THE SOCIAL ENGINEERING LANDSCAPE: INSIGHTS INTO THE HUMAN ELEMENT (HU)
Agenda

Scientific Model
Social Engineering
The Human Element
Theory Meets the World
Supposition – Problem Statement
Social Engineering is a Problem

Hypothesis – Humans are the weak link
Nature, Behavior, Attitudes, Habits, Education, Training

Test the Model
Experience, Research, Outcomes
Social Engineering

Influence someone to surrender access or information

Means:
- Ask
- Deceive
- Curiosity
Verizon Data Breach Report 2017


All of these are drivers of human behavior, and one or more can be leveraged to influence someone to disclose information, click a link or wire money to a “vendor” account.
Verizon Data Breach Report 2017

Of those that had recorded instances of reporting, the percentage of users who reported was 20%.
Phishing is the most common social tactic in our dataset (93% of social incidents).

Figure 4: Percentage of breaches per threat action category over time
Social Engineering

Cost to Worldwide Business:

Unknown Billions each year

Wombat, Gartner, Ponemon, FireEye...

~ $100K - $1.6M, per / ~ $3.7M annual
The Human Element

Why is Social Engineering effective?
Human Nature

Neuro-programming
**Physiological needs:**
food, water, warmth, rest

**Safety needs:**
security, safety

**Belongingness and love needs:**
intimate relationships, friends

**Esteem needs:**
prestige and feeling of accomplishment

**Self-actualization:**
achieving one’s full potential, including creative activities

**Self-fulfillment needs:**
Psychological needs

**Basic needs:**
Human Nature

Social Creatures

Relational nature of thinking
   Alan Jacobs

Stress, Distraction, Apathy impair higher reasoning
Human Nurture

Awareness, Education, Training, Feedback
Kokcharov

Conscious competence

Drivers:
  Job Resources
  Personal Resources
Work Motivation: M^5-model

- Money
- Myself
- Member
- Mastery
- Mission

- Creating value for others
- Member of a team
- Originality + performance
- Earning for personal needs
- Self-improvement, achievement
The Power of Habit

Learn, re-learn and hardwire, new concepts to be more efficient and effective.

Not adding complexity; reducing complexity.

Charles Duhigg
Human Culture

Sociology
“The bottom line is we are not ‘hardwired’... Our brains are incredibly resilient... with the capability, in your thoughts, feelings and actions, to develop in any direction you choose.”

Deepak Chopra and Rudolph E. Tanzi
Work Engagement

Employees 'employ' and express themselves physically, cognitively, emotionally and mentally in their roles.
Employee Engagement

A relationship between an employee and an organization, where an employee is fully absorbed by and enthusiastic about their work...
Employee Engagement

An engaged employee has a positive attitude about the organization and its values.
Fogg Behavior Model

B = mat
at the same moment

High Motivation

motivation

Low Motivation

triggers succeed here

triggers fail here

Activation Threshold

www.BehaviorModel.org

Hard to Do

ability

Easy to Do

For permission to publish this, contact BJ Fogg
DRiVE: The Surprising Truth About What Motivates Us

U.S. > 50 percent of employees are not engaged at work—and nearly 20 percent are actively disengaged.

~ 2%–3%

~ $300B yr.

Daniel H. Pink
The Human Element

Transparency ~~ baked in
Controls ~~ transparent
Hardwired ~~ default behavior
Habit ~~ discipline ~~ culture
Engagement ~~ productivity
Transparency ~
Transparency is about trust and accountability

You can’t be transparent if you don’t trust and aren’t trustworthy
“We’re going to need to move away from fear and to evidence of efficacy. ... When we do, we’re going to start getting better rapidly.”

- Adam Shostack (TNSIS)
Hardwiring ~
Processes, behavior, managed change

That which is not hardwired is ephemeral, not sustainable, not reliable
Challenge Responses

- Reactive we do by default
- Proactive requires discipline
- Predictive demands talent and dedication
The Capable Company

- Discipline around a shared mindset
- Speed of change
- Accountability
- Collaboration

Determinants of Success
The Capable Company

A key initial goal is to identify the viruses of ‘resistance to change’

Execution = people capacity + capability + discipline

Determinants of Success
Capacity, Capabilities & Culture

• Looking for Reassurance, Clarity, Purpose, Passion, and a clear path of action
• We all want to do good. Some of us just don't know it, yet.

