TREDENCE



POINT OF VIEW

Exploration and Exploitation: The future mandate for an insights-driven business



Shashank Dubey Chief Revenue Officer & Co-Founder, Tredence Featured on

Entrepreneur

As the co-founder of an analytical business, I always look to the data for answers. However, there is more to successful businesses than analytical insights. In my opinion, most companies rely too much on analytical thinking and not enough on design thinking, which is essential for innovation and success.

The philosophy of exploration and exploitation

These two different strategies come together to help companies sustain and grow progress.

- Exploration Seeking innovative ideas and nurturing an idea mindset
- Exploitation Scaling that idea mindset

For example, when Tesla designs a breakthrough automobile, that is the Exploration mindset in action. Taking that first Tesla, then creating a foolproof process and a system to produce 100,000 Teslas every month is the Exploitation mindset. Both are essential—and balancing them is more challenging than many expect.

Exploration is a long-term mindset that involves risk and uncertainty—and the ongoing chance of failure—as well as a longer ROI orientation. Exploitation, on the other hand, is more predictable and less risky.



Exploration and Exploitation in an analytical organization

Exploration recognizes that the future might not be similar to the past and what has worked in the past might not work in the future. It urges experimentation and innovation. Exploration attempts to find opportunities in anomalies.

Exploitation posits that the future might be like the past. It involves historical pattern

recognition such as forecasting sales, drivers of customer churn and more. Most statistical analysis techniques are based on this mindset, rejecting anomalies as 'outliers.'

As leaders build and grow analytics organizations, they must balance these opposing forces.

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The ant analogy: lessons from the natural world

Before humans started exploring the balance, another species succeeded with this model.

As a species, ants have existed for over 160 million years. Back in the age of dinosaurs, ants were already 100 million old. Interestingly, ants have been more successful than human beings when it comes to survival, facing a variety of environmental fluctuations and surviving hostile and ever-changing conditions.

Business lessons from the ant analogy: Random and continuous experimentation

These small but mighty creatures offer some important lessons for the business world.

Random experiments can uncover hidden outliers, with 70% of genetic mutations that happen randomly, only 30% occur due to environmental stressors, mutations support genetic diversity. What may seem like an 'outlier' mutation may become an advantage for survival as the environment changes.

Continuous experimentation is the only way to navigate continuous change, with multiple mutations that happen across species at the same time. Rather than predicting the future, nature is creating multiple survival options to manage uncertainty. Business lessons from the ant analogy: Unbiased reward mechanisms and the winning experiment

Unbiased reward mechanisms driven by market experiments lead to survival of the fittest. Genetic variations that adapt to the changing environment are rewarded. Nature rewards survival of the fittest through genetic variation.

The wining experiment must rapidly multiply-shift from exploration to exploitation. Every ant colony has one queen ant responsible for laying eggs and increasing the ant population. In an environment with multiple ant colonies being flooded by water, if a queen ant in a particular colony possesses the required genetics to survive the flooding, all the other ant colonies will perish, and that particular colony will survive.

Naturally, nature balances both exploration and exploitation artfully, providing a template for businesses of all sizes to follow.



From ants to an analytical organization

Organizations can take these lessons a step further, applying analytics and design thinking to spark more innovation and growth.



Spot the mutation by studying the edge phenomenon – opposite to regression driven pattern matching thought process. Innovative ideas and new opportunities are hidden in outliers and idiosyncratic data points, not in historical patterns.



Let the market determine

rewards by setting up an unbiased reward mechanism so bad ideas are shot down quickly and good ideas buy time for longer experimentation. The market, rather than the manager, should make the call.



Build a co-innovation platform where ideas can scale, moving from Exploration to Exploitation. Your queen ant can rapidly



Listen deeply by setting up a small team to continuously discover anomalies by looking at your data, market data, and listening to your most unusual customers as well as your best and worst performers in the field.

It is critical for analytical organizations to look beyond historical data, recognizing that the future may be different from the past. Balancing Exploration and Exploitation leads entrepreneurs and organizations to greater insights success and survivability.

multiply the winning idea.



Do continuous testing by setting up rapid test and learn platforms to test ideas in the hands of the end user. Remember: 50% accurate improvements are infinitely better than 100% accurate recommendations.



About the Author



Shashank Dubey Chief Revenue Officer & Co-Founder, Tredence

Shashank Dubey, Chief Revenue Officer and Co-founder of Tredence, is an analytics thought leader, strategic thinker and the driving force in transforming Tredence into an indispensable analytics player in the market. An entrepreneur with keen market insights, he co-founded Tredence from a three-bedroom apartment into a world-class interdisciplinary team of data and behavioral scientists, AI and ML engineers, business analysts, product managers and agile coaches. He has more than 15 years of research and consulting experience in applied mathematics and analytics.

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