

# Effect of Emotional Intelligence and Leadership Styles on Risk Intelligent Decision Making and Risk Management

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**Abstract:** In today's world, uncertainty abounds. It is therefore incumbent on managers to take decisions using unbiased considerations in dealing with organizational risks. Often, risk decisions are replete with assumptions and biases, leading to incorrect decisions. Leaders who apply emotional intelligence (EI) skills are better poised to challenge internal biases and assumptions to improve decision-making, but limited empirical evidence exists that accounts for the nexus between EI, leadership styles and risk perceptions of managers. The purpose of the paper was to explore the relevance of the theory of EI in risk-based decision-making, while comparing various leadership styles. The research adopted a questionnaire survey administered to 173 employed individuals. The research hypotheses analyzed the mediating roles of EI and leadership styles in risk perceptions using 't' statistic and where applicable, Chi-square testing. The results of the analysis confirmed the role of EI in filtering deleterious internal biases and confirmed EI's presence as a success factor in leadership and decision-making. Transformational leaders are, however, more emotionally intelligent and less biased. These attributes allow for the generation of a suitable risk attitude and enhance risk-intelligent decisions as compared to transactional leaders. This study, while being descriptive, is exploratory in nature and opens pathways for further targeted research based on specific EI abilities or traits and various situational risk attitudes.

**Keywords:** Leadership, leadership styles, risk-based approach, risk-based decision making, emotional intelligence, risk intelligence, risk attitudes

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## 1. Introduction

Risk Management is a factor that has been often absent from the previous research by survey analysis and other methods on the topics of leadership styles, decision making and EI. Risk is the variable that lends structure to any decision-making model as it attempts to capture and define various parameters related to situational uncertainty in terms of likelihood and consequence of various decision paths. Kahneman (2011) postulated a System One method of thinking which is very fast but subconscious and riddled with biases. He contrasts this with System Two thinking which is deliberate and more objective. Many papers discussed below in the literature review section analyze the decision-making process as a complex cognitive undertaking that falls under Kahneman's System Two nomenclature. At its very core, the deliberative aspect of complex System Two thinking rests on the mental assessment of the consequences of various sets of decision outcomes in a 'futures thinking' simulation in the brain. This, is the decision makers own form of mental risk management often subconsciously conducted during System Two thinking. When EI is investigated in risk-based decision making, it is important to evaluate the decision

precursors and feeders into the risk attitude which informs the final decision.

Hillson and Murray-Webster (2004) have published a seminal theory on understanding and managing risk attitudes while identifying and addressing the need for the application of emotional intelligence to assess and modify risk attitudes. This paper aims to explore Hillson and Murray-Webster's (2004) theoretical suppositions and analyze the effects of difference in risk attitudes and their perception in light of various leadership styles as defined by Goleman (2000). Hillson and Murray-Webster (2004) establish that risk attitude that is not conducive to proper management of realized or potential risks, can be modified by the use of emotional intelligence. Goleman (2000) established that EI forms an important part of leadership style and decision-making effectiveness. Risk management and its attitudes are often not discussed in the context of leadership styles. While this is a corollary that can be theoretically deduced using models as postulated by Moon (2020), there is scope to categorically prove differences between leadership styles and effect of EI on risk variables by using hypothesis testing with a survey method.

**Table 1: Summary of various leadership styles from Preston et al (2015)**

	<b>Commanding</b>	<b>Visionary</b>	<b>Affiliative</b>	<b>Democratic</b>	<b>Pacesetting</b>	<b>Coaching</b>
The leader's modus operandi	Demands immediate compliance	Mobilizes people toward a vision	Creates harmony and builds emotional bonds	Forges consensus through participation	Sets high standards for performance	Develops people for the future
The style in a phrase	"Do what I tell you."	"Come with me."	"People come first."	"What do you think?"	"Do as I do, now"	"Try this."
Underlying emotional intelligence competencies	Drive to achieve, initiative, self-control	Self-confidence, empathy, change catalyst	Empathy, building relationship, communication	Collaboration, team leadership, communication	Conscientiousness, drive to achieve, initiative	Developing others, empathy, self-awareness
When the style works best	In a crisis, to kick start a turnaround, or with problem employees	When changes require a new vision, or when a clear direction is needed	To heal rifts in a team or to motivate people during stressful circumstances	To build buy-in or consensus, or to get input from valuable employees	To get quick results from s highly motivated and competent team	To help an employee improve performance or develop long-term strength
Overall impact on climate	Negative	Most strongly positive	Positive	Positive	Negative	Positive

This study aims to investigate the difference between various leadership styles (with concomitant EI perception), and their perceived effects on decision making, risk perception and attitude. Additionally, this paper uses Kahneman (2011) theory of System One and Two thinking to connect all these variables and investigate the validity of model by Moon (2020) based on Kahneman's theory. Comparative analysis between various leadership styles grounded in these factors can give insights on risk intelligent decision making and help guide the decision makers towards more objective and less biased decisions. This paper also aims to conduct such an analysis in a bottom-up manner i.e. by surveying the sample about their managers and their decision-making styles rather than surveying the leaders about their own methods.

## 2. Theoretical and Literature Review

The importance of the link between leadership, leadership styles and emotional intelligence has been elaborated in George (2000), Goleman (2000, 2003), Holian (2006) and Boyatzis et al. (2013). These theses have strongly proven Emotional Intelligence to be essential and indeed be a sine qua non of leadership. Per, Bass (1990), on a macro level, the leadership style can either be transformational or transactional. The transformational leader is more inspirational, empathetic, motivating, adaptive and fits into the Affiliative, Visionary Democratic, Pacesetting and Coaching leadership styles described by Goleman (2000). The Commanding or Coercive leadership style on the other hand, is a bipolar transactional style which promises rewards for good behavior and punishment for poor performance. These styles have been summarized in Figure 1 adapted from Preston et al. (2015)

The main features of an emotionally intelligent leader are also described by Goleman (2003), of which, self-awareness, self-regulation, social awareness and empathy are the ones which will be the focus of analysis in this paper. As can be expected, it is difficult to quantify the effect of emotional intelligence on leadership in psychological units but using surveys, Bass and Avolio (1990) and Palmer et al.

