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Creativity Research Unit

The Climate For Creativity and Innovation: And its relationship to Empowerment, Consumer Insight, and Ambiguity

- A CRU Technical Report-

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Executive Summary

A recent study involving 1,541 CEOs, general managers, and senior public sector leaders was conducted by IBM (IBM, 2010). The senior leaders interviewed were drawn from 60 countries and 33 industries. The key insight provided by this study was that senior leaders see complexity as the biggest challenge they confront. Given that most enterprises are not currently equipped to cope with complexity, senior leaders see creativity as the single most important leadership competency for seeking a path through this complexity.

One of the most important issues that leaders must address is creating the right working environment for stimulating and sustaining creativity. This Technical Report provides insights into how a climate for change, innovation, and creativity relates to:

- Empowerment for local decision-making around innovation
- Consideration of consumer needs versus technological push
- Avoidance of innovation projects involving ambiguity

A large, global healthcare organization undertook a global audit to assess its innovative capability – and applied the Situational Outlook Questionnaire® (SOQ) as a part of this initiative. We customized the SOQ to allow for the assessment of the issues identified above by adding three additional close-ended questions.

The results of our analysis indicated that more positive results on climate were clearly related to:

- Increasing levels of local empowerment, and this was greatly influenced by the degree of Risk-Taking, Freedom, Idea-Time, and Debate.
- Focusing more on consumer needs (rather than technology) when driving innovation, and this was greatly influenced by higher levels of Idea-Support and Freedom.
- Approaching, rather than avoiding, ambiguous innovation projects, and this was influenced mostly by reduced levels of Conflict and higher levels of Risk-Taking and Idea-Time.

These three issues relate well to the management of innovation and are explored further within this report.

THE CONTEXT

The organization involved in this study was originally established in 1923, and after some mergers in 1989, has become a large, global healthcare company employing 29,000 people in 81 countries. It manufactures and markets pharmaceutical products and services in 179 countries. Its clear purpose is to be innovative and effective in everything it does and offer products and services that can make a difference. Innovation plays heavily within their charter and values. Their charter proclaims, "…the company is perceived to be the innovator – in technology, in services, and/or in market approach." One of their values is to be ready for change. They state, "…we must foresee change, and use it to our advantage. Innovation is to our advantage. Innovation is key to our business and therefore we will encourage a learning culture for the continuous development and improved employability of our people."

Given the current world economic conditions, and the need to live their values and purpose, this organization decided to conduct a rather comprehensive organizational audit to assess their current innovation capabilities. Some of their key innovation managers had become aware of the SOQ as a result of an international conference in Copenhagen, and made arrangements with CPSB to use this measure as a part of the overall initiative. The client, who we will call "New World Healthcare" in this document, began planning the use of the SOQ in early 2009. Given the nature of their initiative, we worked with the client to customize the SOQ to include three additional questions. These were:

- People here are empowered to make decisions locally about innovation
- People here consider customer insights and needs more than technologies when driving innovation
- People here tend to avoid innovation projects filled with uncertainty

The Situational Outlook Questionnaire® (SOQ) was used to assess the climate. The SOQ is one of the few climate assessments that has been extensively researched and therefore, has ample evidence of reliability, validity and utility (Isaksen & Lauer, 2001; Isaksen & Ekvall, 2007). The SOQ is based on over 50 years of research and development started by Göran Ekvall's study of climate in Swedish organizations. Though the original measure developed by Ekvall had ten dimensions, the current SOQ measures nine key dimensions of the climate for change, innovation and creativity (Isaksen, Lauer, & Ekvall, 1999; Isaksen, 2007). It has been utilized in organizational, team and work-group contexts, and has been validated

through extensive research in each setting (Isaksen, Lauer, Ekvall & Britz, 2001; Isaksen & Lauer, 2002; Isaksen & Ekvall, 2010). The nine dimensions are scored on a scale of 0-300 and are defined briefly in Table One below. The SOQ usually consists of 53 quantitative questions scored on a four-point Likert-type scale and three open-ended qualitative questions.

The first area of additional interest to New World Healthcare was that of local empowerment. Those "in the trenches" are key to knowing and understanding what the customers need; it is imperative that they have the empowerment to act in an ever-changing external environment. Through the discussion it was determined that this area would be explored, and a question was formulated for inclusion in the SOQ. The new question was: ***"People here are empowered to make decisions locally about innovation"***.

