

## More than Numbers: Revitalising Employee Engagement through Narrative-based Research

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### 1. Introduction

Imagine this familiar scene. Everyone is looking at the findings of the recent annual organisational climate survey conducted by Human Resources. True to its nature, the pages of the report for this quantitative survey are filled with statistics. "Employee Satisfaction rose by 3.2 per cent" Human Resources say enthusiastically. When asked by the CEO what the number means, the response is, "It's based on the figures we got from the different metrics, mainly an increase in Work-life Balance and Recognition, although satisfaction would have been higher if not for the fall in Satisfaction with Middle Management." The CEO looks up, interested in the reasons behind the decrease in Satisfaction with Middle Management. Human Resources are unable to answer, because they only have what the statistics tell them ... and numbers are but part of the story.

**While numbers are useful and can be objective, they are rarely persuasive by themselves as they lack the rich context of anecdotal data. While anecdotes can be persuasive, they lack objectivity and can be easily dismissed. What is needed is an approach that combines the merits of both – the objectivity of numbers with the explanatory power of narrative. The Cognitive Edge SenseMaker® software offers this capability.**

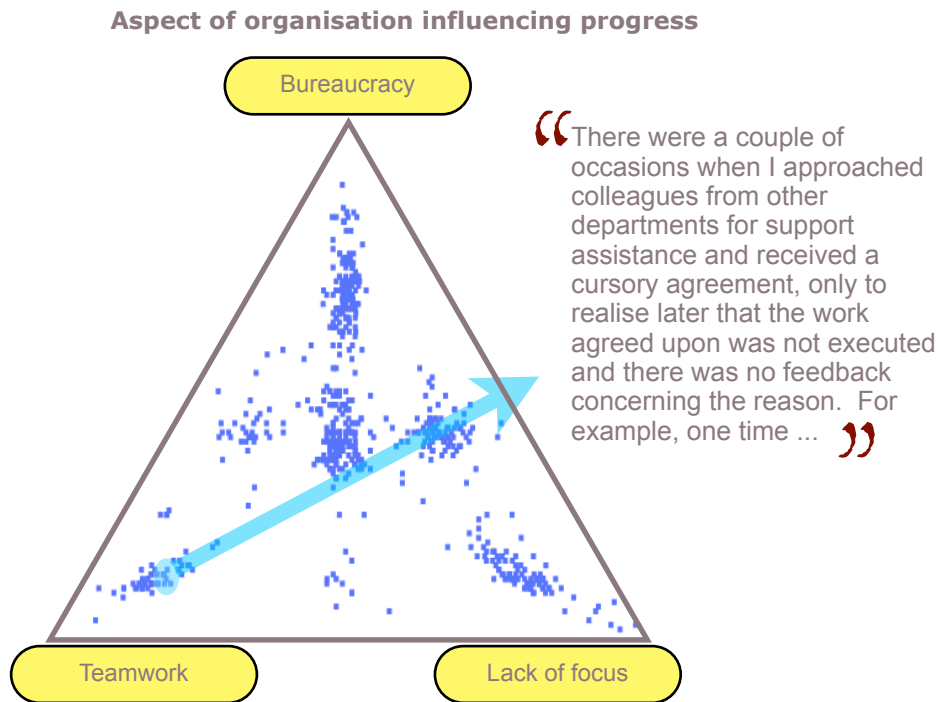
More than numbers, we need context in order to understand why people behave and think the way they do. Through the richness of the experiences shared by respondents in narrative-based surveys, we demonstrate that narrative-based research is essential for a better understanding of organisational climate. This is because narrative and its conformity or otherwise with desired corporate values can be one measure of the overall health of an organisation<sup>1</sup>. The narrative patterns produced by our SenseMaker® software<sup>2</sup> is a powerful complement to existing studies of organisational climate.

A sample of the output from the SenseMaker® software has been reproduced below as an illustration of this point. These outputs and the process to derive them will be further described later in this document.

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<sup>1</sup> Snowden, Dave. "Story-telling: an old skill in a new context". *Business Information Review*. 2005.

<sup>2</sup> SenseMaker® software is Cognitive Edge's proprietary tool for narrative research. Parts of the tool and approach are US patent pending.



*Diagram 1: An example of a triad output using SenseMaker® where narratives can be isolated from data, giving decision-makers immediate access to raw data*

We will be studying some of the Singapore government agencies that we worked with over the last two years. Through three selected projects focusing on employee engagement, we collected over a thousand individual narrative fragments. This paper will briefly discuss the challenges faced by these organisations in addressing their employee engagement issues, the narrative approach that was used in the projects and the lessons that were learned from these projects. Please note that all data has been anonymised for confidentiality.

## 2. Employee Engagement within the Cynefin Framework

Before moving to the case studies, let us consider how Human Resource issues are approached. Looking at the HR function from various aspects, a way would be to utilise the Cynefin framework to consider the nature of a sample of the various functions of Human Resources within organisations today.

