Measurement of Innovation Mindset

A Method and Tool within the Berkeley Innovation Index Framework

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Abstract—**The Berkeley Innovation Index (BII) is a concept and an open project offering simple yet powerful ways to measure innovation capability in a holistic sense. Our work is motivated by the fact that if Innovation capability cannot be measured, then it is inherently difficult for any person or organization to improve their ability to be innovative. The approach is also intended to cover various facets of innovation: 1) Strategy and Leadership, 2) Innovation Culture from an Organization's Viewpoint, 3) Organizational Operations and Measures across functions, 4) People's Mindset, and 5) Tactical measures. In this paper, we focus on one particular facet, which is a person's mindset towards innovation (number 4 above). The work on this facet can be divided in four steps. In this paper we describe BII, the four steps of work, the algorithm, the learning model, and the initial results of the Innovation Mindset Instrument. The tool has been used to conduct a survey on the students attending the Berkeley Method of Entrepreneurship Bootcamp, a 4-day intensive class experience on innovation and entrepreneurship. It can be concluded that by the third day of the class, the innovation mindset levels have increased by half of a standard deviation, and by the final day, the class has increased its Innovation Mindset score by a full standard deviation. The Innovation Mindset score is not a test of knowledge, but instead a test of beliefs about oneself. The results are intended to measure whether entrepreneurial behaviors can be learned.**

Keywords—Entrepreneurship psychology; Innovation

I.   INTRODUCTION

Innovation is widely recognized as an important variable to create competitive advantage and drive economic growth. Innovation is not natural for a company as it destabilizes its organizational structure, but is necessary as the absence of it results in stagnation and loss of competitive behaviors [1][2]. Innovation capability is the ability to be innovative, and is a characteristic of individuals as well as organizations. A problematic issue with learning and executing "innovation" is that it is often removed from actual situations, too theoretical, not time-ordered, and not holistic.

Innovation can have many origins, whether they are academic, creative, technological, can come from when studying the poorest populations (Jugaad [3]: doing more with less), or can come from a combination of all of these. It is sometime the cross fertilization of different industries. But the source of innovation is not clearly defined and companies still struggle at mastering this destabilizing process, on which they strongly rely to nurture their competitive advantage.

In this paper, we focus on one particular facet, which is the ability of a person to be innovative. The work originates from a study and approach of teaching entrepreneurship called Berkeley Method of Entrepreneurship, which identified 10 social psychology based behaviors common to entrepreneurs and innovators. We extended that work by researching which of those 10 behaviors could actually be tested in psychological instruments (i.e. testing questions) from previous literature in psychology. Those questions have now been incorporated into an algorithm-based software set that automatically provides a report to an individual about the behavioral strengths and weaknesses of the individual towards innovation. The report includes a total score as well as a break down of principal components such as trust, comfort with diversity, resilience,

and other factors. In this paper, we describe the approach, algorithm, learning model, and the initial results of the Innovation Mindset measurement tool.

We contend that if Innovation cannot be measured, then it is inherently difficult for any person or organization to improve its ability to be innovative (Peter Drucker). Most past measures have not been insightful or holistic enough to help companies make the right decisions in order to become more innovative. For example, the numbers of patents or the amount of money spent on R&D have not shown any causality with organizations' ability to be innovative nor to make profits [4] and we aim at offering a new way to assess innovative capabilities for individuals and organizations.

The results of this work are part of a larger research effort, namely the Berkeley Innovation Index (BII). The approach is also intended to cover layers of innovation that range from the following fields: 1) Strategy and Leadership, 2) Innovation Culture from an Organization's Viewpoint, 3) Organizational Operations and Measures across functions, 4) Mindset: The Innovation DNA of the People, and 5) Tactical measures. As for now, we have specified the Innovation DNA and Mindset tool (facet number 4) as well as the Workgroup analysis (facet number 2). This paper mainly focuses on the global approach of BII and the construction of the first tool and experimentation.

II. ENTREPRENEURIAL MINDSET AND THE BERKLEY METHOD OF ENTREPRENEURSHIP

The measures, models and tools presented in this paper are based on previously published research findings. The concept of the project is explained in a concept paper released by the Sutardja Center for Entrepreneurship and Technology [5].