Table 1: The Nine Dimensions of Climate

SOQ Dimensions	High Level Definition
Challenge/Involvement	The degree to which people are involved in daily operations, long-term goals, and visions. High Challenge/Involvement implies better levels of engagement, commitment, and motivation.
Freedom	The degree of independence shown by the people in the organization. High levels of Freedom imply more perceived autonomy and ability for individual discretion.
Trust/Openness	The emotional safety in relationships. In high Trust/Openness situations people feel more comfortable sharing ideas and being frank and honest with each other.
Idea-Time	The amount of time people can, and do, use for elaborating new ideas. When Idea-Time is high people can explore and develop new ideas that may not have been included in the original task.
Playfulness/Humor	The spontaneity and ease displayed within the workplace. Good-natured joking and laughter and a relaxed atmosphere (lower stress) are indicators of higher levels of Playfulness and Humor.
Conflict	The presence of personal and emotional tensions (a negative dimension – in contrast to the debate dimension). When Conflict is high people engage in interpersonal warfare, slander and gossip, and even plot against each other.
Idea-Support	The way new ideas are treated. In a high Idea-Support situation people receive ideas and suggestions in an attentive and professional manner. People listen generously to each other.
Debate	The occurrence and open disagreement between viewpoints, ideas, experiences, and knowledge. In the Debating situation many different voices and points of view are exchanged and encouraged.
Risk-Taking	The tolerance of uncertainty and ambiguity. In a high Risk-Taking climate people can make decisions even when they do not have certainty and all the information desired. People can and do "go out on a limb" to put new ideas forward.

The second area that was under discussion for investigation through this study was consumer needs and insights in the innovation process. This area was of particular importance due to the general tendency of these sorts of organizations focusing more on technical push, rather than market pull. After a thorough discussion, ***"People here consider customer insights and needs more than technologies when driving innovation"*** was added to the SOQ.

The final issue that was approached was that of uncertainty avoidance in innovation. Some risk-taking and the ability to undertake projects with high levels of ambiguity are crucial for an organization that wishes to compete in the challenging industry of healthcare technologies. Therefore, a question was written for this construct as well. It was: ***"People here tend to avoid innovation projects filled with uncertainty".*** This question was negatively framed meaning a lower score was better.

Ultimately, these three questions were used as sorting variables and allowed for the overall sample's aggregation into groups of individuals who perceived these areas in a similar fashion. Once this was done, it was possible to explore the climate in areas where they perceive different levels of local empowerment, consideration of customers' needs/insights, and uncertainty avoidance.

Sample

At the onset of this project, 699 individuals across various locations and job functions were invited to participate in the study. Of the 699 individuals invited, 334 actually completed the SOQ, for a response rate of 47.8%. In the final sample the respondents represented seven countries from Europe, Asia, and North America. Of the individuals who chose to indicate their gender, 104 were female and 132 were male. Two hundred and seventy-eight subjects provided their age; of those the range was 23 to 66, with an average age of 40.0 (SD=8.44). The descriptive statistics for this sample are displayed in Table Two.

Table 2: Descriptive Statistics of Overall Sample (N=334)

Climate Dimensions	Innovative Norms	New World Healthcare	Stagnated Norms	SD	Range	IRR	Cronbach's α
Challenge/Involvement	238	239	163	44	114 - 300	.942	.841
Freedom	210	183	153	53	17 - 300	.884	.811
Trust/Openness	178	196	128	59	20 - 300	.806	.762
Idea-Time	148	139	97	57	0 - 300	.879	.857
Playfulness/Humor	230	197	140	59	17 - 300	.874	.867
Conflict	78	84	140	56	0 - 283	.845	.784
Idea-Support	183	197	108	58	0 - 300	.887	.882
Debate	158	205	105	55	67 - 300	.903	.876
Risk-Taking	195	151	53	53	0 - 300	.870	.775
Empowerment	n/a	1.68	n/a	.81	0-3	n/a	n/a
Needs/Insights	n/a	1.81	n/a	.79	0-3	n/a	n/a
Uncertainty Avoidance	n/a	1.22	n/a	.86	0-3	n/a	n/a

Key findings

The New World Healthcare dimensional data and descriptive statistics are shown above. We found support for aggregating the individual results despite the functional and geographic diversity of the sample. The standard deviations are all below our indicator mark of 70, serving as a quick check for homogeneity of the sample. We conducted Inter Rater Reliability analysis and all dimensions are well above the .70 cutoff mark, supporting the aggregation of this sample. Also, all dimensions are above the .70 cutoff for internal consistency measured by the Cronbach's Alpha, further evidence of the reliability of the SOQ dimensions for this sample.

The overall SOQ results (qualitative and quantitative) depict an organization in which people find their work generally challenging and they feel involved. There is emotional safety in relationships and people take time to listen to new ideas. Although participants see some autonomy and risk-taking these dimensions are lower than the innovative companies identified by Ekvall.