The Cynefin framework is used to describe problems, situations and systems and allows us to distinguish functions based on the degree of uncertainty faced. The framework provides a typology of contexts that guides what sort of explanations and / or solutions may apply. *Cynefin* is a Welsh word that conveys the sense that we all have multiple pasts of which we can only be partly aware: cultural, religious, geographic, tribal etc. The term illustrates

the evolutionary nature of complex systems, including their inherent uncertainty<sup>3</sup>. More information on the Cynefin framework can be found in Dave Snowden's article in the *Harvard Business Review*<sup>4</sup>.

The Cynefin framework has four major domains – Simple, Complicated, Complex and Chaotic. Challenging employee engagement issues (and their resultant narratives) are likely to be located in the "Complex" domain of the Cynefin framework as seen in Diagram 2 below. This is because the challenging issues such as culture, values and leadership tend to be complex – there are no directly perceivable relationships between cause and effect. Below is a simple example of a model of Human Resources where issues concerning employee engagement have been situated within the Cynefin framework. Note that this is a categorisation – aspects of these functions of HR may fall across multiple domains:

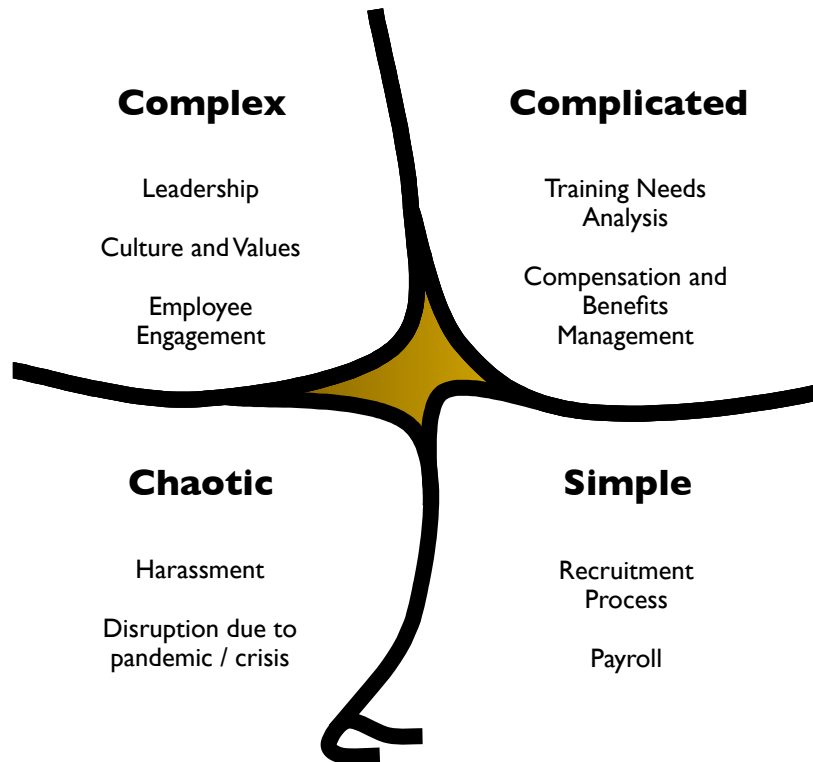


Diagram 2: A simple model of Human Resource issues using the Cynefin Framework

Solutions to complex issues cannot be engineered to a predetermined desired outcome; they are at best, brought to the organisation's awareness with deeper insights and managed in indirect ways. Experienced leaders appreciate that attaining desired culture values, and leadership styles in any organisation is constantly a work in progress – a clear indicator that these are complex issues. Understanding the issues within this

3 Snowden, David J. Multi-ontology Sensemaking – A New Simplicity in Decision Making. 2005

4 <http://hbr.org/2007/11/a-leaders-framework-for-decision-making/ar/1>

Complex space requires context that can more effectively be gleaned from large volumes of narrative.

One of the key aspects of the Cynefin framework is a concept called “bounded applicability”. This means that current methods and approaches have validity, but within boundaries. Beyond those boundaries, we need new methods and techniques. No one approach is universal and the attempt to impose universality sometimes does more harm than good. The work of Cognitive Edge focuses on assisting organisations with issues which are found in this Complex domain.

## 2i. Narratives within the Complex domain of the Cynefin Framework

Our understanding of the impact of narrative on people’s behaviours is influenced by the concept of *Homo Narrans* – the idea that humans are fundamentally shaped by and shape the narrative structures of their existence<sup>5</sup>; that humans make decisions based on pattern recognition. We can deduce from the *Homo Narrans* concept that effective employee engagement would hence involve the management of these narrative patterns.

As human brains are more sensitised to narrative forms of knowledge about a situation than they are to analytical processes<sup>6</sup>, it is not surprising that narrative remains the principle mechanism of learning and knowledge transfer within an organisation<sup>7</sup>. We need to be aware of these narrative patterns and these patterns may need to be broken to allow for the emergence of undiscovered issues. An example of this in practice in another domain was recently referenced by Dennis Whittle (CEO of non-profit organisation GlobalGiving) in the *Huffington Post*<sup>8</sup>. Experts may be vulnerable to entrainment based on bias drawn from past experience – narrative research provides a useful tool to highlight emergent issues.