A. The economic role of entrepreneurs

Many attempts have been made to characterize entrepreneurs and innovators. The word "Entrepreneur", originally being a French word, is commonly defined as an individual who organizes or operates a business or businesses. The first usage of the word "entrepreneur" dates back to the Irish-French economist Richard Cantillon who, in 1734 [6], defined it as "Entrepreneurs are non-fixed income earners who pay known costs of production but earn uncertain incomes" [7]. Newer definitions come from Ronald May, who stated that "An Entrepreneur is someone who commercializes his or her innovation", and Howard Stevenson [8] who described entrepreneurship as "the process by which individuals pursue opportunities without regard to the resources they currently control".

Entrepreneurship is an essential ingredient for creative destruction, a phenomenon described by the Austrian economist Joseph Schumpeter [9]. According to Schumpeter creative destruction is "the essential fact about capitalism" where new combinations of resources (e.g., human talent, physical resources and financial resources) give rise to new industries and wealth [10]. According to Schumpeter, creative destruction is the primary mechanism for economic development for societies and businesses. In his view, entrepreneurs are the dynamic figures who combine, or recombine, vital resources to serve emerging customer needs, thereby "creatively" destroying the pre-existing economic order [11]. Entrepreneurship in a society can exist at three distinct levels: the individual, firm and macro level. The three levels operate under different conditions, have their own crucial elements and their respective success has different implications [12]. It is the success of entrepreneurship at the macro level that implies economic growth. However, a success at the macro level cannot be achieved without successful entrepreneurship at the firm level or at the individual level since the macroclimate of successful companies is grown out of these [13].

B. Educating entrepreneurs

In terms of education, the current trend has been that teaching programs should produce more "entrepreneurial engineers" who are "bilingual" in the sense that they possess dual managerial and technical competencies [14]. Beyond business and technical skills, methods to teach innovative mindset/culture for individuals and companies have been introduced both in universities and dedicated consulting companies.

One characteristic observed in entrepreneurs in the Silicon Valley is the ability to evolve in a fast paced environment where serendipity allows projects to quickly become rising stars or to struggle in the hard process of becoming a well established firm. Thus, being able to pivot and to team up with the most relevant people for your project requires a specific type of mindset and additional behaviors. As an example, this includes one's ability to trust others and to be trusted in return so that the relationships built around the project results in a positive sum. Some of the psychological variables that lead to this specific mindset are described in the Rainforest Scorecard [15].

Teaching a person to be an entrepreneur must include the behaviors needed to adapt to a volatile environment and to be able to go forward in risky or uncertain situations. These findings developed and taught through the Berkeley Method of Entrepreneurship are also valid for larger organizations that want (and need) to become more innovative. Innovation in large corporations also requires the right mindset and culture for most employees, or the correct balance of profiles among workgroups. As specified by Freiling and Fichtner [16], and using the Competence-Based Theory of the Firm designed by Foss and Ishikawa [17], the culture of a company is the link between its ability to learn and build new competencies and therefore, to innovate. Moreover, Osterloh [18] describes corporate culture as an informal structural element for coordination in firms through the reduction of behavioral uncertainty, especially when it comes to research and innovation and its ability to exploit business opportunities [19]. However, we point a lack of methods to measure (and thus improve) the appropriated type of culture for an organization that aims at being more innovative.

An objective of our work is to add Innovation Mindset and Workgroup Cultures assessments to the Berkeley Innovation

Index framework of measurement tools. As a background, we note that testing of Workgroup Culture is the second of the original two tools created for the Berkeley Innovation Index. This second tool focuses not on an individual, but on the culture of the workgroup as measured by the perceptions of individuals in the workgroup. Areas of measurement that are included in this second assessment include the following: 1) Where ideas originate, 2) Transparency in decision making, 3) Responses to organizational failures, 4) Cultural understanding about operating measures such as quality, 5) Customer happiness, cost, and market share, 6) Organizational comfort with ambiguity and learning, and 7) Culture of execution and action.

III. THE INNOVATION MINDSET INSTRUMENT

In order to correctly assess an organization's culture, we take a look at individuals' psychological mindset using previous studies from Sutardja Center for Entrepreneurship and Technology.

