Culture Analytics and Safety

John R Childress
Chairman, PYXIS Culture Technologies

It is better to be safe, than sorry.

An in-depth examination of many safety incidents will nearly always reveal a corporate culture that overtly or covertly supports unsafe behaviors and employee attitudes.

My first experience of this was in 1980 when I was contacted by the CEO of the Three Mile Island nuclear power plant. One of the plant's two reactors had suffered a partial core meltdown the year before. It was a major accident that crippled the entire plant and threatened the safety of the surrounding community.

I spent two years working with the plant's leadership team. We reshaped a culture hampered by independent silos, fiefdoms, technical arrogance and poor communication to create a team culture of shared objectives, transparency, trust, accountability and openness.

Since the undamaged reactor was restarted in 1985, the Three Mile Island plant has logged well in excess of 8 million safe worker hours, operated at over 90% capacity, and offset more than 95 million metric tons of carbon -- equivalent to taking 20 million cars off the road annually.

The importance of culture

Over the past few decades, cultural shortcomings such as pressure to adhere to impossibly tight schedules, the push for excessive profit objectives, arrogant management, infighting, greed and hubris have played a significant role in multiple business failures. The disastrous merger of Daimler-Benz and Chrysler in 1998; the demise of once-dominant companies including Nokia, Nortel and Kodak; the Volkswagen emissions data scandal; and the high-risk strategies of investment banks that triggered the global financial crisis of 2008 all stemmed, in part, from unhealthy corporate cultures.

When I started advising senior business leaders in the early 1980s, the importance of culture was not well recognized. Since then, it has become widely accepted that culture has a significant impact on business performance, both positively and negatively. A 2017 study by the National Institute of Corporate Directors found that 65% of the companies surveyed were either planning or had started a culture improvement program.

It's now firmly established that in many industries -- from automotive and airplane manufacture to offshore oil rigs and NASA space flights -- safety is highly dependent on company culture.

But despite its importance, culture is difficult to quantify and even harder to change. The statistics on culture improvement are surprisingly poor. Studies conducted by McKinsey over the last 30 years have repeatedly shown that up to 70% of culture change programs fail to deliver sustained improvements in business performance.

Would you schedule yourself for elective surgery with a 70% chance of failure?

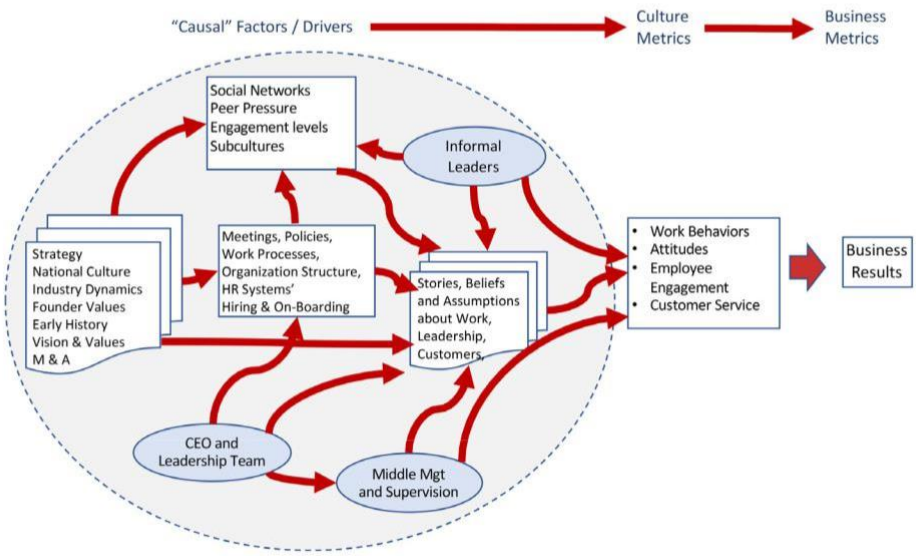
Taking a different approach

Why this poor success rate?

I believe the problem lies with the current academic models used to define and understand corporate culture. These models focus on employee beliefs, behaviors and worker habits. But are these really measuring the culture – or the results of the culture?

At PYXIS Culture Technologies, we see corporate culture as a network of organizational elements and social factors that combine to influence – and reinforce – employee behavior, work habits and beliefs. And as every systems designer knows, you can only change the outcome by changing the causal factors. Without fundamental changes in the organizational and social factors, the impact of culture change workshops and safety training courses will be short lived.

Culture-as-a-Business-System™



To enable leaders to better understand the drivers of employee engagement and behavior, we are pioneering a systems approach to visualizing, measuring and changing culture. Our goal is to enable lasting improvements to business performance. We call this approach Culture-as-a-Business-System™. By applying analytics and proprietary algorithms to company safety data, we identify and map the factors that underpin an organization's safety culture and drive its business performance.