Taking fragmented human narratives (or micro-narratives) as a form of support for cognition and using the medium of social computing, both augmented by the representational and information-processing capacities of computers, we can considerably augment and enhance the natural pattern-based intelligence that underpins human decision-making. In the process, we also further reduce interpretative conflict<sup>9</sup>.

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<sup>5</sup> Niles, John D. *Homo narrans*. University of Pennsylvania Press. Philadelphia, PA. 1999.

<sup>6</sup> Lazaroff, M. & Snowden, D. *Anticipatory modes for Counter Terrorism*. In Popp, R.& Yen, J. (Eds). *Emergent Information Technologies and Enabling Policies for Counter Terrorism*. Hoboken, NJ: Wiley IEEE Press. 2006.

<sup>7</sup> Snowden, D.J. *Naturalising Knowledge Management*. 2007.

<sup>8</sup> [http://www.huffingtonpost.com/dennis-whittle/if-you-can-flip-a-coin-ca\\_b\\_704779.html](http://www.huffingtonpost.com/dennis-whittle/if-you-can-flip-a-coin-ca_b_704779.html)

<sup>9</sup> [http://www.cognitive-edge.com/blogs/news/2010/08/narrative\\_research\\_article\\_by.php#more](http://www.cognitive-edge.com/blogs/news/2010/08/narrative_research_article_by.php#more)

### 3. A summary of the projects examined in this paper

We worked with several organisations from the public sector – the Singapore Public Service employs close to 124,000 officers in 15 Ministries and more than 50 public agencies. Due to strong economic growth and competition for talent, our clients were very interested in the issues of employee retention and employee engagement.

Each of the organisations below had used traditional climate surveys and had encountered the same limitations of a lack of information and context. They decided to use the narrative approach in order to gain a deeper understanding of the situation than possible with traditional surveys.

#### Organisation A1

A1 wanted to further investigate issues that surfaced in their previous climate survey, about which they lacked sufficient detail to create interventions.

#### Organisation A2

A2 were complementing climate survey with narratives for additional insight. Various divisions had changes in staff and senior management wanted to see how change was being accepted by the ground.

#### Organisation A3

A3 were interested in capturing, comparing and contrasting the perspectives of internal and external stakeholders.

### 4. Major differences between traditional and narrative-based surveys

The clients that we worked with had initially completed traditional quantitative surveys, which they felt lacked sufficient context. The following table highlights the major differences between the traditional quantitative approach and our narrative-based approach.

Traditional surveys	Narrative-based approach
Numbers that do not inform of the context	Numbers come with context of stories, the latter which can be accessed directly when needed
Seeks opinions of people	Seeks narratives (experiences) from people, as humans convey complex knowledge through stories

Traditional surveys	Narrative-based approach
Use of direct questions which people usually expect	Use of indirect prompting questions to elicit answers that tend to be more honest and revealing
Reliance on traditional statistical analysis which “drowns out” weak signals until they become significant, at which point it may be difficult and expensive to intervene	Cognitive Edge methods and tools ascertain patterns in these stories to obtain insights – visualisations in SenseMaker® present diverse points of view
Numbers as indicators, not necessarily representative of employee experience	Statistics are interpreted with supporting evidence for underlying themes and context
Averages out someone’s experience regardless of context	Building understanding of context by collection of samples of data
Decision makers unable to ascertain tipping point(s) at which employees feel most engaged or want to leave	Gives a deeper sense of reality on the ground, sometimes conflicting but overall richness for sense-making

Whilst traditional surveys provided our clients with a sense that issues existed amongst their employees, these organisations believed that a narrative approach would enable them to understand those issues sufficiently to improve their management.

## 5. How a SenseMaker® project is different

At the start of each narrative research project, Cognitive Edge and the client team design a tagging framework (or what we call *signifiers*) with the specific objectives of each project in mind. The type of employee engagement challenges faced by each client is unique, and designing the signification framework with that understanding enables contextualisation.

Signification is the process whereby experiences shared in the narrative capture are tagged by respondents using the signifiers which had been designed. The signification of stories are not an interpretation of the content but allows the respondent to add context and meaning to their experiences. This signification is done at the point of collection – when a respondent shares an experience, he is immediately asked to signify his experience (please see examples in section 5ii below). In this manner, we obtain the perspective of the respondent regarding exactly what he thought of his experience along our pre-defined signification framework. By having respondents signify their own experiences, the results are less likely to be tainted by expert bias during analysis.

This process of narrative collection uses our SenseMaker® software to create a space where underlying issues may more fully emerge. Using the related experience as context, the signification structures are a form of sense-making for the analyst. When the experiences are aggregated and analysed on a larger scale, a new level of meaning becomes available that provides an organisation-wide perspective of the current situation on the ground<sup>10</sup>.

### 5i. Designing the signification framework<sup>11</sup>

Both formal inputs and informal inputs were used in our design. Formal inputs included items such as project objectives, the organisations' mission statements and values.