A. Innovation Mindset

An 18-item questionnaire was constructed to assess the mindset of an entrepreneur. Designed to be used in higher education and research, the Berkeley Mindset of an Entrepreneur Questionnaire (BMEQ-18) operationalizes a game-based method for teaching entrepreneurship and employs psychological questionnaire scales. The development of the BMEQ-18, the origin of the underlying concepts, the specific scales and the process of item-selection are summarized in this article.

The Berkeley Method of Entrepreneurship questionnaire (BMEQ-18) is constructed to measure mental aspects that are relevant to entrepreneurs. The goal of the questionnaire is to measure certain mental aspects of entrepreneurship in order to give students and teaching staff an impression of the strength and development fields of the students in the class. The BMEQ-18 operationalizes a game-based method for teaching entrepreneurship, as employed by the Sutardja Center for Entrepreneurship and Technology at the University of California in Berkeley.

The Berkeley Method of Entrepreneurship trains students to be more entrepreneurial by exposing them to entrepreneurial experiences. It is a holistic and student-centered teaching and learning approach. The method is based on the hypothesis that an inductive game-based teaching approach is a vehicle for introducing and re-enforcing the characteristics of mindset of an entrepreneur. Generally, the mindset is a way of thinking that influences the way someone views and acts upon a situation; the mindset is reflected in the person's attitudes. The Berkeley Method of Entrepreneurship conceptualizes the dominant characteristics of entrepreneurs through ten social psychological behaviors i.e. "10 dimensions" that describe the typical mindset of successful entrepreneurs. The dimensions are based on literature reviews and extensive interaction with entrepreneurs in the Silicon Valley area.

B. A survey-based methodology based on innovative mindset

We have identified behaviors required by entrepreneurs and innovators as a basis for the teaching method called Berkeley Method of Entrepreneurship [20][21], which has been used at UC Berkeley over the past many years.

In order to specify our model, we divide our work into 4 steps:

1. Step-1. We identified through the BMoE of 10 social psychology behaviors common to entrepreneurs and innovators such as the acceptation of failure ("Plan to fail"), the ability to diversify one's network ("Diversify") or to trust others ("Friends of foe").

2. Step-2. We included researching which of those 10 behaviors could actually be tested in psychological instruments (i.e. testing questions) from previous literature in psychology. The first 10 social psychology behaviors identified by the BMoE can be reduced to 6 variables, e.g. trust, comfort with diversity, and resilience.

3. Step-3. We extended the questions with additional questions, originating from a separate research study, regarding comfort zone and communication topics.

4. Step-4. We brought those questions to life and incorporated them into an algorithm-based software set that can automatically provide a report to an individual about the behavioral strengths and weaknesses of the individual towards innovation. The report includes a total score and a break down of principal components.

Previous studies have shown that the impact of Comfort Zone has a significant effect on a person's entrepreneurial and innovation potential [22]. While these studies identified the behaviors and correlated the behaviors with successful entrepreneurs and innovators, we are now interested to validate assessment instruments to measure the behaviors of a person and/or workgroup.

C. The Innovation Mindset Instrument

1) The correct choice of variables

The BMEQ-18 enables students to explore their current mindset and to identify the fields they want to work on during the entrepreneurship education. The first step in the development of the questionnaire was to select the mindset dimensions of the Berkeley Method of Entrepreneurship that can appropriately be measured with a questionnaire. Dimensions that are better studied through behavioral observation or experiments have been excluded from the development of the scales.

A first literature review was conducted in the fields of social and organizational psychology to identify the concepts that translate to the mindset dimensions. This first step is needed to identify the psychological construct of the entrepreneurial and innovative mindset based on existing work on known variables. These variables are presented in Table 1. One of the main focuses in the selection of the psychological concepts was to work on the level of traits or attitudes and to

avoid state-like variables. State-like variables are not suitable for the education context in which the questionnaire will be primarily administered. The psychological concepts that best matched the mindset description of the Berkeley Method of Entrepreneurship dimensions served as the basis for the construction of the questionnaire.

A second literature review has been conducted in order to identify sets of questions that measure the chosen psychological concepts. *The questions were built in order to measure one specific variable at a time and to limit the bias in our dataset ie. So that our dataset reflects exactly the mindset of respondents (desirability bias?).* The research was mainly focused on short scales. Some of the scales have been slightly adapted in order to fit within the context of the Berkeley Method of Entrepreneurship. Table 1 presents the mindset descriptions of the Berkeley Method of Entrepreneurship, the selected psychological constructs and the questionnaire scales that were applied to measure the concepts.

