 Factors of Engagement

Average Inter-Item Correlations

Legend: ■ Individual ■ Team ■ Organization

Categories (x-axis): Purpose, Accountability, Resources, Trust, Recognition, Care, Development, Agility

4. Internal Consistency

Cronbach's alpha is similar to average inter-item correlation assessments and measures the internal consistency of a scale. This assessment is intended to provide a general sense of the reliability of a scale on a range from 0 to 1. Values closer to 1 indicate high reliability in terms of internal consistency, while lower values indicate a scale that consists of items measuring different constructs. Scales with alpha above 0.70 are typically considered to have acceptable reliability. Alpha coefficients .90 and above may indicate collinearity; in other words, if two items coefficient was .95, they may be asking the exact same idea or component of engagement.

All subscales within the 8 Factors of Engagement model, along with the overall scale, show acceptable levels of internal consistency as measured by Cronbach's alpha, except for 'Trust'. Trust was the only factor that showed levels below the typically accepted value of '0.70.' However, the value was '0.697,' with an Upper bound for the confidence interval of '0.724.' Although the value was slightly below the threshold of '0.70,' we decided to move forward with further analysis to evaluate our scale from other angles.

	α	Lower CI	Upper CI
Overall	0.942	0.939	0.945
Purpose	0.855	0.841	0.867
Accountability	0.814	0.800	0.827
Resources	0.881	0.871	0.892
Trust	0.697	0.675	0.718
Recognition	0.878	0.868	0.887
Care	0.716	0.692	0.739
Development	0.739	0.719	0.757
Agility	0.757	0.735	0.776

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5. Factor Analysis

Factor analysis is a great way to assess the dimensionality of a scale, especially when it is suspected to consist of more than one construct. There are primarily two types of factor analysis that can be employed for slightly different purposes. Exploratory factor analysis is typically conducted to assess a long list of pilot items in order to learn more about a new or developing scale's factor structure without, necessarily, a rigorous theoretical foundation. On the other hand, confirmatory factor analysis is typically conducted after a scale's creation to confirm a suspected factor structure.

Exploratory Factor Analysis

Due the background of the present measure's scale construction, exploratory factor analysis (EFA) was performed to understand how many components of engagement account for the most variability; in other words, to understand the measure's underlying structure.

To ensure an EFA was appropriate to run, correlation and sampling adequacy were calculated, which obtained satisfactory results to move onto the parallel analysis. Parallel analysis was then performed on the present data. First, a scree plot was produced, along with old (>=1.0) and new Kaiser (>=0.7) criterion values to determine how many possible components there were in the measure. The new Kaiser criterion, as stated by Braeken and van Assen (2017) should be utilized with scales that are (1) short and (2) correlated; because the present measure is correlated with 24 questions, the new Kaiser criterion was given precedence. The scree plot suggested a 1-2 factor solution, the old Kaiser criterion suggested a 2-factor solution, and the new Kaiser criterion suggested a 3-factor solution. Based on both Kaiser criteria, EFAs were run based on maximum likelihood criteria with oblimin rotation due to the correlated items.

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8 Factors of Engagement

Three Factor Model Findings

The first factor in this model contained 16 items, with factor loadings ranging between 0.36 and 0.89, providing 55% variance. The second factor contained 5 items, ranging from 0.41 to 0.88, providing 26% variance. Factor 3 consisted of 3 items, providing 19% variability. Between factor 1 and factor 2, there were two items that had moderate loadings (in factor 1 these were 0.44 and 0.48, whereas in factor 2, they were loaded as 0.31 and 0.31; because these items were stronger on factor 1, they are included in that factor; these loadings will be considered as the measure continues to develop.

8FE: 3 Factor EFA			
8FE	$\lambda 1$	$\lambda 2$	$\lambda 3$
Item 1		0.74	
Item 2		0.76	
Item 3		0.88	
Item 4		0.49	
Item 5	0.57		
Item 6	0.51		
Item 7			0.83
Item 8			0.79
Item 9			0.89
Item 10	0.36		
Item 11	0.62		
Item 12	0.74		
Item 13	0.78		
Item 14	0.89		
Item 15	0.82		
Item 16	0.65		
Item 17	0.62		
Item 18		0.41	
Item 19	0.52		
Item 20	0.48		
Item 21	0.50		
Item 22	0.48		
Item 23	0.57		
Item 24	0.44		
VE			0.51

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Two Factor Model Findings

The first factor in this model contained 21 items, with factor loadings ranging between 0.47 and 0.79, providing 80% variance. The second factor contained the remaining 3 items, with factor loadings ranging between 0.79 and 0.90, contributing 20% variability.