Informal inputs tended to be other items not necessarily present on first thought to the project team and were elicited using our open source workshop methods such as Anecdote Circles<sup>12</sup>. Informal inputs were an important part of the signifier design process, since they provided insight into the existing (rather than ideal) values and experiences of employees.

The designed signifiers provide the primary analysis capability within SenseMaker® and are derived from two types of signifiers – polarities and triads.

### 5ii. Signifier – Polarities

Our polarities are linear scales with different values at either extreme.

Cognitive Edge recommends designing our polarities around Aristotle's concept of the Golden Mean<sup>13</sup>, or *opposing negatives*: the desired organisational value is located at the centre of the continuum, with either extreme (i) being the value *absent* or (ii) the value taken to *excess*. There is an undelineated scale in between the two extremes – this is done to disguise the intent of the question. The Golden Mean or actual "ideal" is situated midway between the two extremes. If the balance of the signification is at the centre of the scale, then the ideal value is naturally present. A variation on this is *opposing positives* which have high utility but are more difficult to construct.

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<sup>10</sup> Stephen, Susan, Cheveldave Michael, Gelowitz Christine. *A Strategic Conversation: How to Engage Staff in Scanning and Scenario Building – A Case Study*. Cognitive Edge. 2009.

<sup>11</sup> For those who wish to know more, please refer to anthropologist Dr Beth Miriam's paper on signifier design: <http://www.cognitive-edge.com/articledetails.php?articleid=63>

<sup>12</sup> Anecdote Circles, an open-source workshop method <http://www.cognitive-edge.com/method.php>

<sup>13</sup> Aristotle's Golden Mean: <http://wsu.edu/~dee/GREECE/MEAN.HTM>

In comparison, traditional Likert scales reveal the desired value (at the utmost right extreme), demarcate the intermediate points and are more categorical.

We use the opposing negatives approach as we are interested in capturing people's natural, instinctive reaction instead of an idealised answer.

Here is an example of a polarity with opposing negative extremes:

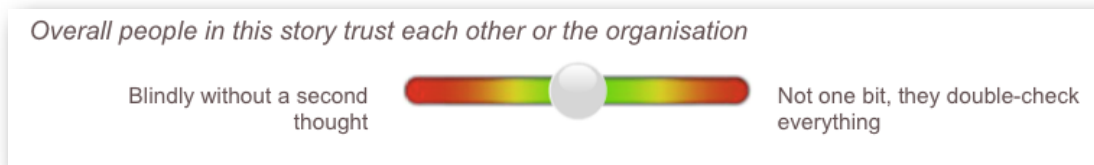


Diagram 3: Polarity in colour

The above polarity is interested in studying the perceived level of trust within an organisation. The left extreme reveals an excess of trust – so much trust that it falls over into naivete. The right extreme reveals an absence of trust – so little that employees have to spend unnecessary time and effort double-checking things. The ideal answer would fall in the middle of the scale, where trust is present but not to a excessive or dangerous degree.

The participant clicks on the bubble in the middle of the scale and shifts it to which level he thinks is applicable to his experience. The bubble may be placed anywhere along the scale. Where this particular polarity is irrelevant to his shared experience, the “Not Applicable” option is always available.

Here is another (anonymised) example of a polarity studying the degree to which employees feel that outcomes for which they are responsible are within their control.



Diagram 4: Polarity in mono-colour

The left extreme indicates responsibility is seen to be solely that of the employee and they are responsible for the outcomes which they achieve (ignoring the role that other events play in the outcomes attained by organisations, illustrating a dangerous complacency); the right extreme indicates that employees feel disempowered and helpless when it comes to delivering their responsibilities.

Where numerable narratives are signified towards either extreme, it may be an indication of an imbalance which needs to be rectified before it has the chance to become a serious issue.



The colour of the scale can be customised – some organisations prefer mono-colour scales while others prefer the colour spectrum. Some organisational cultures or norms associate values with colour and as such a more ambiguous scale may be achieved with a single colour scale.

### 5iii. Signifier – Triads

A triad is a triangle with different abstract values at each apex. It provides a constrained but ambiguous space which requires respondents to consider three different values in relative tension to each other. Triads also offer the ability to test linear hypotheses about drivers.

The respondent clicks on the bubble in the middle of the triangle and shifts it to the area he thinks is applicable to his experience. The bubble may be placed anywhere within the triangle. Where this particular triad is irrelevant to his shared experience, the “Not Applicable” option is always available.