(2001) have collected data which detailed major contributors to leadership styles and demonstrated correlations between transformational leadership and emotional intelligence subscales. Over the years, this correlation has been investigated and confirmed in many sectors including construction project management by Potter et al. (2018), in hotel organizations by Vasilagos et al. (2017), Spano-Szekely et al. (2016) in nurse managers, Baba et al (2019) in academic higher learning institutions and even in virtual Massively Multiplayer Online Games (MMOGs) by Mysirlaki and Paraskeva (2020). Many of these comparisons, as reflected in Kumar (2014), link EI to traits such as relationship building, communication, collaboration, influence, individualized team member consideration (and team member development) and motivation. Often, in such papers, the role of EI in decision making is not mentioned or only mentioned superficially. EI and decision making without reference to leadership styles have been detailed in Rausch et al. (2011) who conclude a positive correlation between the two by analyzing relationships based on decision conclusions.

Vaughan et al. (2019) correlate trait emotional intelligence in athletes with risk-taking and using the Cambridge gambling test conclude that EI may help frame the risk-averse attitude by the process of cognitive reappraisal. Panno (2016), on the other hand, shows that EI may help moderate an informed risk seeking attitude and resulting behavior with regards to uncertainty. This difference can be explained by the perception of risk in the respective study cohorts as an opportunity or as a threat. The quality of decision in this regard contributes to the risk attitude assumed in the face of uncertainty. While EI can improve decision quality, as shown by Alkozei et al. (2019) and Fallon et al. (2014), there is scope to model the flow of decision and the emotional regulation of decision-making process from the incipient presentation of facts, their passage through the personal subjective mental lens of the decision maker, and, appropriation or assumption of an informed risk attitude leading to the final decision.

In the sample cohort in this study, the effect of EI on leadership styles is attempted to be uncovered first. This forms the first hypothesis which is to confirm the above-mentioned conclusions from previous papers regarding the positive correlation between the two. Answers from the same cohort are then used to analyze the leadership styles, perception of bias in decision making, conflict in risk perception and decision makers perceived risk attitude.

This paper aims to investigate the following hypotheses:

1. Transformational leaders are perceived to take emotionally intelligent decisions than transactional leaders
2. Transactional leaders are perceived to take less fact/data driven decisions (on a 'hunch') than transformational leaders
3. Transformational leaders have a lesser conflict with their employees over risk perception than transactional leaders
4. Transformational leaders have mature risk neutral attitudes as compared to transactional leaders
5. Transformational leaders have a less perceived bias in critical decision making than transactional leaders

Risk intelligence is the personal ability to remove distortive biases, to take data driven decisions and to leverage social and organizational situational awareness to achieve an informed risk attitude in face of uncertainty which allows for a cognitively complex risk based decision founded upon assessment and evaluation of probabilities and consequences of multiple decision pathways which can reduce threats, increase opportunities and create value. The hypotheses being tested in the study play important roles in risk intelligence and form the basis of a risk based leadership approach to decision making.

### 3. Method

The sample comprised 173 participants (102 females, 64 males and 7 not identified) with the most common age of 30-44 years. The participants were required to be employed at the time of the survey and were chosen at random throughout the United States regardless of their title, industry/sector or geographic location within the country. The survey was completed via the internet through iOS phone/tablet, Android Phone/Tablet and Windows desktops. Healthcare (including medical devices and pharmaceuticals), education and manufacturing were the top three sectors from which the responses were received (32% of the responses).

A survey comprising of ten (10) questions was sent out to the sample. The questions were based on the following foundations:

- Perception of Organizational Risk Management Practices
- Risk Attitudes
- Decision-Making Process and Perceived Bias
- Leadership Styles

While the organizational practices of risk management and risk attitudes may vary department by department and manager by the manager, the survey attempted to capture the perception of such practices from the participants from

a variety of sectors. This information sets a baseline for comparison against more subjective questions regarding bias related to decision making and participants reaction to management's decision-making process.

The organizational risk attitudes were assessed by adapting the attitudes listed in Hillson and Murray-Webster (2017) and giving the respondents, the following choices:

1. Risk Averse – Very sensitive with aggressive risk response
2. Risk Tolerant – Comfortable with uncertainty, reactive
3. Risk Neutral – Mature Approach (views risk as threat + opportunity)
4. Risk Seeking – Aggressively pursues risky options for business benefit

Similarly, the survey takers were asked to choose the organizational leadership style amongst the following options from Goleman (2000). The following choices were provided to the participants:

1. Visionary (Empathetic, change catalyst "Come with me")
2. Commanding (Demands immediate compliance, control, "Do what I tell you")
3. Affiliative (Very empathetic, emotional, soft communication, "People come first")
4. Democratic (Always forges consensus by participation, collaborative "What do you think")
5. Pacesetter (Sets high standards, high drive to achieve. "Do as I do, now")
6. Coaching (Develops others, "Try this")

Out of these, Commanding leadership style was classified as transactional and the rest classified as transformative per classification in Giritli and Oraz (2004).

To gauge emotional intelligence, the survey focused on decision-making practices per Hillson and Murray-Webster (2004). The questions were aimed to assess the perception of the employees regarding bias and rational thought behind the leaders decision. The final question in this theme aimed to explore the respondents perception regarding subconscious contributions to decision making.