8FE: 2 Factor EFA		
8FE	λ1	λ2
Item 1	0.60	
Item 2	0.68	
Item 3	0.72	
Item 4	0.62	
Item 5	0.68	
Item 6	0.69	
Item 7		0.82
Item 8		0.79
Item 9		0.90
Item 10	0.48	
Item 11	0.64	
Item 12	0.78	
Item 13	0.73	
Item 14	0.76	
Item 15	0.79	
Item 16	0.68	
Item 17	0.66	
Item 18	0.48	
Item 19	0.47	
Item 20	0.62	
Item 21	0.57	
Item 22	0.74	
Item 23	0.60	
Item 24	0.70	
VE		0.48

Eight Factor Model Findings

We also included factor loadings for an exploratory factor analysis on an undescribed 8 factor model. We used a cutoff score of 0.4 to show the highest loadings for each item. Loadings in red font indicate items that were notably close to the cutoff (ranging from 0.30-0.39). The first factor (17% variance) in this model consists of 3 "Resources" items, ranging from 0.81 to 0.91. The second factor (16%) consists of 3 "Purpose" items, ranging from 0.66 to 0.87. The third factor

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(18%) consists of 3 "Recognition" items and 1 "Care" item, ranging from 0.44 to 0.80. The fourth factor (10%) consists of 2 "Accountability" items, ranging from 0.82 to 0.88. The fifth factor (14%) consists of 2 "Development" items, ranging from 0.47 to 0.94. The sixth factor (12%) consists of 2 "Trust" items and 1 "Care" item, ranging from 0.47 to 0.65. The seventh factor (9%) consists of 2 "Agility" items, ranging from 0.45 to 0.80. Finally, the eighth factor (5%) consists of 1 "Care" item at 0.46.

This information will be valuable moving forward, when we consider adjusting items within the 8FE model. Much of the analysis in this document has pointed toward a rework of the factor "Care" in our model, and this EFA adds to this body of evidence. This work provides new evidence for taking another look at the structure of other factors as well, especially "Trust" and "Development."

8FE Factor	8FE: 8 Factor EFA								
	8FE	λ1	λ2	λ3	λ4	λ5	λ6	λ7	λ8
Pur	Item 1		0.66						
Pur	Item 2		0.73						
Pur	Item 3		0.87						
Acc	Item 4		0.32		0.39				
Acc	Item 5				0.82				
Acc	Item 6				0.88				
Res	Item 7	0.82							
Res	Item 8	0.81							
Res	Item 9	0.91							
Tru	Item 10						0.47		
Tru	Item 11						0.65		
Tru	Item 12			0.44					
Rec	Item 13			0.74					
Rec	Item 14			0.80					
Rec	Item 15			0.57					
Car	Item 16								0.46
Car	Item 17						0.53		
Car	Item 18		0.30						0.32
Dev	Item 19								
Dev	Item 20					0.47			
Dev	Item 21					0.94			
Agi	Item 22							0.30	
Agi	Item 23							0.80	
Agi	Item 24							0.45	
	VE								0.64

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Confirmatory Factor Analysis

As the name implies, the 8FE model proposes an 8-factor model of engagement that consists of Purpose, Accountability, Resources, Trust, Care, Recognition, Development, and Agility. Because of this suspected factor structure, confirmatory factor analysis was employed to check the scale's dimensionality.

Note: The 8 Factor CFA was run using our current 8FE designations for factors rather than the suggested factors shown in the Eight Factor EFA.

There are a variety of fit indices to look at when deciding whether your proposed model is a good fit for the data. Comparative Fit Index (CFI) compares the proposed model to an independent model and typically considers scores above .9 very good. Chi-square is another test that assesses overall fit. The null hypothesis is that the proposed model is a perfect fit to the data. However, Chi-square is sensitive to large sample sizes. Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) are other indices that consider values below .08 acceptable.

