ONLY HUMAN
Towards a neuroscience-based understanding of future-facing organizational culture

Medina Eve Abdelkader
MASTERS OF DESIGN (M.Des)
STRATEGIC FORESIGHT + INNOVATION
OCAD UNIVERSITY, TORONTO, CANADA
How does

THE BRAIN FORM IDEAS ABOUT THE FUTURE?
OUR BRAINS ARE TERRIBLE AT PROCESSING CHANGE.
ORBITAL FRONTAL CORTEX

RESPONSIBLE FOR
COGNITIVE PROCESSING
SPECIFICALLY, EMOTION AND
REWARD IN DECISION-MAKING
IN THE HUMAN BRAIN, UNCERTAINTY IS REGISTERED AS AN ERROR BY THE ORBITAL FRONTAL CORTEX
WITHIN A FIFTH OF A SECOND
THE BRAIN DECIDES IF SOMETHING IS A THREAT OR A REWARD
[...] when a person encounters a stimulus their brain will either tag the stimulus as ‘good’ and engage in the stimulus (approach), or their brain will tag the stimulus as ‘bad’ and they will disengage from the stimulus (avoid).

DAVID ROCK
DESIGNED TO REFLEXIVELY AND CONTINUOUSLY MINIMIZE DANGER AND MAXIMIZE REWARD
Amygdala

remembers whether something should be approached or avoided
Amygdala is used in forming both episodic memory (explicit) and procedural memory (implicit).
Amygdala responds proportionately to the intensity of the emotional response.
III
WE REMEMBER
THE FUTURE
Brain activation, when remembering past events and imagining future events.

(Addis et. al., 2009; Schacter et. al., 2012)
The past to future spectrum, informed by episodic, semantic and procedural memory (Suddendorf and Corballis, 2007).
**Important Differences Between Implicit and Explicit Attitudes**

<table>
<thead>
<tr>
<th>Implicit Attitudes</th>
<th>Explicit Attitudes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic</td>
<td>Deliberate</td>
</tr>
<tr>
<td>Limited cognitive access to processing</td>
<td>Extensive cognitive access to processing</td>
</tr>
<tr>
<td>Associative</td>
<td>Reflective</td>
</tr>
<tr>
<td>Relies primarily on past outcomes stored in long-term memory</td>
<td>Relies primarily on future outcome projections in working memory</td>
</tr>
<tr>
<td>More stable over time and resistant to change</td>
<td>More dynamic and malleable over time</td>
</tr>
<tr>
<td>Occurs primarily in older, deep brain structures of temporal lobe</td>
<td>Occurs primarily in newer, executive control structures of frontal lobe</td>
</tr>
</tbody>
</table>

*(Suddendorf and Corballis, 2007)*
THE BRAIN CAN CHANGE, BOTH IN STRUCTURE AND FUNCTION, VIA ITS ENVIRONMENT OR PERSONAL EXPERIENCE
Neuroplasticity is “an intrinsic property of the human brain and represents evolution's invention to enable the nervous system to escape the restrictions of its own genome and thus adapt to environmental pressures, physiologic changes, and experiences.”

ALVARO PASCUAL-LEONE
The plastic paradox teaches that neuroplasticity can also be responsible for many rigid behaviours, and even some pathologies, along with all the potential flexibility that is within us. [...] It is a phenomenon that produces effects we think of as both bad and good—rigidity and flexibility, vulnerability, and an unexpected resourcefulness.

NORMAN DOIDGE
How do we assess ORGANIZATIONAL CULTURE?
How can neuroscience help us address organizational culture as a wicked problem to empower future-facing decision making?
RESEARCH DESIGN

1. Secondary Research

2. Primary Research
How do we assess ORGANIZATIONAL CULTURE?
“a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.”

EDGAR H. SCHEIN
Edgar Schein's three layers of culture (Schein, 2010)

- **Artifacts**: Visible organizational structures and processes (hard to decipher).
- **Espoused Beliefs and Values**: Strategies, goals, philosophies (espoused justifications).
- **Underlying Assumptions**: Unconscious, taken-for-granted beliefs, perceptions, thoughts, and feelings... (ultimate source of values and action).
Critique of existing models
Critique of existing models