A Likert response scale was used for quantifying the frequency of the answer and for weighing purposes as shown in Fig. 1.

Scale	Weight
A great deal	5
A lot	4
A moderate amount	3
A little	2
None at all	1

Fig. 1. Likert response scale

For purposes of calculating percent responses, the top three highest weight responses (combined weight of 12) were grouped together and deemed an extremely negative response while the bottom two grouped together were deemed the positive response on the other extreme.

Inferential statistics were used to check if the responses within two groups were reliably different using ‘t’ test statistic. Where applicable, the Fishers exact test and Chi-square tests were used to supplement conclusions. Statistical significance was calculated using a 95% confidence level (p<0.05). The test statistic ‘t’ was calculated using the standard formula for the Students t-test using Eq. (1).

$$t = \frac{Z}{s} \tag{1}$$

Where, Z and s are derived from the response data. This was adapted to create a test for two proportions. The Z value here, was calculated per Eq. (2).

$$Z = x_1 - x_2 \tag{2}$$

Where,  $x_1$  is the proportion of the first group which responded with the required answer under analysis and  $x_2$  is the proportion of the second group who responded with the same answer under analysis.

The value of s was calculated using the formula for standard error as shown in Eq. (3).

$$s = \sqrt{\frac{p_x(1-p_x)}{n_1} + \frac{p_x(1-p_x)}{n_2}} \tag{3}$$

where,

$$p_x = \frac{x_1n_1+x_2n_2}{n_1+n_2} \tag{4}$$

Where,  $n_1$  and  $n_2$  correspond to the total size of the sample groups.

The final t statistic was calculated using the formula shown in Eq. (5).

$$t = \frac{x_1-x_2}{s} \tag{5}$$

This value provides the difference of a number from the mean value. For a 95% confidence interval used in this study, the magnitude of this value should be greater than 1.96 for statistical significance. If the |t| value is found to be less than 1.96, the results have been noted as not statistically significant.

#### 4. Results

##### Descriptive Summary

- While 47.98% of the respondents said that they felt their organizations risk management practices were above industry average, only 29.48% classified the risk attitude of their organization as risk neutral.
- 71.10% of the respondents felt that attitudes towards uncertainty are adopted unconsciously.
- 95.38% of the respondents felt that implicit or explicit bias had affected critical decision making in their organization. 86.71% of the respondents felt that their superiors had taken decisions based on a ‘hunch’, overriding facts and data.
- The most commonly reported leadership style was ‘Affiliative’ (25.43%) while the least common leadership style was ‘Coaching’ (8.67%).
- 19.08% of survey takers reported the transactional ‘Commanding’ as their organizational leadership style.
- When asked about engagement with their managers, 76.3% of the respondents felt like they had to ‘emotionally manage’ their managers to guide them in the ‘right’ direction.

##### Detailed descriptive and inferential results

The data revealed that transactional Commanding leaders were perceived to have mostly taken decisions ‘on a hunch’ without supporting facts/data, 87.87 % of the time compared to 51.4 % of the time for transformative leadership styles. Within the transformative leadership style, the Pacesetting style has the highest unfavorable score with 70.59 % while the most favorable score was 36 % for the Democratic leadership style. The Coaching leadership style had the most favorable score for the answer ‘none at all’ with 26.67 % of respondents who chose coaching leadership for their organization, not thinking at all, that critical decisions were taken by superiors overriding facts/data. The responses are shown in Fig. 2.

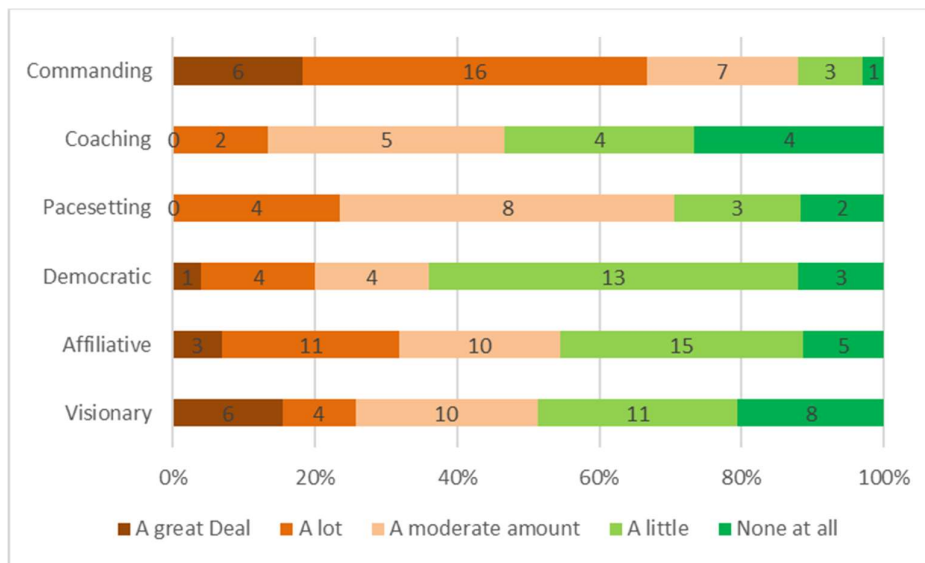


Fig. 2. Superiors taking decisions on a 'hunch' and their leadership styles.

When statistically compared with 't' test statistic, with 95% confidence interval ( $p=0.05$ ), Commanding transactional leadership style was perceived to often take decisions overriding facts/data compared to all other styles of leadership. Fishers Exact Test was done between commanding style and all other transformative styles and it was confirmed that the commanding style of leadership was statistically perceived to be associated with decision making on a 'hunch' without data/facts ( $p<0.05$ ).

To support the hypothesis of transformational leaders having a lesser conflict with their employees over risk perception, the answers to the following questions were analyzed:

How often have you noted a conflict in the perception of risk over a process, service or product between executive management and others (line managers, supervisors, hourly employees, etc.)?