Culture: We share a leaky canoe
Theory meets the World
Employee Engagement

PSU

Kirk Kelly, CIO

• Move from 30% actively engaged to 50%-60%
Employee Engagement

% U.S. Employees

<table>
<thead>
<tr>
<th>Category</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engaged</td>
<td>30</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Non Engaged</td>
<td>52</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>Actively Disengaged</td>
<td>19</td>
<td>18</td>
<td>17</td>
</tr>
</tbody>
</table>

Gallup Q12
Autonomy  Mastery  Purpose

Desire for self-direction
Motivation for meaningful work
Yearning to serve something greater
DRiVE: The Surprising Truth About What Motivates Us

- Control leads to compliance; autonomy leads to engagement
- “Flow” generates “glorious” engagement
- Only engagement can produce mastery

Daniel H. Pink
Employee Engagement

SWMC
Christopher Paidhrin

- Awareness In Depth
- Culture of Engagement
  - Developed over 15 years
Awareness In Depth

- Multiple applicant screening criteria;
- Rigorous interviewing processes;
- New employee orientation;
- Conf./privacy agreements, signed/hire and each year during review;
- Policies and procedures, with appropriate use and access monitoring;
- Departmental and computer-based training (CBT);
- Annual mandatory, web-training modules, including security, privacy, use;
- Annual "MUMs the Word" campaign;
- HIPAA, confidentiality and IT security;
- And most important, a culture of caring and excellence.
Workplace behavior
Habits
Temperament
Communication
Education
Training

User Awareness
## Differentiating Staff Worksheet

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Comes to work on time</td>
<td>Good attendance</td>
<td>Points out problems in a negative way</td>
</tr>
<tr>
<td></td>
<td>Good attitude</td>
<td>Loyal most of the time</td>
<td>Positions leadership poorly</td>
</tr>
<tr>
<td></td>
<td>Problem solves</td>
<td>Influenced by high and low performers</td>
<td>Master of We/They</td>
</tr>
<tr>
<td></td>
<td>You relax when you know they are scheduled</td>
<td>Want to do a good job</td>
<td>Passive aggressive</td>
</tr>
<tr>
<td></td>
<td>Good influence</td>
<td>Could just need more experience</td>
<td>Thinks they will outlast the leader</td>
</tr>
<tr>
<td></td>
<td>Use for peer interviews</td>
<td>Helps manager be aware of problems</td>
<td>Says manager is the problem</td>
</tr>
<tr>
<td></td>
<td>Five pillar ownership</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brings solutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Professionalism</strong></td>
<td>Adheres to unit policies concerning breaks, personal phone calls,</td>
<td>Usually adheres to unit policies concerning breaks, personal phone</td>
<td>Does not communicate effectively about absences from work areas.</td>
</tr>
<tr>
<td></td>
<td>leaving the work area, and other absences from work.</td>
<td>calls, leaving the work area, and other absences from work.</td>
<td>Handles personal phone calls in a manner that interferes with work.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Breaks last longer than allowed.</td>
</tr>
<tr>
<td><strong>Teamwork</strong></td>
<td>Demonstrates high commitment to making things better for the work</td>
<td>Committed to improving performance of the work unit and organization.</td>
<td>Demonstrates little commitment to the work unit and the organization.</td>
</tr>
<tr>
<td></td>
<td>unit and organization as a whole.</td>
<td>May require coaching to fully execute</td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge &amp; Competence</strong></td>
<td>Eager to change for the good of the organization. Strives for</td>
<td>Invested in own professional development. May require some coaching</td>
<td>Shows little interest in improving own performance or the performance of the organization. Develops professional skills only when asked.</td>
</tr>
<tr>
<td></td>
<td>continuous professional development.</td>
<td>to fully execute.</td>
<td></td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td>Comes to work with a positive attitude.</td>
<td>Usually comes to work with a positive attitude. Occasionally gets</td>
<td>Comes to work with a negative attitude. Has a negative influence on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>caught up in the negative attitude of others.</td>
<td>the work environment.</td>
</tr>
<tr>
<td><strong>Safety Awareness</strong></td>
<td>Demonstrates the behaviors of safety awareness in all aspects of</td>
<td>Demonstrates the behaviors of safety awareness in all aspects of</td>
<td>Performs work with little regard to the behaviors of safety awareness.</td>
</tr>
<tr>
<td></td>
<td>work.</td>
<td>work.</td>
<td></td>
</tr>
</tbody>
</table>
**High Medium Low Behavior Grid**