The results of this study clearly demonstrated that there were indeed differences in perceived climate between individuals who reported differences in level of: local empowerment, consideration of customer needs/insights, and uncertainty avoidance. The overall climate

scores improved with increased empowerment and increased consideration for the customer. The climate was also more supportive of innovation when less uncertainty avoidance was observed. After clear differences were discovered, Stepwise Multiple Regression Analysis was conducted on all three areas in order to better understand which climate dimensions were optimal predictors (explained the majority of the variance) for each of the three areas of inquiry.

Clear Differences in Climate through Empowerment

Do those who perceive higher levels of local empowerment also perceive a healthier climate for innovation? Table Three provides the means and results from analysis of variance (ANOVA) on the overall sample, sorted by perceived empowerment. The ANOVA was run in order to determine if there were significant differences between perceived climate and perceived level of empowerment, once a multiple analysis of variance (MANOVA) was conducted to reduce the possibility for type one error (Wilks' Λ = .526, F= 8.589, p<.001). The estimates of the effect size partial η^2 (.06 and above is a moderate effect size and .12 is a strong effect) are also included in the table below.

Table 3: People here are empowered to make decisions locally about innovation

SOQ Dimensions	0 = Not at all applicable (n=24)	1 = Applicable to some extent (n=109)	2 = Fairly Applicable (n=152)	3 = Applicable to a high degree (n=49)	F	ANOVA	η_p^2
	Mean	Mean	Mean	Mean		Sig.	
Challenge/ Involvement	236	224	240	271	14.72	<.001	.118
Freedom	147	154	194	233	41.61	<.001	.274
Trust/ Openness	178	185	199	225	6.48	<.001	.056
Idea-Time	97	110	152	186	36.04	<.001	.247
Playfulness/ Humor	189	173	206	226	12.89	<.001	.105
Conflict	90	76	88	88	1.07	.362	.010
Idea-Support	153	169	209	246	36.13	<.001	.247
Debate	173	181	213	250	27.13	<.001	.198
Risk-Taking	98	119	167	197	57.95	<.001	.345

As shown above, the overall climate scores improved as the subjects reported higher levels of local empowerment. Eight of the nine SOQ dimensions showed statistically significant differences and have relatively large effect sizes (only Conflict failed to do so).

In order to determine which climate dimensions accounted for the most variance in level of empowerment; multiple linear regression analysis was performed while holding level of empowerment constant. Four climate dimensions accounted for approximately 40% of the variance, they are Risk-Taking, Freedom, Idea-Time and Debate (R^2=.404).

Consideration of Consumer Needs/Insights and Climate

Do those who place more emphasis on consumer needs and insights rather than technology; have different perceptions of their climate? The level of consideration for consumers' needs and insights in innovation initiatives was the next variable to be explored for differences in

perceived climate. Table Four shows the ANOVA results that were calculated after the MANOVA was conducted (Wilks' Λ = .734, F= 3.867, p=<.001) as well as means and estimates of effect size for the climate dimensions when aggregated by consideration level.

Table 4: People here consider customer insights and needs more than technologies when driving innovation

SOQ Dimensions	0 = Not at all applicable (n=15)	1 = Applicable to some extent (n=97)	2 = Fairly Applicable (n=158)	3 = Applicable to a high degree (n=64)	F	ANOVA	η_p^2
	Mean	Mean	Mean	Mean		Sig.	
Challenge/ Involvement	224	229	237	261	8.61	<.001	.073
Freedom	150	169	182	215	13.26	<.001	.108
Trust/ Openness	195	184	193	224	6.56	<.001	.056
Idea-Time	106	116	149	159	12.21	<.001	.100
Playfulness/ Humor	183	186	198	215	3.48	.016	.031
Conflict	97	79	92	71	2.53	.053	.023
Idea-Support	149	174	204	228	18.11	<.001	.141
Debate	189	189	210	223	6.12	<.001	.053
Risk-Taking	111	129	160	171	14.32	<.001	.115

The results showed the overall climate scores improved with the level of consideration given for consumers' needs and insights. The ANOVA results indicated that there were significant differences for all dimensions except Conflict; however, this dimension did approach a .05 significance level.

Multiple linear regression analysis was conducted to discover which climate dimensions were the optimal influencers for the inclusion of consumer needs and insights in innovation. Two climate dimensions were discovered to account for almost 17% of the variance through the analysis. They were Idea-Support and Freedom (R^2=.166).