Factor Solution	Chi Square	RMSEA [*LCI – UCI*]	SRMR	CFI
8 Factor	3528.160 (224), *p* < .001	0.760 [*0.073 - 0.078*]	0.051	0.911
3 Factor	4981.814 (186), *p* < .001	0.100 [*0.097 - 0.102*]	0.060	0.853
2 Factor	6875.539 (188), *p* < .001	0.117 [*0.115 - 0.120*]	0.064	0.795

. LCI = Lower Confidence Interval; UCI = Upper Confidence Interval

According to the fit indices, the 8-Factor model produced the most promising results. Utilizing the CFI is appropriate when comparing different models (Kenny, 2015) and is a good index for this particular data due to its non-normality (see skew and kurtosis in Appendix ___); the results produced suggest that the 8-Factor solution has the best fit with an index of 0.911. Additionally, the RMSEA fit index has the best results; MacCallum, Browne and Sugawara (1996) suggested that the cutoff for poor model fit is 0.800, while Kenny (2015) stated that others report poor model fit for RMSEA as 0.100. In either case, the 8-Factor model suggested "good", but not "great" fit, while the 2-Factor and 3-Factor models do suggest poor fit for both criteria. The SRMR was also better for the 8-Factor model as it had the lowest value; Hu and Bentler (1999) stated that an SRMR value of "0" would indicate perfect fit, and that an output less than .080 is indicative of good fit. The Chi Square index should be interpreted with great caution as (1) the current sample size is above 400, (2) distributions are non-normal, and (3) the items are fairly correlated (Kenny, 2015).

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LIMITATIONS & FUTURE DIRECTIONS

At this time, we would like to acknowledge some of the limitations of this paper as well as current limitations of the *8FE* model itself.

Throughout the "Testing Our Model" section of this paper, we used data that was collected prior to March 2019. During this period, SCI decided to make a minor change to one of the items in the "Care" factor of *8FE* to better reflect the "Team" perspective of the item. The item was changed from "I care about the people I serve" to "We care about the people we serve." Because the change in the item wording was relatively recent, we did not have sufficient data to compare the model before and after the change. It is our hope that we will be able to report on any differences in relation to this change by Q2 2020.

Another potential limitation of the *8FE* model arises from the methodology of its initial creation. The theme analysis that was conducted on the initial item list would have been boosted by supplemental guidance from data-driven techniques. SCI intends to move forward with further quantitative analysis when considering modification of the model.

Considering recent literature indicating the importance of employee resources in predicting employee engagement, it may be an interesting route to look at factors that constitute "resources" as a new index measure within our model. In other words, it may be worth investigating the relationship between things like Care, Development, and Trust because of their classification as resources within the JD-R model.

Currently, our I/O psychologists are spending time familiarizing themselves with IRT methods for polytomous data in order to potentially provide further evidence for the validity of the 8FE model. This document will continuously be updated as more information and methods are available.