TABLE I.   SCET MINDSET DESCRIPTION AND EQUIVALENT PSYCHOLOGICAL CONSTRUCTS

Mindset and description	Psychological construct	Questionnaire scale
Friend or Foe If you cannot tell: Learn to trust others without expecting anything in return.	Social cohesion, honest behavior (Fukuyama, 1995 [23])	**Trust**
Plan to Fail It is necessary to be wrong sometimes. Plan to Experiment. Plan to Fail (Fail Fast). Analyze, Adapt and repeat. The smarter you think you are, the harder this is going to be.	Grit, resilience, entrepreneurial failure (Sarasvathy, 2001 [24])	**Resilience**
Diversify Diversify your networks. Connect to people you would not normally, then go and listen. Open Up. And connect them to others.	Social capital (Dubini and Aldrich, 1991 [25])	**Diversity**
Believe Believe that you can change the world.	Self-efficacy (Bandura, 1977 [26])	**Mental Strength**
Good Enough Perfection is no good but good enough is perfect.	Perfectionism (Kawasaki, 2004 [27])	**Perfection**
Collaboration Individual vs. team and competitors vs. partners.	Coopetition (Vanaelst & al., 2006 [28])	**Collaboration**

Using this process, the original BMEQ-18 list was developed. The first version of the survey was composed of nearly 80 questions and was selected down to 24 questions and 3 additional questions related to comfort zone and communications topics. Another set of questions collects the subjects' demographic information as well as measures of future interest and past success in entrepreneurship and innovation. More importantly, we do not assume that the initial questions about behaviors are good indicators, nor do we assume that the question list will be static. The more data we collect, the better we will be able to define new indicators and increase the precision of the Berkeley Innovation Index.

2) Survey and data collection

After collecting initial data points, we cleared bad samples from the data. Correlation analysis was performed on a subset of training data where each person had experienced and identified a level of success or failure with entrepreneurship and innovation.

Using a correlation map (Fig. 1), we are also able to identify the cross correlation of all questions with one another. Then, we were able to understand which questions were most significant as functional blocks for each behavior as well as which correlated the most with the result of being successful in entrepreneurship and innovation (displayed in the rightmost column and bottom row). On this map, the color of the square indicates the level of correlation between the questions. The blue squares indicate a negative correlation between the questions associated to the variable "Perfection" and most of the other questions, as this variable is negatively impacting the Entrepreneurial Ratio (ER) score (i.e. having been successful with entrepreneurship).

The answers of some of the questions were highly correlated. In order to remove this redundancy and choose the most efficient questions, we used the LASSO (Least Absolute Shrinkage and Selection Operator) regression and cross-validation methods to determine the best subset of questions that predicts success in innovative projects (ER). Compared to Ordinary Least Square regression, LASSO regression and cross-validation methods exclude inefficient questions and reduce over-fitting.

Based on the LASSO, we were able to reduce the number of questions to the current number of 20. Doing so allows us to add additional questions that assess new behavioral dimensions to the instrument.
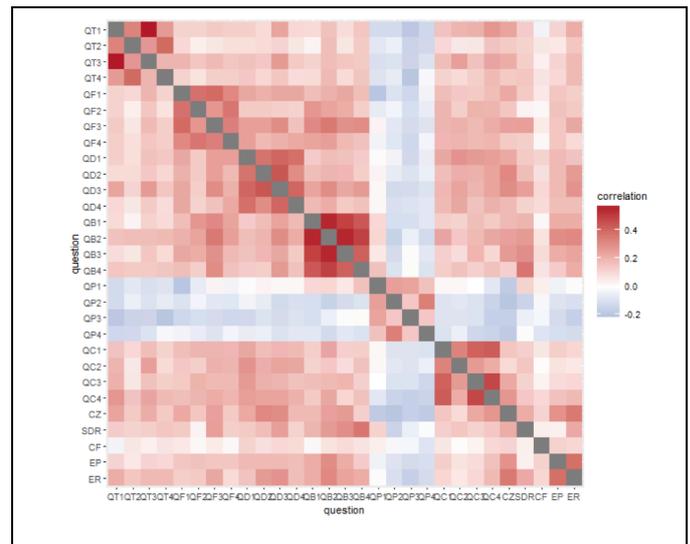

Fig. 1.   Cross-correlation of all questions.