Some of these 'culture drivers', such as training, management practices and incentives, are well understood. Others pass under the radar of most safety culture assessments. The PYXIS approach identifies previously invisible causal factors, such as peer pressure, onboarding, hiring profiles and recognition systems, all of which significantly influence how employees behave and work.

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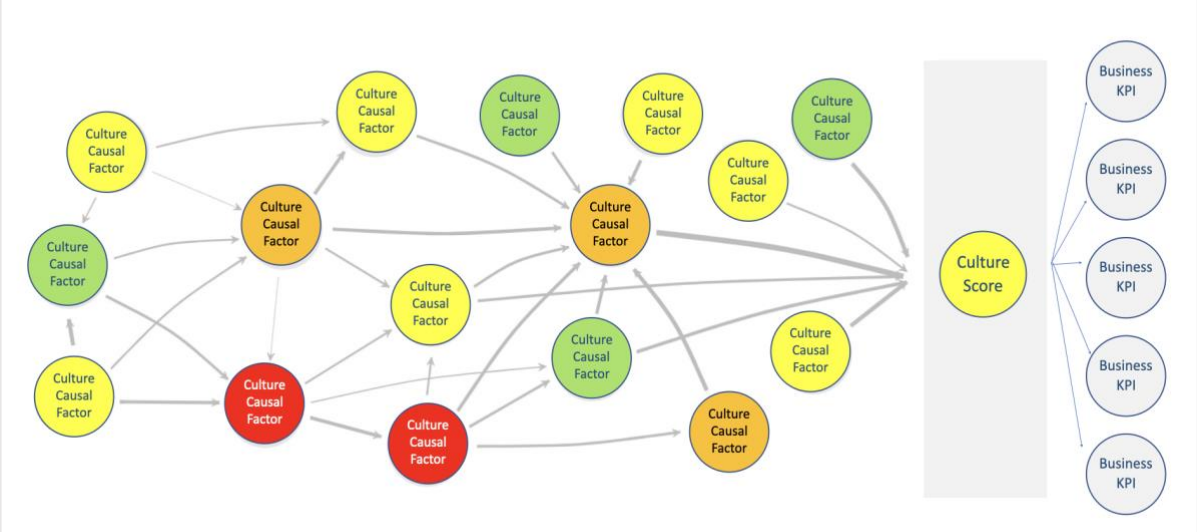
Mapping Safety Culture with a Digital Twin

With input and guidance from several companies committed to building a strong safety culture, we developed an ecosystem digital twin model of safety culture to help identify hidden safety risks. Below is an example of a culture map, showing the network of drivers, the overall effectiveness of the safety culture, as well as the impact that culture has on key safety business metrics.



Each factor (culture driver) in the safety culture system has its own effectiveness score (from 0-100%) and color coding showing some as enablers and others as risks to overall safety. The scores are calculated using a combination of internal company data, as well as expert reviews, assessments against best practices, and survey data.

Our algorithm is able to use both structured and unstructured data and can also calculate the relative impact that one factor has on another. Obviously, some drivers will have more impact on the overall effectiveness of the safety culture than others. As a result of mapping the safety culture, identifying hidden risks and implementing Best Practices, this utility achieved significant improvements in its safety culture.

As this chart shows, improvement in safety performance continuously improved over 7 Quarters.

Business Metrics Data Input										
Previous Data			Safety Metric	Safety Culture Data						
Q3 2018	Q4 2018	Q1 2019		Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
3	0	0	Lost Time Injuries	0	3	3	0	0	0	0
1	0	8	Incidents	9	10	12	4	0	1	2
0	0	0	Contact Incidents	0	0	1	0	0	0	0
1	1	1	Repeat Incidents	1	1	2	0	0	0	0
3	0	0	Internal Safety Violations	0	0	0	0	0	0	0
5	6	6	Near Misses	11	2	4	8	0	1	2
204	0	1	Lost/Restricted Days Away	180	14	76	0	0	0	0
22.1	22.1	22.1	Accident Severity Rate	2.21	27.09	114.94	0	0	0	0
ND	ND	ND	Worker Comp Claim	7	6	4	1	0	0	0

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It is important to understand that no culture assessment or survey is 100% accurate. Yet a safety culture ecosystem map provides greater insight than previous culture change models and helps management understand what really drives culture and where specific changes should be made.

Safety culture matters.

Our Culture-As-A-Business-System™ framework provides deeper insights than previous culture change models. With this approach, management teams can visualize culture and understand the real safety drivers, identify hidden risks, and implement specific changes to ensure safety and enhance business performance.

> "The PYXIS Safety Culture platform and map helps us identify the hidden drivers of our safety culture and make targeted improvements". ~ COO Electric Utility

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