<table>
<thead>
<tr>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loyalty</td>
<td>Good communicator</td>
<td>Integrity - Responsible - Accountable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engaged</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Visionary</td>
</tr>
<tr>
<td>Team worker</td>
<td></td>
<td>Goal-focused</td>
</tr>
<tr>
<td>Safety aware</td>
<td></td>
<td>Good attitude</td>
</tr>
<tr>
<td>Resistant to change</td>
<td></td>
<td>Customer-focused</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Makes a difference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aligned behavior</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Problem solves</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self-motivated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resourceful</td>
</tr>
<tr>
<td>Inconsistent work effort</td>
<td></td>
<td>Capable</td>
</tr>
<tr>
<td>Poor communicator</td>
<td></td>
<td>Adaptive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transparent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rounding - Follow-up</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Capable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adaptive</td>
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<td></td>
<td>Transparent</td>
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<td></td>
<td></td>
<td>Rounding - Follow-up</td>
</tr>
</tbody>
</table>

**Strengths:**
- respectful — kind, courteous, generous, helpful, supportive, responsive, positive attitude
- engaged — curious and motivated to better their services and skills, exceeds expectations
- customer-centric attention — concern, compassion, aware of their needs, a good listener and communicator
- resourcefulness — solution and outcome-focused, team-leveraging capabilities, thinker
- adaptive — flexible, agile, responsive,
- long-term vision and goals — maturity and discipline in work effort, learning, planning, time management
- integrity — honest, ethical, hard working, responsible (reliable), timely (punctuality & delivery of services)
- capable — skills, knowledge, reasoning & analytical, interpersonal and team skills, self-motivated, safety-aware

**Weaknesses:**
- selfish — disrespectful of others, organization, work, mission, attitudinal (negative)
- poor communication skills — poor: listening, follow-up, forgetful, combative, defensive, critical, judgmental
- disengaged — bored, not motivated, avoids responsibilities, self-deceptive, self-absorbed
- unresponsive — inattentive to customer needs and feelings, priorities, promises, and deadlines
- resistant to change — unwilling to learn, grow, adapt, improve service
- lack of capability and capacity — underperform, unaccountable, inattentive to commitments and tasks
Behavior Change ~ Decision Making

Choice not Fear

~ Motivation by empowerment

Belief in “capacity”

to see a path forward

Thomas Goetz
Behavior Hardwiring

- Personalized Information
- In “context”
- Options, benefits, choices
- Connected to “action”

“Engagement is totally different from compliance.”

Thomas Goetz
Next-Gen E-Learning

- Capacity is increased by retrieval practice, over time
- Deep encoding takes “effort”
- Linked associations
- Multi-tasking doesn’t work

Most training ~ lost immediately

Dr. Alice Kim
Liars and Outliers:
Enabling the Trust that Society Needs to Thrive

• Moral Pressure
• Reputational Pressure
• Institutional Pressure
• Security Systems

“…you really need to have all four in action to be effective in creating a certain behaviour in your “society”.

Bruce Schneier
The Power of Habit
Learn, re-learn and hardwire, new concepts to be more efficient and effective.
Not adding complexity; reducing complexity.

Charles Duhigg
Cues initiate the habit. Routines basically are the habit. Rewards are the positive things that happen after you execute the routine.