



# Bees In A Hive

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**Do you have topic ideas? Comments or questions?**

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**W**e admire the efficiency of bees in a hive – their uncanny and almost human-like organization skills. They have mastered cooperation to a high level, produce honey of superb and consistent quality, stave off competitors successfully and propagate their numbers unflinching. If only we could be as efficient with our own businesses!

## 1. What Are the Methods of Bees?

Bees operate on what are called Chaos methods, which start off quite disorganized but from this chaos, in the long run, create the best solutions. How to explain this paradox? Bees do not obediently follow the orders of the queen bee. She is nothing but a baby factory. Each bee works independently. They make their decisions and act according to simple considerations – consistent with simpler brains of insects. It is driven by 'local' decisions resulting in 'global' solutions.

The worker bee has two choices, to harvest pollen for honey making, or to help the queen with the onerous job of raising 10,000 kids. If while out harvesting, the bee notices lots of other bees from the hive, also harvesting, she (most workers are female) decides that "I will probably be more useful in the nest" and back to the hive she goes. That's it. Either harvest or upkeep. Nothing complicated. 'A' happens or 'B' happens. Each day, the worker can make that choice according to the circumstances of the moment. It is a totally local decision without consulting a higher authority. Throughout the hive, bees have different roles: dealing with garbage, or even deaths of other bees. But in all cases each bee makes simple A-B decisions according to the latest information before them. The grand result of all these 'local' decisions is an elegant 'global' solution – the marvellous workings of the hive. This method is called Chaos theory because it works from the bottom up without a planned top-down approach. The autonomy of the individual to make choices, according to the latest information, provides the power.

## 2. The Bees Are Not Alone

Besides bees, wasps and ants work on these same principles; but so do birds as they swarm. Birds look at their neighbour to sense if they are going up or down, left or right and follow the starting motion of the bird beside them. The result of this 'local' decision is a 'global' solution of the entire flock of birds moving almost in unison – up and down, back and forth. So do fish in a school. The V formation of Canada geese works on the same method. "As I fly beside my fellow goose, I notice the wind pressure being slightly lighter if I move a few feet behind him and get

into his slipstream (A or B). I can choose to stay beside him or I can make my flying a bit easier by being behind him." The next goose does the same and so a line forms at an angle. They can locate themselves either to the left or the right of the others, resulting in the traditional V formation. All geese fly in V formations but not all V formations are the same. In fact, no two V formations are the same. The global solution is the same (a V formation) but the local details are different. Chaotic formation is not limited to the animal world. Snowflakes fall from the sky based on continuous A-B options regarding moisture, or temperature or surface tension. All snowflakes have the same global result, a diaphanous hexagonal shape, but no two snowflakes are alike because each set of details is different. How about a maple tree? All its leaves are maple leaves, but no two leaves are the same. And in the human world, all cities evolve the same way with merchant areas, rich areas and poor areas but as different in detail as Ottawa is from Edmonton.

## 3. Conclusions

In the brevity of an article, this science called Chaos Theory cannot be appropriately justified, other than to tell you it leads to the best way of getting things done and includes among its credits: human evolution, the formation of trees, embryos, shorelines and hurricanes. Application of this same method has led to CCCC solving over 700 'impossible' business problems successfully for clients. Let's pass on some of today's conclusions to you:

- Make more decisions rest with people at the bottom
- Try something, see where it leads, add to it, and then move onward from there
- Simple local decisions lead to elegant global solutions
- Global solutions may be the same, but the details will be different
- Don't fear chaos; out of chaos, comes order

For more details, ask for the specific CCCC paper: Elements of Chaos Theory.

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