The data revealed that transactional commanding leaders were perceived to have conflict in the perception of risk 84.84% as compared to 57.53% of the time for all other transformational leadership styles combined styles. Within the transformative leadership style, the pacesetter style has the highest unfavorable score with 58.82% while the most favorable score was 46.67% for the Coaching leadership style. The Visionary leadership style had the most favorable score for the answer 'none at all' with 20.51% of respondents who chose visionary leadership for their organization did not think that at all that a conflict existed with superiors in terms of risk perception. The responses are shown in Fig. 3.

When statistically compared with 't' test statistic, with 95% confidence interval ( $p=0.05$ ), Commanding transactional leadership style was found to have more conflict in the perception of risk over a process, service or product between executive management and others (line managers, supervisors, hourly employees, etc.) than affiliative or visionary leadership style. Chi-Square Test was done between commanding style and all other transformative styles and the dependence between leadership styles and conflict in the perception of risk was confirmed statistically ( $p<0.05$ ).

The data suggested that risk averse (33.52%) and risk tolerant (33.52%) attitudes were most common while risk seeking attitude was the least common (3.4%). The responses are shown in Fig. 4.

Transactional commanding leaders were found to have risk averse attitude 36.36% of the times as compared to 43.58% for visionary leaders and 47.06% for Pacesetter leaders. The responses are shown in Fig. 5. No significant statistical difference was able to be found in the risk attitude of transactional leaders versus transformational leaders. A Chi-Square test was done and the result was not significant. No dependence could be confirmed between the risk attitude and leadership style ( $p<0.05$ ).

To support the hypothesis of transformational leaders having a less perceived bias in critical decision making than transactional leaders, the data for the following question was analyzed:

How often would you say that implicit or explicit bias has affected critical decision making in your organization?

Data analysis revealed that transactional commanding leaders were more often (93.93%) perceived to have a bias in decision making than transformational leaders (71.4%). When statistically compared with 't' test statistic, with 95% confidence interval ( $p=0.05$ ), Commanding transactional leadership style was found to have more bias in decision making than a number of transformative leadership styles. Fishers Exact Test was done between commanding style and all other transformative styles and the dependence between leadership styles and perception of bias in decision making was confirmed statistically ( $p<0.05$ ).

76.3% of respondents said they had to 'emotionally manage' their managers to some extent out of which 30.06% said they had to do this very often (A great deal and a lot). When statistically compared with 't' test statistic, with 95% confidence interval ( $p=0.05$ ), respondents who had chosen visionary leadership style for their leaders were found to significantly less manage the managers emotionally than the transactional commanding leadership style. Participants who chose Commanding leadership style for their organization answered that they have to 'emotionally manage' the manager 75.57% of the time. The second highest rate was for coaching leadership style at 73.33%. No statistically significant differences were found between or within a transaction or transformational leadership style. Chi-Square Test was done between commanding style and all other transformative styles and the dependence between leadership styles and perception of 'emotional management' by the survey respondents was confirmed ( $p<0.05$ ).

## 5. Discussion

Human behavior which is perceived as irrational is often a consequence of internally induced emotional reactions in the face of uncertainty (University College London, 2006). Difficult decisions are characterized by the presence of insufficient objective information and high financial, material or human consequence. Any leader who is called upon to make difficult decisions, can be expected to undergo some amount of internal emotional turmoil. The possibility of an irrational decision increases with the increase in the emotional tumult. Even if the decision is not outright irrational, it can still be biased and hence, incorrect. This can be explained using Kahneman's (2011) System One thinking process. Evolutionary pathways in the brain allow it to take fast survival related decisions triggered by stress hormones. This fast response comes at the cost of objectivity and is full of assumptions and biases and is a fight or flight reaction i.e. it will bestow the decision maker with either a very risk averse attitude or a very risk seeking attitude. While most decisions in the modern workplace are complex, they also involve stress (acute and chronic) which can lead the decision maker to relapse to System One thinking.

EI can be used to regulate this emotional turmoil for effective decision making which can result in less irrational and less biased decisions. The basis for this is the self-awareness and self-regulation aspects of EI which delay the time between stimulus and a reaction giving enough space to activate System Two thought process which is deliberative and complex. EI aspects of social awareness and empathy further enlighten the decision maker's situational awareness.