Here is an example of a triad where the organisation is interested in studying respondents’ perceptions of their working experience – three elements are being tested:

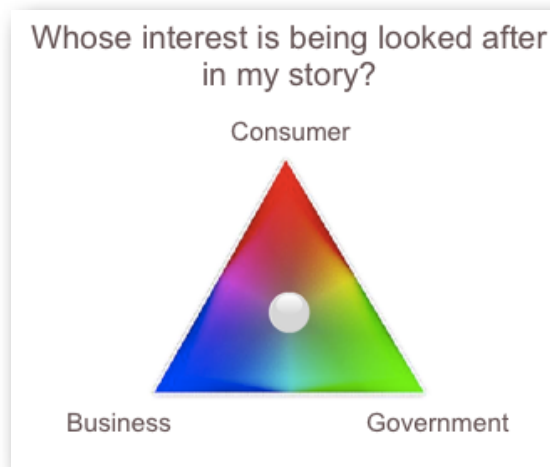
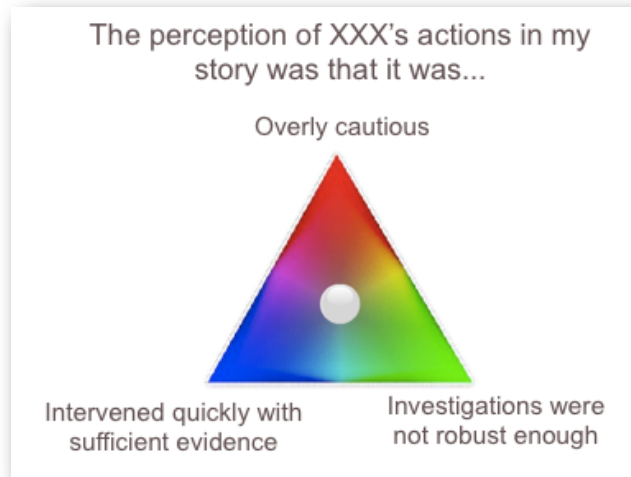


Diagram 5: Triad with three elements

The above triad in Diagram 5 is used to study employee perceptions about customers in their related experience. The bubble may be placed anywhere within the triad. Where employees view the interest as being split equally between the three stakeholders of Consumer, Business and Government, then the bubble is left in the middle of the triad. If Business is seen as the most looked after, the bubble may be placed at the Business apex. If Business and Government are seen as the two main interests being cared for, then the bubble might be placed somewhere along the Business-Government continuum.

Here is an example of another triad asking about perceptions of actions where a linear hypothesis is being tested:



*Diagram 6: Triad with linear hypothesis tested*

For the above triad, the “ideal” would be the apex where the organisation is seen as having “Intervened quickly with sufficient evidence”. Unexpected clusters around undesirable regions of triads could be early indicators of growing issues.

In particular, the area between “Overly cautious” and “Investigations were not robust enough” provides an emergent space – stories that appear in such spaces should be carefully studied to ensure that weak signals are not missed.

Each organisation usually has a good idea of where they would like most employee stories to be located when they design the triads. Unexpected clusters around unwanted regions of triads could be early indicators of growing issues. Likewise, clusters around positive factors can help indicate where an organisation is doing well.

Mono-colour triads are also available for use in situations where colours are seen to potentially influence interpretation of the triad space.

#### **5iv. Collecting the narratives**

One of our goals in projects is to gather as many narratives as possible. There is no fixed “magic” number of narratives that need to be collected – similar to traditional quantitative surveys, the ideal number of stories is the number that gives the client’s senior management confidence in the project findings. As in traditional quantitative surveys, we believe that it is important to involve a diverse random sample of the organisation’s population.

Traditional analysts are generally very used to dealing with metrics and traditional statistical methodology. Conducting studies with the narrative capture method requires the same application of proper sampling techniques, a diversity of respondent perspectives, and most importantly sufficient volumes of material<sup>14</sup>.

Narratives are collected and signified online through Cognitive Edge's SenseMaker® Collector software. We recommend web capture because it is scalable – there are no additional significant costs regardless of the client's sample size, whether it runs in the hundreds, thousands or larger. The medium also provides more privacy to respondents than phone surveys or focus groups. Anonymity is especially important to respondents who might not have shared their experiences otherwise. However one should always consider additional collection offline processes in environments and situations where online contribution is constrained.

Each organisation usually likes to customise the capture site with its own formatting and / or logo (examples can be seen on the SenseMaker® website). Each capture site has the following components:

- Introductory page: usually contains a message from senior management regarding the project goals. It sets the expectations for participants. It is important to state the objectives of the project but also to outline to participants how their contributions will be used.
- Page with prompting questions: respondent clicks on prompting question he or she wishes to answer<sup>15</sup>
- Where stories are contributed: respondent types in the experience that he or she wishes to share in response to the prompting question.

Narrative collection is rarely conducted exclusively through web capture. There are instances where internet access is a security or resource issue, or where narrative capture respondents are unlikely to have access to computers. Where deemed suitable by our clients or Cognitive Edge, a variety of other offline methods are used for narrative capture – these include Anecdote Circles, iPod® Touch devices and Bluetooth pens. We have done many projects which used a combination of both online and offline capture.

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<sup>14</sup> Stephen, Susan, Cheveldave Michael, Gelowitz Christine. *A Strategic Conversation: How to Engage Staff in Scanning and Scenario Building – A Case Study*. Cognitive Edge. 2009.