An alpha version of the question-based instrument was coded into an electronic form with a preliminary auto report capability. Using the initial 20 questions and additional questions for demographics, data was collected with approximately 1000 samples ranging from students to professionals across the world. A sample of the auto generated email report is provided in the Appendix I for illustration. The original BMEQ-18 based Question List is provided in Appendix II.

3) Innovation Index Score Calculation

The LASSO technique assumes a Gaussian distribution of responses (which seems to be approximately correct from visual inspection of this data) and helps to determine the least number of questions that will achieve a similar expected distribution as the full set. While our initial approach was to use a weighted mixture of linear scores, we have shifted the scoring to reflect the actual nature of the distribution.

The Innovation Index in our most recent algorithm to this writing is calculated as an averaged sum of our different variables, weighted according to their power of predicting the Entrepreneurial Ratio score. We note that the statistical properties (i.e. mean per question, etc.) are chosen to reflect a balanced mixture of populations from around the world and in age segments. Our mixture is selected to be ½ Silicon Valley, ¼ Eastern US, and ¼ Global, with each geographical zone balanced with a combination of students and working professionals.

We define a *Score_per_question* as the following:

$$Score\_per\_question = \frac{x - mean\_per\_question}{std\_per\_question} \quad (1)$$

with *x* being the score for one question and *std* being the standard deviation.

The *Score_per_question* is calculated for each question in the survey as above. Principal components of each behavior will have a score which is the weighted sum of the *Score_per_question* across all questions that measure the same behavior (e.g. all questions related to trust). The aggregated Innovation Mindset score is the weighted sum across all behavior scores. All scores are then normalized to a mean of 5.5. We currently set the scale factor in a way such that each standard deviation above or below the mean results in 2 points change in the mindset score.

In summary, our model selects the questions that have the best prediction for Expected Entrepreneurial Results (ER) using LASSO Regression. Secondly, we reword the questions that we select so that they do not 'lead the survey taker' to influence the answer.

IV. RESULTS AND FUTURE WORK

A. A trial in the Berkeley Method of Entrepreneurship Bootcamp

In January of 2016, the Innovation Mindset Instrument was offered as an instructive aid to a class at UC Berkeley called Berkeley Method of Entrepreneurship Bootcamp, a 4-day event. In a controlled manner, the entire class of approximately 100 students was offered the survey instrument before the first session of class. Note that these results were shown with linear weighted scores but not as number of standard deviations from a mean.

The results of the pre-test show a mean of 7.5 with a standard deviation of just under 1.0 and are presented as follow:
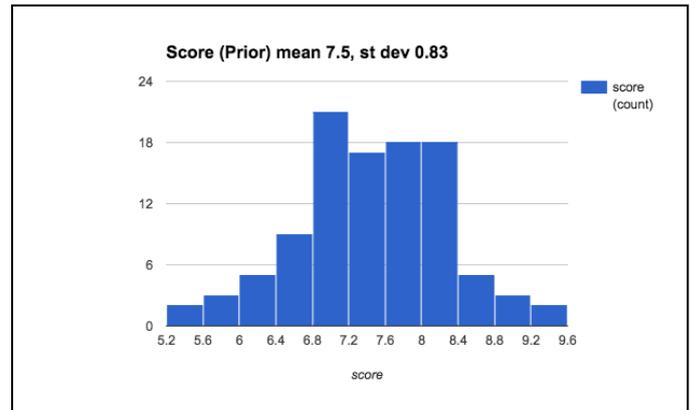

Fig. 2. BII score results prior to the Bootcamp.

Then, on day 3 of the Bootcamp course, the instrument was offered again but only to half of the students. At this stage of the course, there was no direct instruction to explain innovation mindset or entrepreneurial culture. However, mean score increased approximately by 0.5 (i.e. ½ of a standard deviation). The changes in scores at this point were only due to indirect cultural exposures.
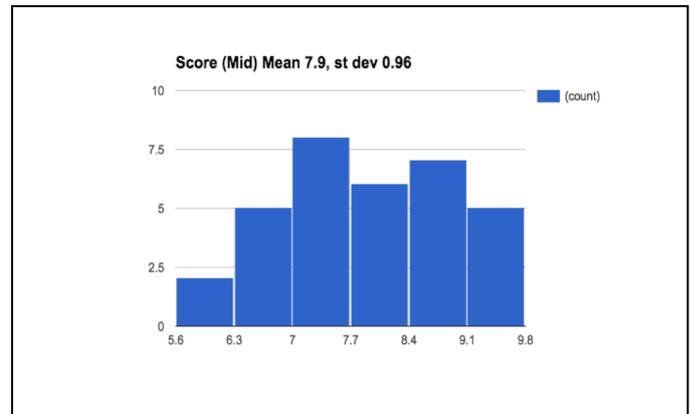