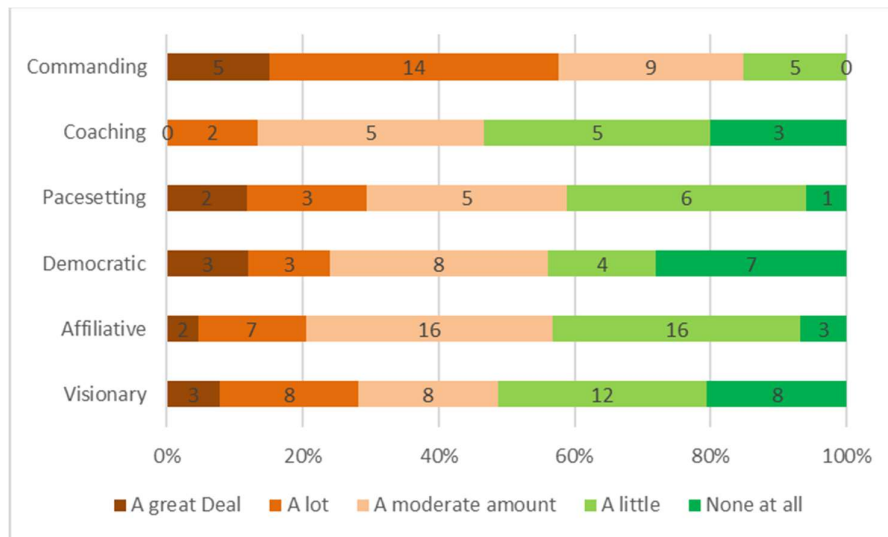


Fig. 3. Conflict in perception of risk and leadership styles

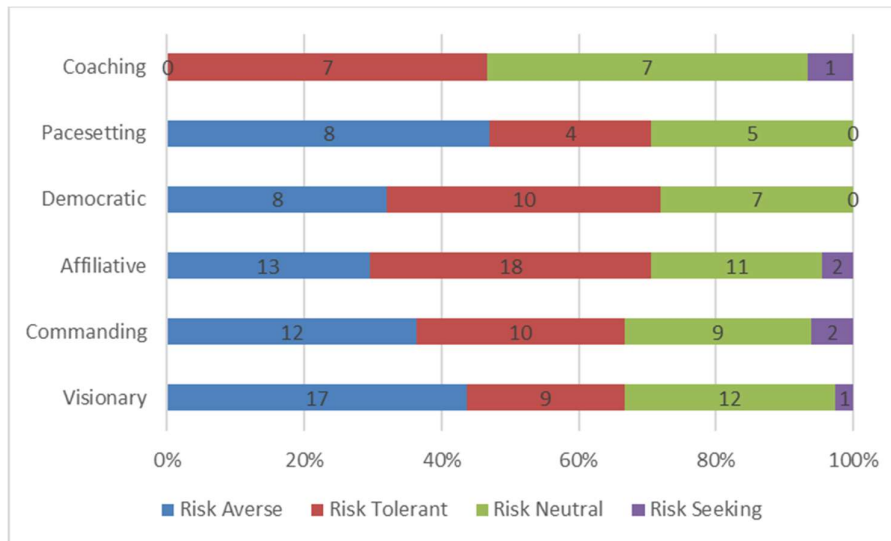


Fig. 4. Risk Attitude and Leadership styles

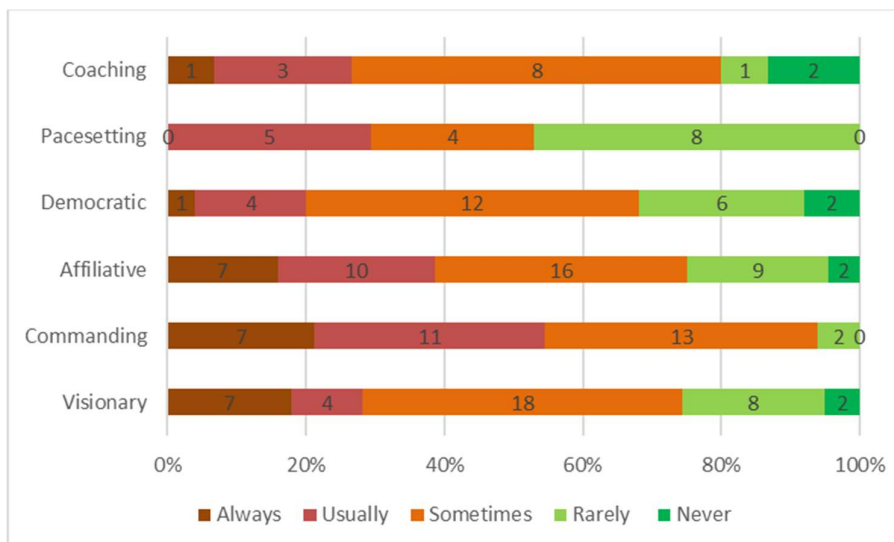


Fig. 5. Leadership style and perceived bias in decision making

This study gauged the perception of irrational behavior amongst respondents and contrasted it with the organizational leadership style chosen by the same respondents. Perception of irrational decision making, in general, creates dissatisfaction with the decision-making process within the population which is affected by the decision. Brockner (2006) presented the philosophy of Process Fairness which postulated that every employee decides for him or herself whether a decision has been made fairly. A major factor in this the perception of the employee regarding whether the decision is consistent and based on accurate information. Hazards of not following Process Fairness are poor employee morale, performance and business financial loss.

The Commanding style of leadership was found to more often take critical decisions without facts/data or on a 'hunch' or 'gut feeling'. While this decision may at times prove to be right, as stated earlier, it may generate feelings of unease. Such a decision speaks to a lack of System Two thinking and from the decision perception standpoint, it speaks to lack of empathy, which per Goleman (1996) is a major pillar of Emotional Intelligence. Human beings are highly emotional beings and as leaders one must recognize this fact and leverage it especially when making critical decisions by not only giving proper consideration to feelings of interested parties but also ensuring that the interested parties know that such consideration has been made. The results of this study show that the transformative styles of leadership which embrace emotional leadership, are perceived to be much more adept at System Two thinking and empathy than the transactional commanding style.

Effective decision-making lies at the heart of effective leadership. Flawed decision-making results from the flawed judgment which itself results from flawed assumptions based on heuristics. Campbell et al. (2009) has defined emotional tagging as the process by which emotional information attaches itself to thoughts and experiences stored in our memories. It is this tag which, in a large part, governs the action to be contemplated in the face of uncertainty. According to Campbell et al. (2009), we arrive at heuristical pattern recognition based on past experience and the emotional tag together guide any decision and this concert happens instantaneously since a caveman running from a sabre toothed tiger did not have the luxury to devote a lot of time to decide on flight or fight (System One instead of System Two). Unfortunately, heuristics and emotional tags also form the basis of bias. The caveman is biased for running away against a mammoth as opposed to hiding against a saber-toothed tiger due to its speed. If the caveman were to be encountered with a new creature which says, had the same size of the mammoth, it is more likely that he will attempt to run than hide since larger size would mean slower speed. In truth, until the animal moves, caveman has no objective evidence for any decision making on the speed of a new never seen before the animal. Now consider a new scenario where the caveman is a leader of a group of five other cavemen and entrusted with decision making power in face of new threats. Here, the leader must perform a multivariate analysis based on strengths and weaknesses of the team to come to a decision. The task is challenging since now, to make a decision for the group, the leader caveman has to overcome distorting attachments, self-interest and misleading memories (Campbell et al., 2009). In this study, when participants were asked to choose the leadership style and provide input of the perceived bias in decision making