ENCOURAGE CONSENSUS
Critique of existing models

ENCOURAGE CONSENSUS
NOT NUANCED
Critique of existing models

ENCOURAGE CONSENSUS
NOT NUANCED
HIGHLY DOGMATIC
Output from an Organizational Culture Assessment Instrument (OCAI) assessment (Cameron, 2004)
DO NOT ADDRESS THE GAP BETWEEN WHAT WE BELIEVE CULTURE TO BE AND WHAT IT REALLY IS
DO NOT RECOGNIZE THE INDIVIDUAL EXPERIENCE OF CULTURE, OR INTRINSIC LIMBIC RESPONSES.
RESEARCH DESIGN

1. Secondary Research
2. Primary Research
What are the broader implications on the practice of strategic foresight?
SCARF

A brain-based model for collaboration

DAVID ROCK (2008)
STATUS

Relative importance to others
CERTAINTY

Being able to predict the future
AUTONOMY

Provides a sense of agency over events
SCARF

RELATEDNESS

* A sense of safety with others, of friend rather than foe *
The perception of fair exchanges between people
What does good futures work look like? How to excel at futures work? What is the level of the current practice so that it can be compared to other enterprises, so changes can be demonstrated over time?

TERRY GRIM
What does good futures work look like? How to excel at futures work? What is the level of the current practice so that it can be compared to other enterprises, so changes can be demonstrated over time?

TERRY GRIM
What does good futures work look like? How to excel at futures work? What is the level of the current practice so that it can be compared to other enterprises, so changes can be demonstrated over time?

TERRY GRIM
What does good futures work look like? How to excel at futures work? What is the level of the current practice so that it can be compared to other enterprises, so changes can be demonstrated over time?

TERRY GRIM
A quick primer on the CAPABILITY MATURITY MODEL
Definition

A FRAMEWORK TO ASSESS BEST PRACTICES AND MEASURE QUALITATIVE PROCESSES.
Benefits

GIVE A SENSE OF SCIENTIFIC MEASUREMENT
## Leadership Maturity Matrix

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Level 1 (Ad Hoc)</th>
<th>Level 2 (Aware)</th>
<th>Level 3 (Capable)</th>
<th>Level 4 (Mature)</th>
<th>Level 5 (World-Class)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Engage people in conscious and thoughtful actions to proactively create the future they have chosen.</td>
<td>Foresight activities are rarely held, and result in only a coincidental relationship to planning activities and resulting execution.</td>
<td>Foresight projects are on the annual calendar for an organization. The process and the results trickle through the organization and unevenly become part of the future of the organization.</td>
<td>Foresight activities are regularly on the agenda for all levels of management. The results of these activities play an important role in deciding and executing the future agreed upon for the organization.</td>
<td>Foresight activities and discussions of the future are a considered part of planning activities of the organization. The organization effectively and consistently executes to deliver the plan for the future.</td>
<td>The organization is recognized by peers as being able to envision a vibrant future and then effectively enlist all its members to engage and live their collective vision.</td>
</tr>
<tr>
<td>2. Create an environment that provides timely anticipation of change, embracing positive changes and responding creatively to negative changes.</td>
<td>Changes tend to be surprises, and responses are reactive based on superficial analysis and without a full understanding of the implications.</td>
<td>The organization has created an informal structure that anticipates major changes and can quickly put together response plans.</td>
<td>The organization has developed different scenarios of the future and uses these to anticipate and respond effectively to changes as they arise.</td>
<td>A systematic approach to monitoring ongoing changes, combined with well thought-out plans and implications, allow the organization to provide timely and successful responses to their environment.</td>
<td>The organization not only has very successful processes to monitor and respond to environmental changes but is out in front enough to influence the changes in the direction that is beneficial.</td>
</tr>
<tr>
<td>3. Communicate clearly the goals, results, and implications of foresight activities</td>
<td>There are implicit and often undocumented goals and plans from foresight activities. The senior leaders may or may not be aware of the general direction and implications of this effort.</td>
<td>Goals and results from foresight activity are usually documented but are primarily communicated to managers and key people in the organization.</td>
<td>Goals and plans from foresight activity are conveyed to the organization. Everyone is aware of the implications and aligns work and responsibilities appropriately.</td>
<td>Everyone in the organization considers and uses the goals and plans from foresight work to inform their decisions and perform their daily activity.</td>
<td>In addition to informing day-to-day decisions with implications from foresight activity, organizational members become part of the immediate feedback loop that refines and adjusts the goals and results.</td>
</tr>
</tbody>
</table>
Benefits