Fig. 3. BII score results for half the class on day 3 of the Bootcamp.

The remaining half of the students retook the Innovation Mindset survey after the course completed on day 4. During day 4, instruction included an explanation of innovation

mindset and resulting behaviors common to entrepreneurs. The mean score of surveys taken on that day increased by just over a full standard deviation.
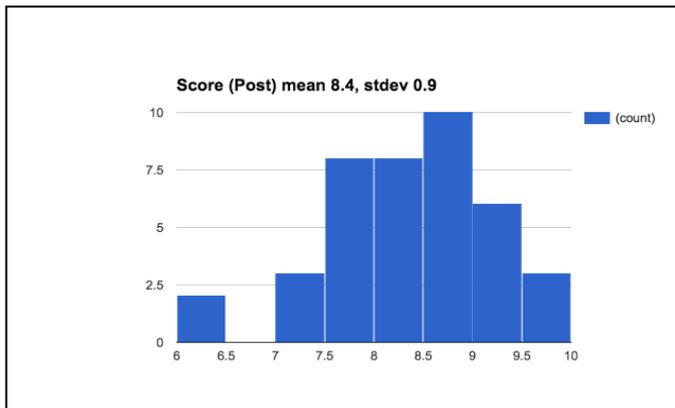

Fig. 4. BII score results for half the class on day 4 of the Bootcamp.

It is important to understand that the test questions are not a measure of knowledge learned, but instead a measure of what students believe about themselves at a psychological level. This result shows that the course actually influenced the students' psychological beliefs and behaviors, not simply the logical understanding of the materials. We expect that the students' actual and real life behaviors will be driven by this mindset and psychology more than the logical understanding of material. The use of the instrument furthers our position that entrepreneurial behavior can be measured as well as learned.

B. Future Work

Our intent in the long run is to apply these findings to workgroups in startups as well as in larger companies. The data collected may lead to a definition of the best psychological determinants of success within a workgroup. Participating individuals may be able to "compare" their own innovation profiles to famous entrepreneurs' profiles or to a specific demographic category. The machine-learning algorithm we are developing will allow us to create a more precise definition of success in innovative projects.

1) Possible demographic comparisons

To illustrate that the components of behaviors can be collected and analyzed, we took two sample demographic results across our randomly tested population.

The first graph (Fig. 5) breaks down raw behavioral scores by age. While this data seems to show that age is positively correlated with entrepreneurial and innovative mindset, we cannot claim any age-mindset correlation without ruling out the possibility of bias in the data. We also cannot speak of statistical significance at this time, as the amount of data collected is still not high enough. However, we note that age based correlation studies will be possible as we further develop the Innovation Mindset Tool.
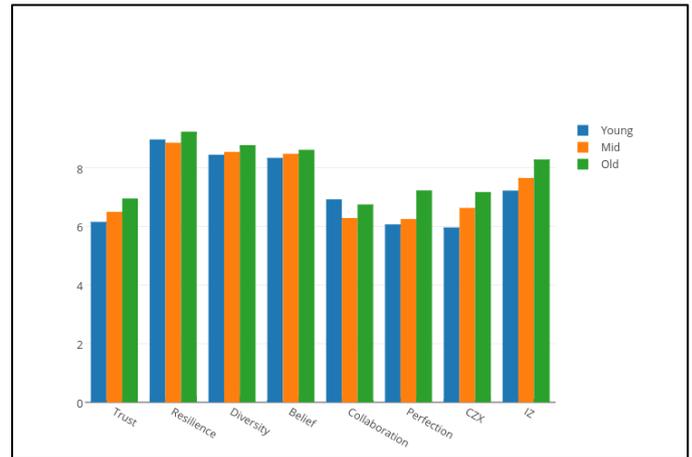

Fig. 5. BII score distribution by age.