of their leaders, the transaction commanding leadership showed more statistically significant bias than emotionally literate transformational leaders. This result echoes the fact that a coercive decision ('Do as I say') which discounts the views of the affected parties, is perceived as an unfair and unempathetic decision. Consistent propagation of such feelings within an organization can lead to loss of creativity, innovation and motivation (Brockner, 2006). Perception of bias in decision making, per analysis in this paper, has been statistically correlated with the leadership style.

Some papers have considered the non-managers to be passive parties and focused on the managers decision making prowess. Druskat and Wolff (2001) introduced the emotional intelligence of groups versus individuals by focusing on emotional interaction and constructive management of group emotions. Even a person untrained in the theory of emotional intelligence will show some level of social competence i.e ability to be aware and to regulate other's emotions (Goleman, 2006). In this study, this application of social engineering by the participants on their managers was attempted to be identified and contrasted with the style of leadership. By, attempting to guide the manager in the perceived 'right direction', the participants were expected to face hurdles based on the leadership style of the manager and thus the hypothesis was that such emotional engagement for course correction would be more needed for transactional commanding leaders than the transformative emotionally literate leaders.

The transactional commanding leaders were found to be subject to 'emotional management' by their followers 90.91% of the time suggesting that the followers will not passively accept even coercive decisions and likely mount some sort of emotional resistance. The human limbic system is an open loop system which means that we let other people change our very physiology and hence even our emotions (Goleman et al., 2013). Often employees will mix emotional pleas with objective evidence to sway their managers. This is an interesting limbic interplay and an emotionally literate leader can use such information to inform the final decision and where possible, baseline or correct his or her biases.

So far, we have seen how major aspects of the decision-making process can be positively influenced by emotional intelligence. It is incumbent on the emotionally agile leader to consider multiple risk factors before making any critical decision. The accuracy and effectiveness of such a risk based decision greatly depend on the level of emotional maturity of the decision maker. Emotional literacy baselines and/or autocorrects the risk perception thereby allowing the leader to take a well-rounded and balanced decision. As discussed in Campbell et al. (2009), the subconscious bias in the form of emotional tags and heuristic patterns automatically contributes to risk perception and is a major part of the immediate perception of uncertainty. Here instead of giving in to 'instinct' or 'hunches', an emotionally enlightened leader would practice a certain level of self-management, regulation, social awareness and empathic behavior to prevent a rash decision. The act of stopping to think is governed in the background and sometimes in the foreground by the risk attitude (Moon, 2020). Weber et al. (2002) has proven that risk attitudes differ from domain to domain and do not derive themselves from specific traits of the person. The situation context and personality together contribute in varying degrees to a risk based decision and the difference

in risk attitude is in part due to perception of risk. Thus when we speak of risk attitudes differing from organization to organization and department to department, we must recognize that risk attitude as perceived by the employee in the manager, can differ day by day or multiple times within the day based on situational context.

In this study, the participants were asked to choose an organizational risk attitude and this answer was compared with the organizational leadership style. No statistical significance or correlation was found between these two factors. This shows that any leadership style can be flexible enough to cover all range of risk attitudes.

Risk attitude is defined as a person's approach to assess, and eventually pursue, retain, take, or turn away from risk. This approach includes the perception of gain over loss or loss over gain for every risk and aggregate risk. These attitudes have been defined in the diagram below.

Risk attitudes do not derive themselves from specific traits of the decision maker. The situational context and personal mindset together contribute in varying degrees to a risk-based decision and the difference in risk attitude are in part due to perception of risk. Thus, when we speak of risk attitudes differing from person to person, we must recognize that it can differ day by day or multiple times within the day based on situational, personal and organizational context.

Risk appetite, a closely related term, is the willingness of a decision maker to seek risk in anticipation of realization of opportunities. It relates to how much risk a person or organization can 'stomach' the risk or associated uncertainty. The risk attitude is the decision makers approach to risk, while risk appetite is more of an outcome of that approach.

The model in Fig. 7, adapted from Moon (2020), harmonizes the critical decision making, emotional

intelligence, and risk intelligence processes to show a sequential path for risk-based decision making.

In the face of uncertainty, the brain will first process the available facts and evidence. It is, at the same time (through neural communications in amygdala and hypothalamus), tasked to alert the decision maker to situations which can cause bodily harm or injury. So, the available information will be assessed to first create a fight or flight response (System One). This is the subconscious decision point. This is not a good thing, when critical and complex problems need to be pondered upon and solved. This sort of knee-jerk thinking is certainly harmful when decisions regarding risk need to be taken which involve 'futures thinking'. For decision makers in organizations, especially, in face of non-local risks (e.g., the impact of COVID-19) where a multivariate mental analysis is needed, this System One thinking will often lead to a wrong decision.

Elements of emotional intelligence here can help us create self-awareness to gauge and where needed, bypass the System One reactions. The easiest way to monitor that is through monitoring emotions and managing them. An emotional response may not always be extreme, but a negative response is often accompanied by 'fight or flight' / System One process of decision. Emotional intelligence calls upon us to be aware and regulate this response to tide over the autosomal System One process. Social awareness also plays a role in self-regulation.