HELPS TO FORMALIZE PROCESSES
# Foresight Maturity Model

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leadership</strong></td>
<td>1. Engage people in conscious and thoughtful actions to proactively create the future they have chosen.                                                                                                       2. Create an environment that provides timely anticipation of change, embracing positive changes and responding creatively to negative changes. 3. Communicate clearly the goals, results, and implications of foresight activities. 4. Create an environment and processes that drive foresight knowledge into action. 5. Recognize the cultural artifacts and mental models operating in the organization and how they influence organizational decisions.</td>
</tr>
<tr>
<td><strong>Framing</strong></td>
<td>1. Identify the root questions and true issues driving the project request, reconciling with those that have been explicitly stated.                                                                                                                                  2. Set measurable and documented objectives which have the agreement of stakeholders. 3. Track progress toward objectives and reframe root problems and issues against progress and changes external to the endeavor.</td>
</tr>
<tr>
<td><strong>Planning</strong></td>
<td>1. Identify the implications and consequences of alternative futures and actions. 2. Explore a variety of potential strategies and options. 3. Choose and refine a strategy that optimizes progress toward the organizational vision. 4. Develop a plan to address the activities, processes, talent, and communications required to achieve the strategy</td>
</tr>
</tbody>
</table>
## Foresight Maturity Model

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Practice</th>
</tr>
</thead>
</table>
| **Scanning** | 1. Map the domain of the system into a framework of areas to explore.  
2. Collect pertinent information from a range of diffuse and credible sources.  
3. Identify outliers or "outside-the-system" indicators that signal impending changes which could impact the system.  
4. Integrate external and internal information into a common framework and language.  
5. Create a useful and accessible information repository. |
| **Forecasting** | 1. Acquire insight into emerging ideas or themes with the aggregation of information into categorized clusters.  
2. Consider the widest possible set of plausible alternative futures in evaluating choices or decisions affecting the system.  
3. Distill and detail plausible alternative futures into the working set for consideration.  
4. Validate foresight to create an integrated set of credible and coherent alternative futures. |
| **Visioning** | 1. Elicit and incorporate goals, values, and aspirations of members and stakeholders.  
2. Surface the underlying assumptions, espoused beliefs and values, and operational artifacts which establish the culture.  
3. Articulate the unique contribution that frames the organization’s view moving forward.  
4. Craft the vision in a manner that is both inspirational and motivational, resonating with the hearts and minds of those who will follow it. |
Benefits

PROVIDES A ROADMAP FOR IMPROVEMENT
The organizational foresight gap

<table>
<thead>
<tr>
<th>Example of Organizational Scorecard</th>
<th>Level 1 Ad Hoc</th>
<th>Level 2 Aware</th>
<th>Level 3 Capable</th>
<th>Level 4 Mature</th>
<th>Level 5 World Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>Today</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
</tr>
<tr>
<td>Framing</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
</tr>
<tr>
<td>Planning</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
</tr>
<tr>
<td>Scanning</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
</tr>
<tr>
<td>Forecasting</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
</tr>
<tr>
<td>Visioning</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
<td>Goal</td>
</tr>
</tbody>
</table>
RESEARCH DESIGN

1. Secondary Research
2. Primary Research
Participant criteria

FORESIGHT CONSULTANTS
Participant criteria

FORESIGHT CONSULTANTS RECRUITED VIA APF
Participant criteria

FORESIGHT CONSULTANTS RECRUITED VIA APF COULD SPEAK TO A CLIENT’S INTERNAL PROCESSES AND CULTURE
RESEARCH DESIGN

1. Secondary Research
2. Primary Research
   i. Assess foresight maturity
   ii. Articulate culture
   iii. Run data through SCARF
RESEARCH DESIGN

1. Secondary Research
2. Primary Research
   i. Assess foresight maturity
   ii. Articulate culture
   iii. Run data through SCARF
Mapping Threat- and Reward-Responses of Cultural Dimensions Against Foresight Maturity
For every one-level increase in foresight maturity, there was a 70% increase in average threat- and reward-responses.
For every one-level increase in foresight maturity, there was a 70% increase in average threat- and reward-responses.
Or, for every 70% increase in the average threat- and reward-responses, the organizations moved up a level in foresight maturity.
Or, for every 70% increase in the average threat- and reward-responses, the organizations moved up a level in foresight maturity.
First principles of