<sup>15</sup> [www.cognitive-edge.com/files/Pre-hypothesis-Research.pdf](http://www.cognitive-edge.com/files/Pre-hypothesis-Research.pdf)

## 6. Sense-Making of the data – findings

Once the collection of narratives has been completed, the project moves into its final phase of sense-making. Sense-making is the act of making sense of the world around us, using the fragments we have collected to provide context for further understanding.

For our projects, we analysed the collected narratives using the SenseMaker® software, which offer visualisations of the data in forms such as histograms, triad distributions and correlations, all backed by traditional mathematical statistics as well as the qualitative material of the narratives. Using the software, it becomes possible to drill down into each visualisation to isolate and further analyse narrative patterns. This access to raw data adds richness when making sense of the collected data.

The following diagrams are a few of the anonymised findings that we came across during our sense-making for the organisations:

### A selected finding from Project A1:

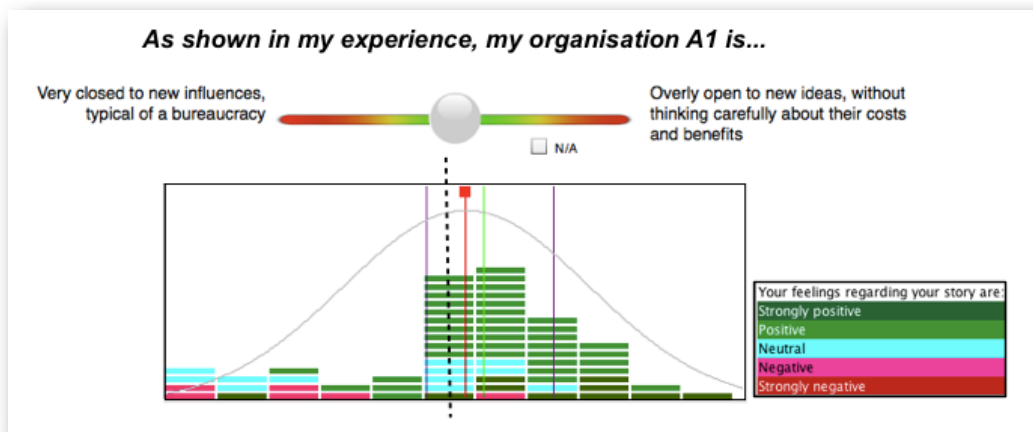


Diagram 7: A1 Histogram

#### Issue

It surfaced in A1's previous climate survey that the organisation was perceived as lacking openness to new ideas, essential for it to progress. The A1 team was hence interested in investigating this issue further to see if it was indeed a valid concern.

#### Findings

Diagram 7 above shows a histogram of the aggregated stories from the narrative capture, illustrating the quantity of stories at different points along a polarity. The narratives are self-signified; the person who contributed the story determines its place along the continuum. Each coloured block in the histogram represents a single story.

The stories located here are mostly in the middle towards the rightward region of Diagram 7, indicating that staff saw openness to new ideas as adequate or even abundant. The stories here were further classified by emotional tone (how the respondent felt about the experience), and it was evident where staff perceived openness to new ideas to exist, their sentiment was positive.

However, towards the left extreme where the organisation was seen as resistant to new ideas, feelings about the stories tended to be neutral to negative.

### Interventions

The findings from this signifier suggest that openness to new ideas is not such a problem as A1 had initially worried – however, A1 needs to take note of the stories in the leftward region, which could hint at potential problems.

