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whitepaper

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The Paradox of Seeds

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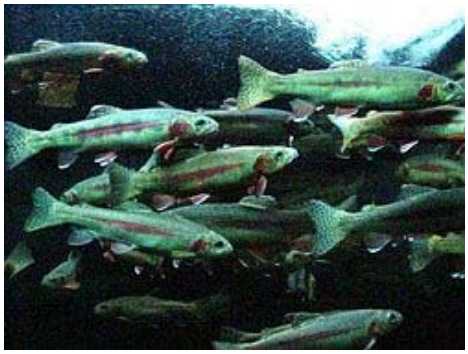
Nature is frugal
It is hard to look into nature and find waste. Trees do not grow branches that cannot absorb sunlight, fish do not grow bigger than the food supply that can support their size, and flowers do not consume more water than their leaves can use.

These creatures know that branches that are blocked from sunlight, fish that grow bigger than their available resources and flowers that are flooded with too much water will diminish and may perish.

Consider the maple tree
A maple tree grows up and matures, adapting to its environment. It seeks the sunlight and ambitiously extends its limbs upward and outward. If neighboring trees compete for the light, the tree will grow tall and slender. Like a darning needle, it will push skyward to insert itself at the top of the canopy before trying to elbow its neighbors and steal more of the light. Its trunk will remain slender, knowing that its neighbors will collectively stand against the buffeting of the wind.

If the same tree grows in an open meadow, however, it would gloriously spread out a broad umbrella of leaves from an early age. It would bask in the light and grow to show off a classical 'lollipop' silhouette. Its trunk would grow stout and broad for it has sufficient nourishment to invest in this massive growth and would need the strength to stand alone against the wind.

In much the same way, the rainbow trout will regulate its own growth. Native trout will never grow faster than the available food and environment will allow. Fishermen can always tell



if they have landed a native rainbow because it will typically be smaller than those released by the fish and game department, which have been fed a regular diet in a fish farm.

Similarly, the sunflower can grow to over 5 feet tall, and will only prosper where the moisture of the soil is adequate to support its ambitious growth, but not so damp as to bloat its stalk and cause it to fall over.

The maple, rainbow trout and sunflower are in balance with their environment, growing as much as their abilities and environment allows.

The paradox
In this world of efficiency, of balance and of parsimony, there is, however, a paradox. For, in nature, there is one area of lavish exhibition, of great over-production, and of flamboyant display.

When it comes to growth, nature has learned that it must be willing to extend itself in order to ensure the survival of the next generation. The maple tree will produce tens of thousands of helicopter seeds that can be carried by the wind to find fertile ground outside its shade. The brook trout will produce over a million eggs, knowing that many will become the lunch of rival breeds, and that its fingerlings may become their dinner. The sunflower will overshadow its bland green leaves and produce tantalizing yellow petals to lure pollinators to help in fertilizing its precious cache of hundreds of seeds.

Scientists tell us that mammals follow this same path, producing more than 100 million sperm per day to help ensure that future generations are perpetuated.

So, how can nature be frugal and lavish at the same time? How can a creature that is efficient in every aspect of its self-development and sustainment be willing to lavishly invest in future generations through an overabundance of seeds, sperm, and flower petals?

To solve this paradox, we look deeper into the manner by which we judge what is necessary for survival of the family line. We recognize that a

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plant or animal that does not invest to compete with others of its kind is more likely to fail, and perhaps may not be able to continue the family line. Nature, through this competition, has ultimately set the bar high when it comes to producing future generations.

Is frugality lost? The paradox explained

And, where then, is the frugality? The paradox of seeds simply states that a creature will invest the least possible amount per each seed necessary to enable it to effectively compete and ensure the continuation of the family line.

In other words, nature succeeds by lowering the cost of each seed, such that it can produce the volume of seeds necessary to compete and thereby continue the family line.

A way forward

Through open innovation, companies can apply this paradox to their corporate growth challenges. Just as you would never see a maple tree produce one helicopter seed, nor an oak tree produce one acorn, you never see successful companies rely upon just one new innovation.

In order for companies to compete, they need a healthy number of exploratory projects. Projects that are small and nimble enough to travel like maple helicopter seeds and explore new markets; that are well shaped like acorns to be carried by ingenious squirrels and adopted into new areas of technology; that are sufficiently buoyant like coconuts to be carried to new oceans of opportunity.

Summary:

Using open innovation, companies can lower the cost of individual innovation projects in order to increase the size, diversity and creativity of their early stage portfolio to better compete and achieve their goals.

Growth, simplified.
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Maple seeds courtesy of: Flikr Galileo55
Trout courtesy of: Flikr Trout Lure
Sunflower courtesy of: Flikr Esdras Calderan