CONCLUSION

The *8 Factors of Engagement* model was created as the result of years of experience and research in the field of employee engagement. The product of a meta data analysis of the top engagement models, mapped to a proven personality style model, the *8 Factors of Engagement* were developed to create a holistic approach for organization of all sizes and complexities. Given the strong results organizations have experienced using the *8 Factors of Engagement*, it has become clear that it is a balanced approach to employee engagement. The use of quarterly pulse measures and action planning are done in a way that does not create survey fatigue, rather, employee led engagement has helped to foster deeper levels of trust and purpose within organizations, helping to transform and provide organizational impact wherever it has been implemented.
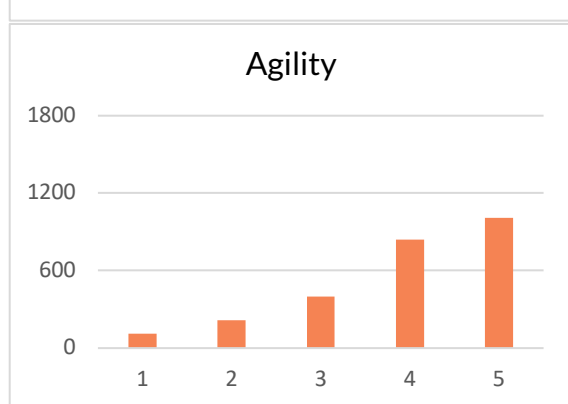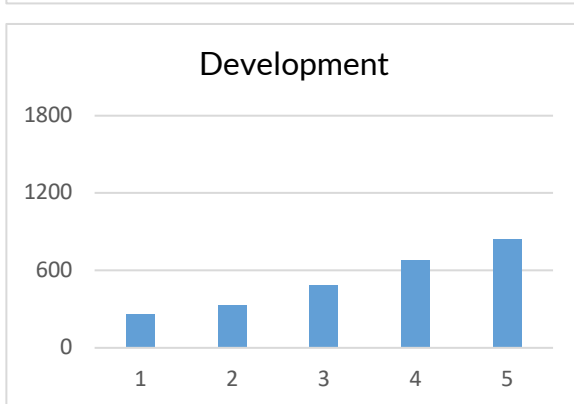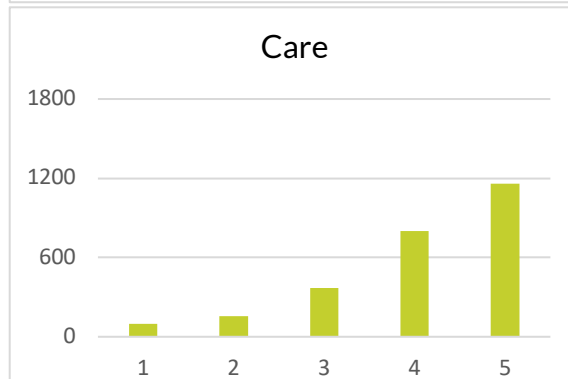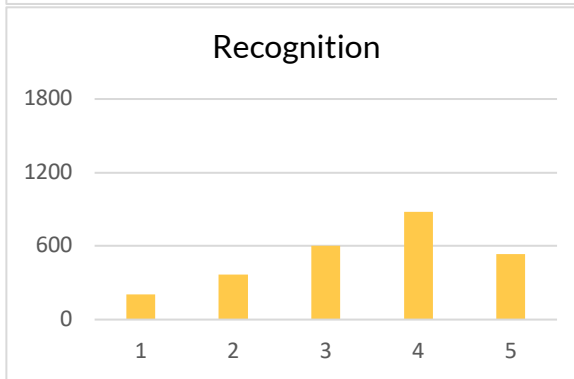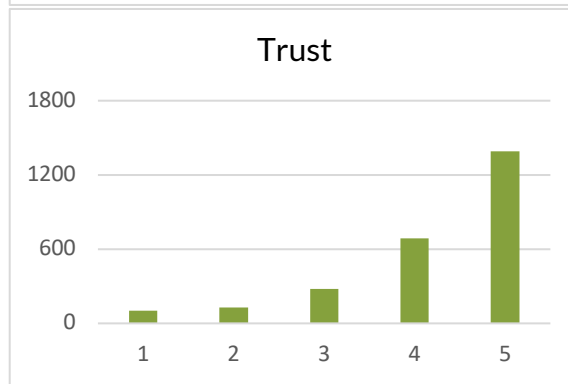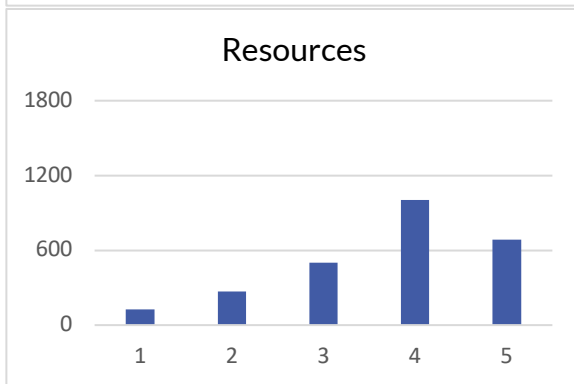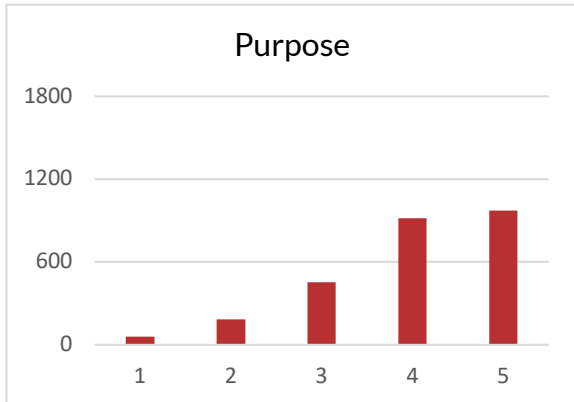
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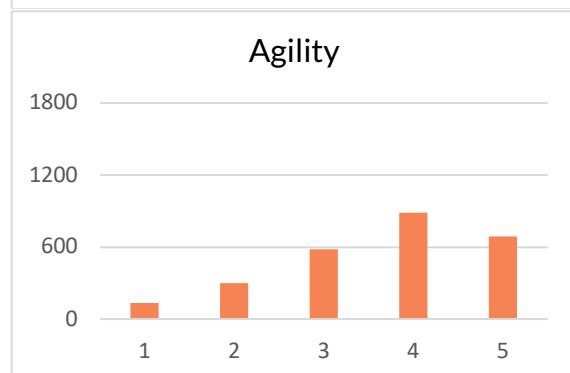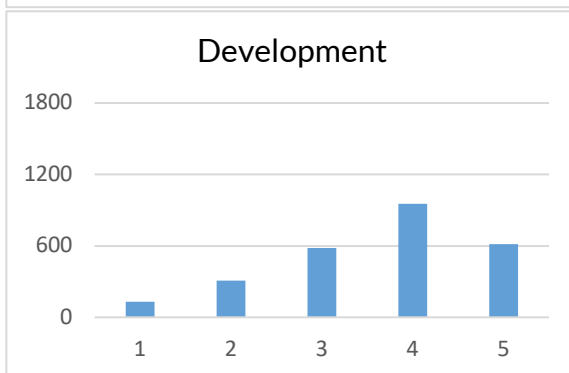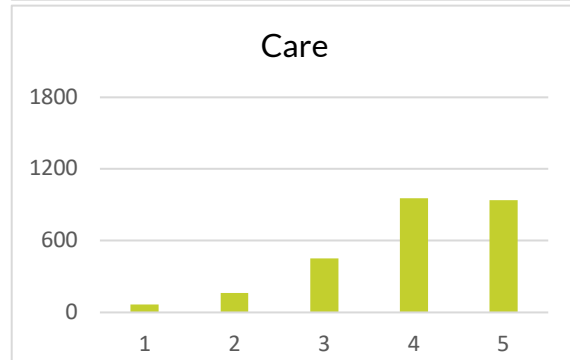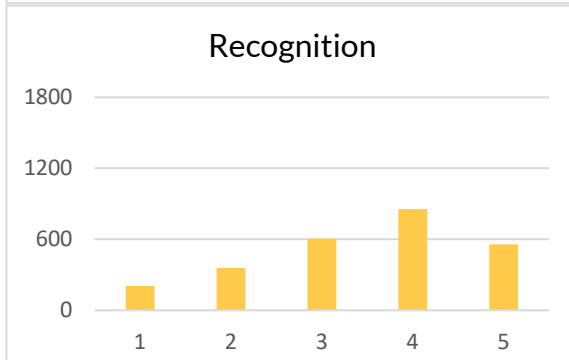# APPENDIX A: ITEM-LEVEL HISTOGRAMS
Individual-Level Statements