Uncertainty Avoidance and Climate

The final area that this study explored was the relationship between avoiding ambiguity and climate. A MANOVA was conducted on the sample before an ANOVA in order to reduce the possibility for type one error (Wilks' Λ = .744, F = 3.719, p = <.001). Table Five provides the means, ANOVA results and estimates of effect size for the sample when explored by their perceptions of uncertainty avoidance.

This question was negatively phrased and therefore the overall climate scores go down as the respondents indicated that there was more uncertainty avoidance. The more participants observed the avoidance of uncertainty, the less conducive their climate for innovation. Eight of the nine dimensions show significant differences in climate scores as respondents reported differences in their perceived levels of avoidance.

Table 5: People here tend to avoid innovation projects filled with uncertainty

SOQ Dimensions	0 = Not at all applicable (n=65)	1 = Applicable to some extent (n=161)	2 = Fairly Applicable (n=79)	3 = Applicable to a high degree (n=29)	F	ANOVA	η_p^2
	Mean	Mean	Mean	Mean		Sig.	
Challenge/ Involvement	254	235	235	233	3.29	.021	.029
Freedom	203	178	181	175	3.88	.010	.034
Trust/ Openness	208	194	192	194	1.10	.351	.010
Idea-Time	168	136	133	111	8.97	<.001	.075
Playfulness/ Humor	218	196	194	167	5.73	.001	.049
Conflict	62	80	103	105	8.23	<.001	.070
Idea-Support	224	195	192	166	8.46	<.001	.071
Debate	221	206	195	194	3.12	.025	.028
Risk-Taking	179	146	149	118	11.08	<.001	.092

For the purpose of the regression it became a positively scored question. The analysis discovered four climate dimensions were accounting for about 18% of the variance in uncertainty avoidance. They were Conflict, Risk-Taking, Trust and Openness, and Idea-Time (R^2=.179).

Practical Implications

Through the Analysis of Variance and the Regression Analysis it is possible for leaders to better understand and manage some aspects for each of the three areas studied. Clearly these areas have other facets that account for large portions of the variance. However, this preliminary research may help in allowing leaders and managers to facilitate some aspects of each of these areas.

Each of the ANOVA's clearly showed where there were significant differences in perceived climate when examining the three focus areas. The regressions then illustrated which climate dimensions were the best predictors for (and accounted for the most variance in) each area and the size and direction of each dimension's relationship with that area.

Managing for Improved Empowerment

Four climate dimensions accounted for a little over 40% of the variance in empowerment level; they are Risk-Taking, Freedom, Idea-Time and Debate. One possible technique a leader can use to manage for these will be discussed below. Also, an actual quote from New World Healthcare that was reported in the open-ended section of the SOQ is included.

The first dimension to be discussed is Risk-Taking. One way Risk-Taking manifests itself is the "no blame culture we have enables people to take decisions and chances even though the outcome is not given". This allows individuals to be more forth coming when it comes to innovation initiatives and for people to evaluate and try new ways of doing things. One specific leadership practice for allowing Risk-Taking is "involving people in the learning of methods for idea generation that includes deferred judgment" (Isaksen & Akkermans, 2007, p. 30).

The second dimension that was indicated to account for a significant portion of the variance in how people perceived local empowerment was Freedom. Freedom as one specific subject reported it was (the) "…freedom my manager provides to me and my team to generally improve and innovate on a daily, weekly and monthly basis…" As illustrated by this quote Freedom allows for innovation from all employees and therefore may allow for a large variety of ideas. One leadership behavior that allows for the feeling of increased Freedom is to "involve employees in re-engineering efforts, and perhaps some team problem-solving sessions on specific high-priority tasks" (Isaksen & Akkermans, 2007, p. 23).

The third dimension that accounted for a significant portion of the variance was Idea-Time. An example of how an actual participant perceived Idea-Time in the organization is "(p)lanning of timelines allowing to include time for discussing creative ideas". Increased amounts of Idea-Time allows for a more abundant amount of good quality ideas when undertaking innovation

efforts. One strategy leaders can use when managing for Idea-Time is to "Provide managers with a means to evaluate new ideas and a method to determine if the long-term benefits of a delayed project are greater than the short-term set backs" (Isaksen & Akkermans, 2007, p. 25).

Debate or "Open and honest discussion about the competitive situation and willingness to accept that someone out there has ideas that might be better than yours…" as one participant described it in the qualitative section of the SOQ, is the last climate dimension indicated to account for a significant amount of variance when exploring local empowerment. One method leaders can use to increase the perceived level of Debate is to "increase the formal and informal interactions between management and employees (e.g., eat lunch together, make management more visible, socialize after work) "(Isaksen & Akkermans, 2007, p. 29).