The feeders into personal risk perception include all of the above which are—assessment of available facts, self-elicited immediate mental response (which includes biases and heuristics informed by past experiences), emotional response (and its regulation) and finally, when accomplished, the self-elicited delayed mental response which attempts to understand and disperse System One thought and prepares the decision maker for complex System Two thinking.

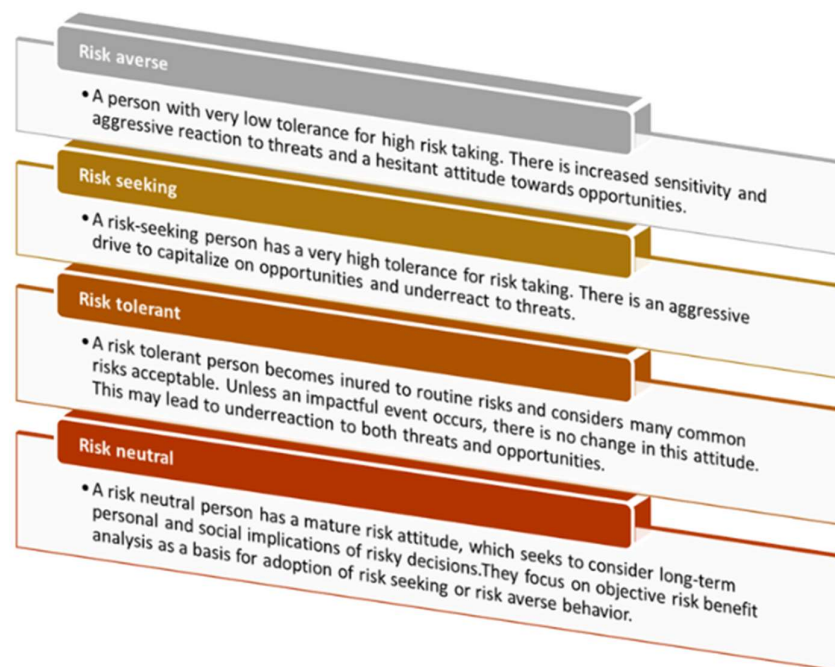


Fig. 6. Risk attitudes



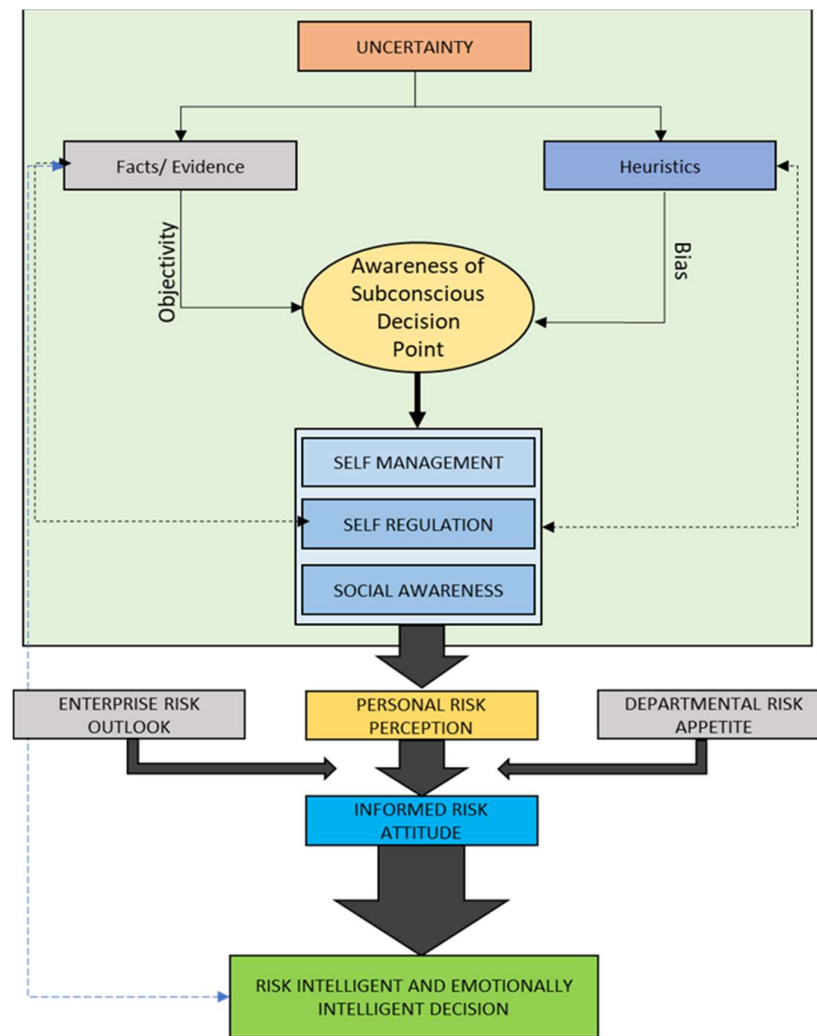


Fig. 7. Uncertainty, risk attitude and decision making

System Two thinking will elicit the complex thought processes which will allow the brain to think in terms of various consequences of a decision and probabilities of their successes.

All of the above, distills down to the leaders approach to an uncertainty which is, in a large part, the situational risk attitude. So far, it is heavily influenced by the leaders own experience (current and past).

We can go beyond a person and define an organizational risk outlook as well. Some companies as a whole are risk averse and some are risk taking. Organizational risk appetite is the macro organizational outlook in the face of uncertainty which is only one of the many feeders into the decision makers own risk response and situational decision-making process as shown in Fig. 7. Furthermore, departments and functions can also have risk appetites (e.g. project management office or quality department is often risk averse while marketing or sales may be risk seeking).

The risk appetite or perceived appetite of superiors for the challenge at hand (feeder into departmental risk appetite and organizational risk outlook), along with the distilled personal perception of risk decides the stance taken by the decision maker in face of uncertainty.

