

## Monarch Antenna

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#### Background:

Monarch Antenna is a spin-off from Delphi Automotive. It is a partnership between Delphi, NASA, Automation Alley, Ann Arbor Spark, Michigan State University, The University of Michigan, Purdue University, Virtual EM, SC Solutions, and SmartSynch.

Its core technology is a self-structuring antenna (SSA) consisting of a matrix of small antenna segments connected by switches. The system uses a proprietary algorithm to activate various combinations of these antennae and selecting the one that gives the best performance. The antenna can be dynamically restructured as signal conditions change, ensuring optimal signal reception.

This case study focuses on Delphi's intrapreneurship processes, spin-off strategy, and specifics related to Monarch Antenna's technology and development.



#### Outline:

1. Technical Discussion
  - a. The Birth of Monarch Antenna .....(1:33)
  - b. How It Works .....(2:34)
  - c. Antenna Optimization Using A Genetic Algorithm.....(0:41)
  - d. Building a Team.....(1:54)
  - e. "The Skunk Works".....(1:55)
  - f. Cost Considerations.....(1:05)
  - g. Growth Strategy .....(0:23)
2. Business Discussion
  - a. Innovation at Delphi .....(1:22)
  - b. Identifying Intellectual Property .....(1:16)
  - c. Evaluating Intellectual Property.....(2:36)
  - d. Other Markets.....(1:37)
  - e. Structuring The Business .....(1:37)
  - f. Other Spin-Offs .....(1:44)
  - g. Definition of Entrepreneurship .....(0:39)
  - h. Traits of Entrepreneurs .....(1:11)
  - i. Entrepreneurship Transcend Domains .....(0:30)
  - j. Advice For Academia .....(2:47)