A second example of demographic breakdown for future work is by gender (Fig. 6). Globally, men score slightly higher than women in all variables except for Diversity and Collaboration, where women score slightly higher. This may speak to the different ways men and women approach entrepreneurship and/or innovation.
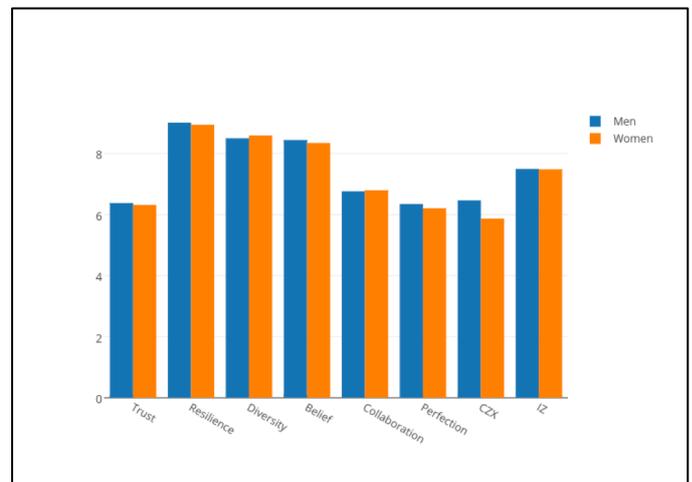

Fig. 6. BII score distribution by gender

These two graphs show the ability of the Berkeley Innovation Index to analyze in depth the psychological as well as sociological determinants of entrepreneurship and innovative mindsets. Again, further research and data collection is needed to confirm these first results and we do not make any claim here and we also cannot at this time speak of statistical significance. However, we can enable that future work can be done in this area through the use of the Innovation Mindset Instrument.

2) An opportunity for self-learning and A/B testing with new questions

The approach used in this model allows new questions to be inserted on a regular basis without changing the measurement model and at the same time allows weighs of questions to be continuously changed based on data collected. While using A/B testing methods to assess the best set of variables, we are currently developing machine-learning algorithms that will automatically update the underlying statistical analysis procedure to create a more accurate definition of success as we collect even more data. We are also experimenting with the Markov Chain and the Neural Network algorithm that will evaluate the relevancy of questions surveyed and generate proposals for new questions to make a more precise assessment of Innovation Mindset and reduce desirability bias.

3) New performance measures for companies

This BII project opens up a broader field concerning performance measurements for companies. Extensions of this work after additional data collection may also include diagnostics for firms and/or microeconomic insight at the sector and industry level. The index data may also be aggregated with other information from various departments of companies (strategic insights, financial data, HR data) and companies' ecosystem (global trends, country GDP, public policy for innovation and entrepreneurship, etc.). Measuring innovativeness through the analyzing psychological profiles of individuals or workgroups is an approach that, if combined with existing methods, can offer a holistic analysis of a company. It may also provide a future-oriented approach of valuation that is complementary to existing methods. It is difficult to measure soft assets and indirect effects of innovation projects as external and unexpected variables may have fostered the success of a handful of entrepreneurs, sometimes in years before the success is made visible.

V. CONCLUSION

The Berkeley Innovation Index offers a new and complementary way to assess innovation through psychological analysis of individuals. It provides a deep additional insight into innovative ability at multiple levels. The measurement can easily be done though the use of the Innovative Mindset Instrument developed using a data-driven approach. The development of the Innovative Mindset Instrument was completed in four steps: first, we identified 10 social psychological behaviors frequently found in successful entrepreneurs using the Berkeley Method of Entrepreneurship; secondly, we proceeded to identify specific patterns of behaviors that can be measured through questionnaires; then, we added research concerning Comfort Zone and communication topics; and lastly, we implemented and modified the instrument using our first set of data. The Innovative Mindset Instrument has been applied to a group of students prior to, during, and after an intensive innovation bootcamp. Based on the hypothesis that the Berkeley Method of Entrepreneurship is a successful approach, it can be concluded that the index reflects quite accurately the changes in respondents' mindsets. Future research will be done concerning the implementation of the instrument with other

sets of data and its evolution using machine learning adaptive methods. For now, the Index is developed for Innovative Mindset analysis for individuals as well as Innovative Culture assessment of workgroups but aims at covering all levels of innovation in the future. Certainly, the more data we collect, the more likely we will be able to define success in Innovation and increase the precision of our findings. In any case, the Berkeley Innovation Index is to become an important tool for the holistic analysis of Innovation performance, and aims at creating a tangible economic impact at many levels.