### A selected finding from Project A2:

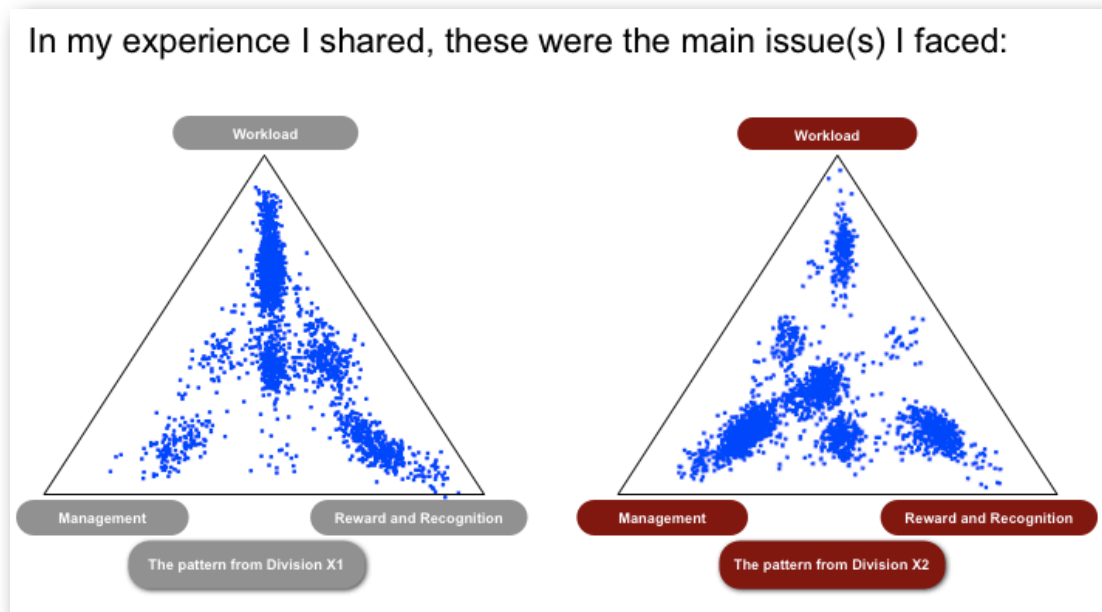


Diagram 8: Triads from A2's projects

### Issue

From A2's previous climate survey, three issues surfaced that they wished to study further – Workload, Management and Reward/Recognition. Their hypothesis was that the issues could be attributed to Management (changes in leadership). The diagrams above show the results from the narrative capture divided by divisions X1 (the triad on the left, above) and X2 (on the right) within A2.

### *Findings*

The above diagrams indicates the placement of all the aggregated stories collected during the capture. Each blue dot in the triad cluster view represents a single story. A big cluster indicates a strong pattern amongst the collected stories. Weak patterns are indicated by a much smaller cluster of stories.

X1 and X2 had clear differences in the location of story clusters. For employees from Division X1 in Diagram 8, Workload and Reward / Recognition were seen as the strongest issues present in their workplace experiences. However for Division X2 in Diagram 8, the strong pattern for Workload was absent – instead appearing in Management, followed by Reward and Recognition.

The common issue across the divisions would be Reward and Recognition. X1 faced a strong challenge in balancing the Workload for its employees, while the hypothesis was confirmed for X2, where its strongest cluster showed that Management (leadership) was of more concern to its employees.

### *Interventions*

A2 arranged to review the themes brought up regarding workload balance for Division X1, and also to review the new management in place for Division X2.

### ***A selected finding from Project A3:***

Diagram 9 below shows the correlations between the different signifiers that were used in A3's projects. Each of the boxes in the diagram below are the various influences identified by the project team on the engagement of employees in their organisation during the signifier design, and later converted to a signifier. The correlations reveal the relationships between those influences within the aggregated stories collected from staff members. The thickness of the lines between different signifiers indicate the strength of the correlations between those influences.

In the diagram below, Management and Direction are the most strongly correlated of the all the signifiers in the project.

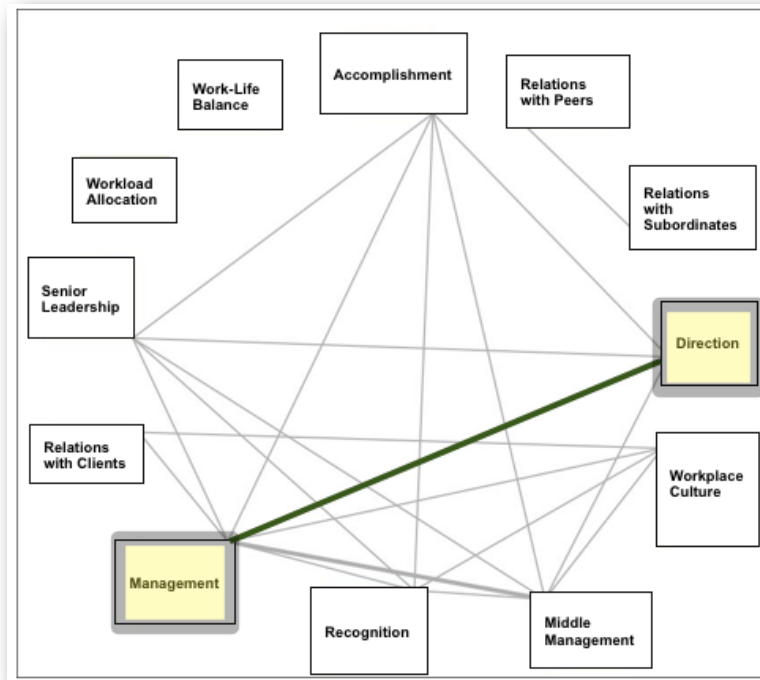


Diagram 9: Correlation diagram

### Issue

A3 wanted to investigate differences in perception between its Internal and External stakeholders. One of A3's hypotheses was that Senior Leadership and Direction would be strongly associated across both groups.

### Findings

As seen in Diagram 9, Management~Direction was even more strongly correlated than Senior Leadership~Direction. This result was similar for both Internal and External stakeholders; the relevant stories from the associated polarities strongly suggested that senior leadership was not seen as crucial as middle management in determining the direction of the organisation.

### Interventions

This raised the awareness of the A3 team regarding the need to ensure the perception of, and confidence in, strong senior leadership across all quarters. A3 have created a programme to improve accessibility of leadership to staff.

An additional observation was the striking lack of strong correlations between Work-life Balance and Workload Allocation. This suggested that interventions focused on these two areas would not have much of an effect compared to interventions elsewhere.

## 7. Learning points

### 7i. Narrative research design

In general, less is more especially when it comes to the number of prompting questions and signifiers that respondents have to deal with.