The informed risk attitude considers risk and reward by giving due consideration to objective facts and evidence. It relies on complex System Two thinking whereby the decision maker makes all possible attempts to remove bias, overcome misleading emotional triggers and challenge all assumptions which underlie the probability of success of the decision. An important aim of the risk intelligent decision making is to minimize the gap between perceived (subjective) and real risk (objective).

The model in Fig. 7 demonstrates the central impact of EI on a risk intelligent decision. The ability to overcome biases, challenge assumptions, understand the situational context in risk terms and understand organizational and social context are all major parameters where EI can directly help the formation of risk attitudes. The cognitively complex risk intelligent decision involves assessment and evaluation of probabilities and consequences of multiple decision pathways which can reduce threats, increase opportunities and create value; the chances of this increase when EI activates System Two thought processes.

## 6. Conclusion

This study has found that transformational leadership styles are best suited to risk intelligent decision-making practices. The analysis in this paper has shown that emotionally

intelligent transformative leaders have greater resistance to the subconscious and unmanaged emotional vicissitudes. Findings also show that bias exists amongst all types of leaders but is quite significantly featured in the commanding transactional style of leadership as perceived by the leader's followers. As the followers perceive the decision which is not based on data and is biased, they also appear to be in conflict on risk perception with their leader. This may point to the lack of System Two thought and lack of social and organizational risk awareness by the transactional leader. Visionary and Coaching styles of leadership were found to have the least perceived conflict in risk perception which confirms the hypothesis of transformational leaders taking an emotionally intelligent risk based decisions- in this case, with empathy.

By practicing self-awareness, self-regulation, social awareness and empathy, one can recognize and understand gaps in the decision-making process and enable oneself to take balanced risk intelligent decisions. The key to risk intelligent behavior is to engender awareness of thought, awareness of choice, and awareness of mental and material choice (all tenets of EI). At the base of this all, lies the thinking process of the decision maker. To train the mind, the decision makers must aim to increase cognitive control by self-awareness and self-regulation which would lead to the activation of an inner observer such that a gap is created between the stimulus and reaction. This allows the leader to activate System Two thinking and not only gives him or her the capacity to observe/correct internal fallacies but also gives a chance to introduce risk intelligence into the final decision or response.

While this paper has conducted a preliminary inquiry into the nature of this interaction, it also has shown and opened various avenues of further targeted research into the topic based on specific EI abilities or traits and various situational risk attitudes. Future studies can focus on targeted focus groups for specific demographics, industry sectors and organizational management rungs. There is also scope to further explore the applicability of this model of risk based thinking in controlled environments with due monitoring of each step.

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#### APPENDIX A: A historical example of a risk intelligent decision-making process

Winston Churchill has been known to be one of the most transformative leaders of our times who had been frequently exposed to such situations where mistakes in risk benefit decision making could very well end the world as it was known then. In 1940, to buy time for evacuation of Dunkirk, Churchill decided to mount a defense in Calais knowing fully well that the four thousand men at Calais would be either captured or slain. He took this decision despite opposition from the War cabinet, despite pressure to negotiate terms from many included the secretary of state for foreign affairs, Lord Halifax and without any

promise of American troop support. The easiest path, here, would have been to be Risk Averse and parlay terms with Hitler but analyzing Churchills action retrospectively, we know that in doing so, Churchill took a very mature risk neutral decision maximizing the opportunity of the situation in Calais and minimizing the greater threat of the capture of Dunkirk.

While we may never know the exact thought process, the model in Fig. 7 which integrates risk and emotional intelligence do provide a good structure to analyze this scenario. Churchill was a descendent of Duke of Marlborough whose exploits he often read and analyzed. He also, courtesy of Latin emphasis in British education at the time, often quoted and followed speech principles of Roman senators, notably Cicero. Churchill also had an unquestionable belief that Britain was the leader of the civilized world and continuity of British supremacy was his motivating factor and *raison d'etre*. Thus, he had, tremendous heuristic patterns, emotional tags and associated values to consider in his very important role as the Prime Minister and if anything, one could have easily disillusioned oneself in presence of such strong subconscious biases and taken unfounded emotionally forced but unintelligent decisions. This is complicated by the fact that until 1940, Churchill's performance as a statesman was not a stellar success, thus, considerable emotional agility and maturity would have been needed on his part to intelligently answer the questions about 'What needs to be done?', 'What's good for the country?', 'How to focus on opportunities?' (Questions from Drucker, 2004).

To communicate to the country with a high level of self-confidence in a course objected by many, he would have to consistently practice self-regulation and self-awareness. To do this, for Churchill, would be to recognize and understand his moods, emotions and drives (along with sources of bias) and their effect on others, and the ability to control and channel his disruptive impulses as mentioned in Goleman (1996). Most importantly, as an effective speaker and communicator, as a person who would announce battles, defeats and rationings, he would have to operate the highest levels of empathic understanding of the populace. To add to this, before a decision is made, he must understand the limits of the risk appetite of the king, parliament and country and consequences of his challenging of those limits. To this end he must understand the Risk Attitudes of all stakeholders and modulate his own attitude and decision accordingly. If in 1940, majority of the English population had a conflict in the perception of risk of war with Churchill's perception, it would certainly be felt through negative public sentiment and even strikes and rebellions as they were in the British colony of India, whose executive head was more aligned with Britain's perception of risk rather than India's, which considered itself to be unfairly dragged in a war they thought they should have no part in.

As stated earlier, the conflict in the perception of risk between leaders and followers is a result of poor empathic engagement. It also points to a deficiency in self-management since the leader had failed to overcome conscious or subconscious biases. In this study, transactional commanding leaders were perceived by the participants to have a conflict in the perception of risk of 84.84% of the time.

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