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8 Factors of Engagement

Team-Level Statements

Purpose

Accountability

Resources

Trust

Recognition

Care

Development

Agility

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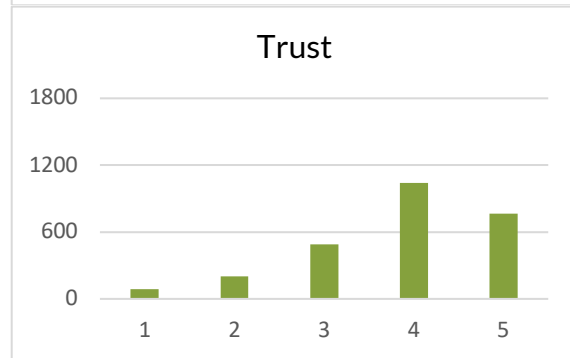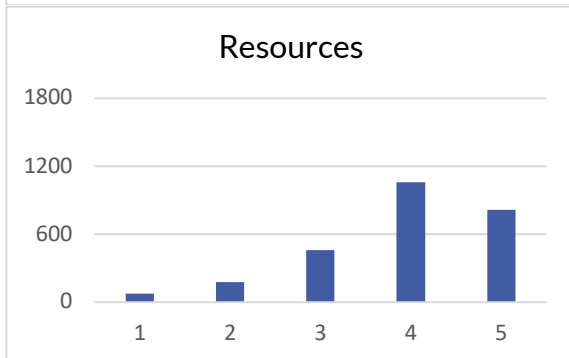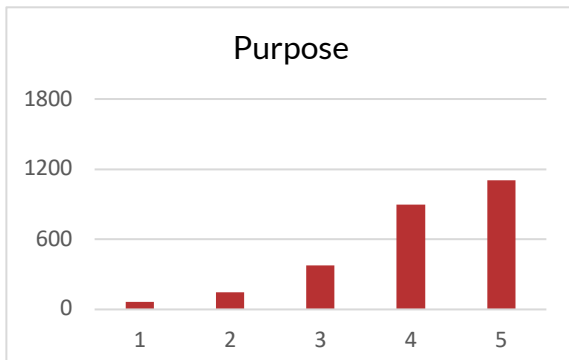
8 Factors of Engagement

Organization-Level Statements

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