FUTURE-FACING ORGANIZATIONAL CULTURE
One

ORGANIZATIONAL CULTURE IS A WICKED, LIVING SYSTEM
Two

THE HUMAN BRAIN IS INHERENTLY PREDICTIVE, BUT INFORMED BY PAST EXPERIENCES
Three

CULTURE CANNOT BE CREATED NOR DESTROYED — IT CAN ONLY CHANGE ITS FORM
Four

THERE ARE IDEAL NEUROLOGICAL CONDITIONS FOR CONSIDERING THE LONG VIEW
DIVERSITY OF THOUGHTS AND PERSPECTIVES BETTER PREPARES US FOR THE FUTURES
Six

TO ERR IS HUMAN - AND CRUCIAL IN FOSTERING A COGNITIVE TOOLKIT FOR FUTURING
Seven

CULTURE CHANGES THE BRAIN — FOR BETTER OR FOR WORSE
BRAINSTEM - LIMBIC SYSTEM

Hippocampus

REGULATES EMOTION AND RESPONSIBLE FOR MAKING NEW MEMORIES.
ANTERIOR CINGULATE CORTEX (ACC)

RESPONSIBLE FOR SELF-REGULATION AND LEARNING FROM PAST EXPERIENCE TO MAKE BETTER DECISIONS
(Fox et al) http://www.christofflab.ca/publications/

(Tang et. al) http://www.pnas.org/content/107/35/15649.full
Expansion of the FORESIGHT MATURITY MODEL
## LEADERSHIP

Clear ownership and active mandates to implement and institutionalize a leadership capability

### LEVEL 1: Ad-Hoc
- Engage people in conceptions and directions to properly create the front they have chosen.

### LEVEL 2: Aware
- Foster a sense of ownership in the organization, including the strategic goals.
- Engage people in conceptions and directions to properly create the front they have chosen.

### LEVEL 3: Capable
- Empower movements to create a sense of ownership and direction.
- Engage people in conceptions and directions to properly create the front they have chosen.

### LEVEL 4: Competent
- Empower movements to create a sense of ownership and direction.
- Engage people in conceptions and directions to properly create the front they have chosen.

## CLIMATE & COMMUNICATION

How an organization's ideas are communicated, and how the appropriate actions are triggered.

### CULTURE

Stimulating and sustaining the conditions for consideration of the long view

### LEVEL 1: Ad-Hoc
- Create an environment and processes that drive the long-term strategic vision.

### LEVEL 2: Aware
- Organizational processes and structures are designed to support long-term strategic vision.

### LEVEL 3: Capable
- Organizational processes and structures are designed to support long-term strategic vision.

### LEVEL 4: Competent
- Organizational processes and structures are designed to support long-term strategic vision.

## LEVEL 5: World-Class

Other organizations need to learn from how to communicate important organizational information and how to communicate in ways that are effective and efficient.

- Organizational processes and structures are designed to support long-term strategic vision.

- Leadership communicates effectively, engaging other members of the organization.

- Commit to diversity and inclusion, and to support and encourage the participation of all members of the organization.

- Culture is defined by the values and beliefs of the organization.

- Climate is defined by the behaviors and practices of the organization.

- Communication is defined by the processes and systems used to convey information and ideas across the organization.

- Collaboration is defined by the level of cooperation and teamwork among employees.

- Innovation is defined by the degree to which the organization strives to be creative and unique.

- Learning is defined by the extent to which the organization invests in the development of its members.

- Leadership is defined by the actions and behaviors of those in positions of authority.

- Diversity and inclusion are defined by the extent to which the organization values and respects differences.

- Communication is defined by the processes and systems used to convey information and ideas across the organization.

- Collaboration is defined by the level of cooperation and teamwork among employees.

- Innovation is defined by the degree to which the organization strives to be creative and unique.

- Learning is defined by the extent to which the organization invests in the development of its members.

- Leadership is defined by the actions and behaviors of those in positions of authority.

- Diversity and inclusion are defined by the extent to which the organization values and respects differences.

- Communication is defined by the processes and systems used to convey information and ideas across the organization.

- Collaboration is defined by the level of cooperation and teamwork among employees.

- Innovation is defined by the degree to which the organization strives to be creative and unique.

- Learning is defined by the extent to which the organization invests in the development of its members.

- Leadership is defined by the actions and behaviors of those in positions of authority.
So, what is
FUTURE-FACING ORGANIZATIONAL CULTURE?
A living system of made up of individuals with respective temporal wayfinding systems, working towards their shared vision of a preferred future.
THANKS!

Medina Eve Abdelkader
Masters of Design (M.Des), Strategic Foresight + Innovation
OCAD University, Toronto (Canada)

medinaeve  medinaeve.com
https://www.linkedin.com/in/medinaabdelkader/