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Berkeley Method Multi-Facet Algorithm, Alpha Release 1.4

INNOVATION MINDSET:
Your personal Innovation Mindset Level is currently 6.76 out of 10

This is not a fixed level, anyone can grow their innovation mindset. Your level has been estimated using an analysis based on the Berkeley Method for Entrepreneurship & Innovation, the Comfort Zone Scale, and fundamental testing methods in social psychology.

The following factors are components of your innovation mindset:

TRUST level: 6.62 of 10. This is your ability to trust others.

RESILIENCE level: 5.96 of 10. This is your ability to overcome failure.

DIVERSITY level: 5.42 of 10. This is your ability to overcome social barriers.

MENTAL STRENGTH level: 7.87 of 10. This is a measure of your confidence and belief that you can succeed.

COLLABORATION level: 6.81 of 10. This is your ability to work with everyone including competitors when needed.

RESOURCE AWARENESS level: 7.52 of 10. This is your ability to balance your resources across multiple objectives.

INNOVATION ZONE level: 7.10 of 10. This is a measure of your ability to work in areas of uncertainty.

These scores are normalized. The average score of the general population is 5.5 of 10.0 in each component above.

MINDSET ANALYSIS:

Based on your comfort with ambiguity, your MINDSET covers both operations and innovation, but LEANS towards INNOVATION. If you have interest in operational innovation and precision, you should pre-analyze situations and focus more on risk mitigation.

Learn more and check for updates at http://berkeleyinnovationindex.org/

Please indicate how you perceive yourself in regards to the following statements.

QT1
Most people can be trusted: 1=strongly disagree, 2= disagree, 3= Neutral, 4=agree, 5=strongly agree. Mark 3 for "don't know"

QT4
Those devoted to unselfish causes are often exploited by others: 1=strongly disagree, 2= disagree, 3= Neutral, 4=agree, 5=strongly agree. Mark 3 for "don't know"

QT5
How long does it typically take you to generate a basic level of trust from a person you just met: 1=first meeting, 2= after about 2 or 3 meetings, 3= about month of working together 4=it takes at least a 3 or 4 months, 5=it happens over a year or more. Mark 3 for "don't know"

QF2
Failures often lead to positive outcomes in the long run: 1=strongly disagree, 2= disagree, 3= Neutral, 4=agree, 5=strongly agree. Mark 3 for "don't know"

QF3
I overcome setbacks to conquer important challenges: 1=strongly disagree, 2= disagree, 3= Neutral, 4=agree, 5=strongly agree. Mark 3 for "don't know"

QD2
I frequently come in contact with people that are different from me. : 1=strongly disagree, 2= disagree, 3= Neutral, 4=agree, 5=strongly agree. Mark 3 for "don't know"

QD3
I feel comfortable to talk to people that are different from me. : 1=strongly disagree, 2= disagree, 3= Neutral, 4=agree, 5=strongly agree. Mark 3 for "don't know"

QB2
I am able to successfully overcome many challenges: 1=strongly disagree, 2= disagree, 3= Neutral, 4=agree, 5=strongly agree. Mark 3 for "don't know"

QB3
When facing difficult tasks, I am certain I will accomplish them: 1=strongly disagree, 2= disagree, 3= Neutral, 4=agree, 5=strongly agree. Mark 3 for "don't know"

QP3
In general, quality and perfection are more important than effectiveness: 1=strongly disagree, 2= disagree, 3= Neutral, 4=agree, 5=strongly agree. Mark 3 for "don't know"

QC4
There are times when I would be open to share resources and information with my competitor: 1=strongly disagree, 2= disagree, 3= Neutral, 4=agree, 5=strongly agree. Mark 3 for "don't know"

CZ
How comfortable are you with making decisions under uncertainty in professional life?

SDR
When you say you will do something, how often do you actually do it.

CF
What do you do when you disagree with others? 1=Avoid, 3=Discuss creatively, 5=Argue