Basing Innovation on Consumer Needs and Insights

When examining consideration of consumer needs and insights in innovation initiatives two climate dimensions were identified that account for approximately 17% of the variance. They are Idea-Support and Freedom. This section will include actual quotes taken from the open-ended questions on the SOQ and one possible leadership strategy for managing each of these two dimensions.

Idea-Support was the first dimension identified in this aspect of the study that accounted for significant variance. One example of a subject's perception of Idea-Support is "Within my department I feel secure that I can make suggestions for improvements and changes which will be considered and supported…" Higher levels of Idea-Support tend to mean that ideas are taken seriously and nurtured, consequently ideas aren't prematurely judged. One possible way a leader can foster the perceived level of Idea-Support is that they may "train their people in how to respond to novel thinking" (Isaksen & Akkermans, 2007, p. 28).

In addition, the dimension of Freedom accounted for significant variance as well. One individual from the sample described how they perceived Freedom in their climate as having the "freedom to take up problems that you find in the everyday work". Seeing Freedom refers to (among other things) an individual's ability to take initiative, as it is truly imperative when a desire for a comprehensive team takes precedence. One leader strategy for managing for perceived

Freedom is to "send clear messages by product/process owners inviting and specifying creative suggestions for improvement (sell the need as well!) "(Isaksen & Akkermans, 2007, p. 23).

Tolerance of Ambiguity

Allowing for some ambiguity while working towards innovative tasks is a complex aspect that a leader must face and in doing so it may be helpful to know that close to 20% of the variance is accounted for by four climate dimensions. Two are positively related and two are negatively related to an individual's perceptions of being allowed to take risks in innovation projects. The dimensions are Conflict, Trust and Openness, Risk-Taking and Idea-Time.

Conflict was described as "Gossip and slander - bad atmosphere" by one participant in this study. Clearly in an atmosphere of mistrust and fear an individual would be more risk adverse when taking on innovative undertakings. One leader behavior that can moderate the levels of perceived Conflict is to hold conflict resolution interventions, therein helping people to recognize and reduce tensions (Isaksen & Akkermans, 2007).

Trust and Openness was indicated to be a negatively related dimension in regards to uncertainty avoidance in this study. However, when the dimensional data was explored it was found that New World Healthcare had abnormally high levels of Trust and Openness. Further evidence that the level of Trust and Openness was too high was found in the open-ended section of the SOQ, where individuals reported things like "the fear for being criticized by management outside one's own line is high" and "Lots of ideas - not many of which get thoroughly vetted". As illustrated by these participant observations, when there is too high a level of Trust and Openness it can lead to things like the inclusion of ideas that aren't right for the tasks at hand and "cliques" that may form where the level of trust is extremely high, but that trust doesn't apply across different cliques (Isaksen & Akkermans, 2007). A leader strategy for moderating the level of perceived Trust and Openness is to "clarify priorities and rotate people in positions" (Isaksen & Akkermans, 2007, p. 24). By doing this the leader can help to lessen the pockets of cliques and to reinforce the direction/priorities that they are working towards.

Increases in perceived levels of Risk-Taking were indicated to facilitate individual's willingness to partake in innovation initiatives that involved some ambiguity. An example of what one

participant experienced in New World Healthcare is the "allowing (of) new ideas to be tested, discussed and developed in a non-critical environment". One behavior leaders can call on to ensure their people have a heightened perception of Risk-Taking in their environment is to ensure that they "invite people to put forward ideas for change" (Isaksen & Akkermans, 2007, p. 30).

Idea-Time is the last climate dimension that accounted for significant variance when exploring uncertainty avoidance in the sample. One participant said, "where there is time to create and work with new ideas" when they were asked about the most beneficial aspect of their working climate. Leaders can "develop project schedules that allow time for modification and development" when possible in order to promote the sensation of Idea-Time (Isaksen & Akkermans, 2007, p. 25).

In conclusion

In summary, empowerment, concern for customer and uncertainty avoidance all had significant impact on the climate inside an organization. This study demonstrated that in cases where higher levels of concern for the customer and more empowerment were present the organizational climate was significantly better. Also, organizational climate was significantly worse as people observed more uncertainty avoidance.

Since these behaviors are controllable, leaders in organizations may have a new way to manage the climate in their organizations. By increasing empowerment and autonomy, encouraging risk-taking and instilling a concern for the customer, leaders can help to ensure that they have a good working climate.

Of course, this was a preliminary study into the affects of these variables therefore further research is needed to verify these results. In further research, attempts should be made using other measures as well to avoid common method bias.

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