Prompting questions can be revised and more multi-choice questions added to enhance sense-making of the data at the post-collection phase. It was noticed that experiences contributed through web capture tended to be more negative in nature than those collected through Anecdote Circles.

We can only imagine the barriers (and results) that focus groups face. For example, where we have an organisation suffering low workplace morale (perhaps resulting from autocratic supervisors), it is unlikely that respondents from that workplace would honestly share their negative experiences in focus group sessions. Recognising that, modes of capture which allow for anonymity are highly recommended.

### 7ii. Obtaining explicit endorsement from senior management

While it may be a cliché, we have found it very useful to obtain explicit endorsement from senior management – this is done usually in the form of an introductory letter for dissemination to narrative capture respondents. The message legitimises the narrative capture while the involvement of senior-level staff implies that the findings of the project will be studied and followed up on. This encourages respondents to be honest and forthcoming in sharing their experiences.

### 7iii. Allowing for emergence

A broad-based capture and ambiguous signifiers are useful in uncovering previously unforeseen issues. The Cognitive Edge pre-hypothesis approach allows the space for new issues to emerge. Narratives that do not fit within the patterns formed from the data may be noise – or they could well be weak signals that deserve a closer study. The capability for the analyst to “pull up” a fragment for further study allows better understanding and decision-making.

## 8. Conclusion

Narrative-based research aids decision support by providing senior management with direct access to raw data. The lack of intermediation or interpretation by layers of management enables more well-informed decision-making.

The common feature of the collected experiences is how powerful these narratives are. There are inspiring anecdotes about supervisors with excellent management skills, whose genuine interest and concern in their subordinates are related with gratitude and



appreciation. People confide that adequate recognition from superiors has contributed to employee retention, and that a strong culture of teamwork in the workplace has helped them very much through the difficult times.

Then there are the negative stories, where inadequate supervisory skills and lack of direction of management are exposed. There are stories of stated and actual office hours, stated and actual tasks expected to ensure career advancement, stories of events that occurred which should not have occurred and were not known till capture. The presence of a strong disconnect between senior management and the ground is not uncommon. In narrative-based research, issues have a space to emerge and be noted before they escalate.

Now, imagine this scenario. The CEO looks up, interested in the reasons behind the drop in Satisfaction with Middle Management. The Director for Human Resources has the answers ready, all backed up by narratives from employees. "According to the experiences here shared by our employees in the narrative capture, the recent revision in reward structure and the frequent shuffling of supervisors in these two departments appear to have greatly affected employee morale and satisfaction ...". Access to the actual experiences of employees on the ground or on the front lines (and not just numbers filtered through various levels of organisational bureaucracy) is an excellent form of sense-making, empowering decision makers to make more meaningful, effective decisions.

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## References

Lazaroff, M. & Snowden, D. *Anticipatory modes for Counter Terrorism*. In Popp, R.& Yen, J. (Eds). *Emergent Information Technologies and Enabling Policies for Counter Terrorism*. Hoboken, NJ: Wiley IEEE Press. 2006.

Niles, John D. *Homo narrans*. University of Pennsylvania Press. Philadelphia, PA. 1999.

Snowden, D. J. *Multi-ontology Sensemaking – A New Simplicity in Decision Making*. 2005.

Snowden, D.J. *Naturalising Knowledge Management*. 2007.

Snowden, Dave. "Story-telling: an old skill in a new context". *Business Information Review*. 2005.

Stephen, Susan, Cheveldave Michael, Gelowitz Christine. *A Strategic Conversation: How to Engage Staff in Scanning and Scenario Building – A Case Study*. Cognitive Edge. 2009.

<http://www.cognitive-edge.com/method.php>

<http://hbr.org/2007/11/a-leaders-framework-for-decision-making/ar/1>

<http://wsu.edu/~dee/GREECE/MEAN.HTM>

<http://www.cognitive-edge.com/files/Pre-hypothesis-Research.pdf>

[http://www.huffingtonpost.com/dennis-whittle/if-you-can-flip-a-coin-ca\\_b\\_704779.html](http://www.huffingtonpost.com/dennis-whittle/if-you-can-flip-a-coin-ca_b_704779.html)

[http://www.cognitive-edge.com/blogs/news/2010/08/narrative\\_research\\_article\\_by.php](http://www.cognitive-edge.com/blogs/news/2010/08/narrative_research_article_by.php)

## Further Reading

1. An overview of the method and approach with appropriate academic references:  
<http://www.cognitive-edge.com/articledetails.php?articleid=64>
2. A description of the creation of a signifier set for a cultural mapping programme based on anthropology with appropriate references: <http://www.cognitive-edge.com/articledetails.php?articleid=63>
3. Here (by way of evidence of the uniqueness of the Cognitive Edge Approach) is the US Army single tender call: [https://www.fbo.gov/index?s=opportunity&mode=form&id=997442e1c15b876f5ef8bfc974cfee66&tab=core&\\_cview=0](https://www.fbo.gov/index?s=opportunity&mode=form&id=997442e1c15b876f5ef8bfc974cfee66&tab=core&_cview=0)