MATLAB & Financial Services

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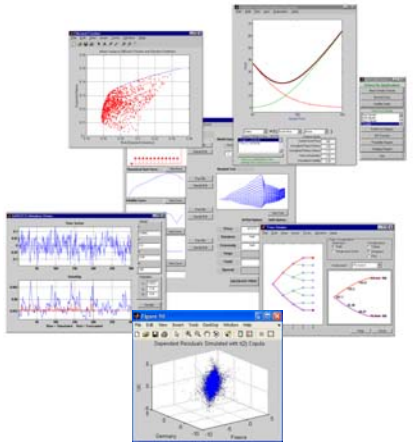
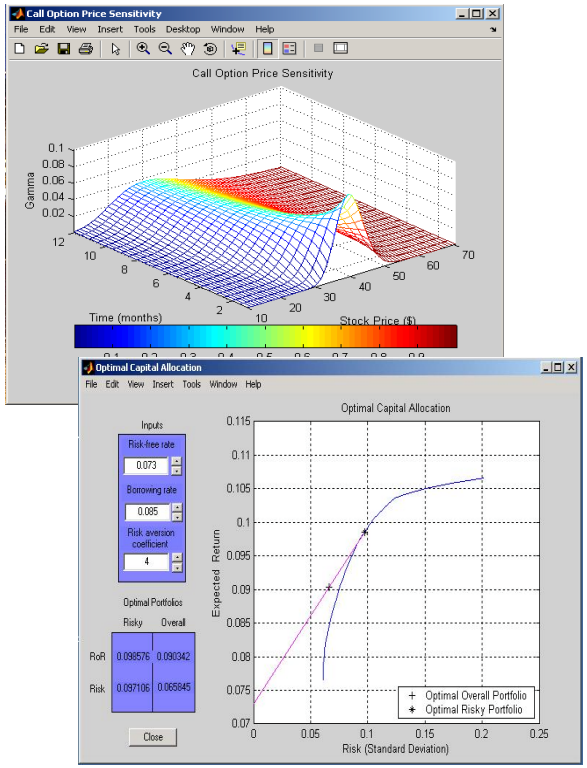


MATLAB & Finance

10 years ago

- Financial market was an incubation market for The MathWorks.
- MATLAB and The MathWorks did not have name recognition in the industry.
- Refocused the group and redirected the development efforts to establish the product line as a leading development environment for the financial services industry.



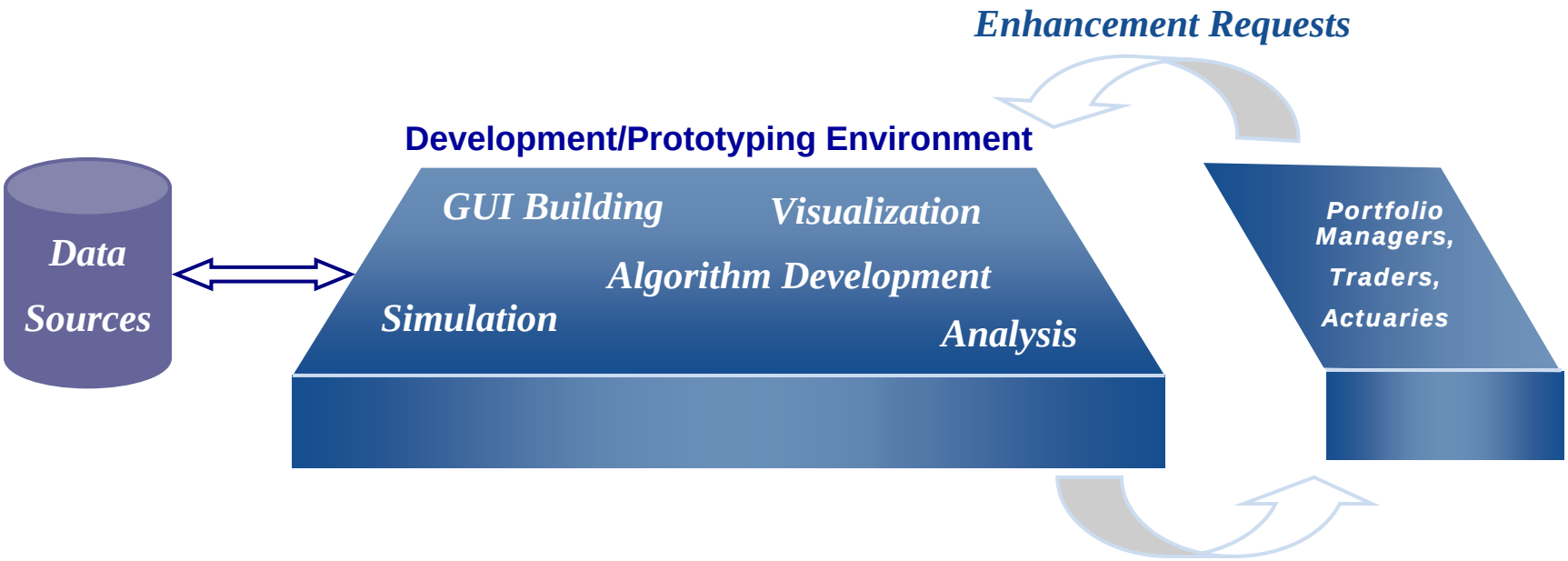
Today

- Financial market is the 4th largest Industry for the MathWorks
- MATLAB is now recognized as one of the leading financial development platforms.
- 3rd party vendors constantly talk to us about integrating into the MATLAB platform.

Why MATLAB is used in Financial Industry

- **Faster model development in MATLAB.**
  - Large set of available functions enable the user to build models much more rapidly.
  - Viewable source code enables users to modify functions and include proprietary business rules.
- **Greater scalability with MATLAB.**
  - MATLAB can handle larger data sets than Excel.
- **Reuse their existing libraries within MATLAB.**
- **Migration path from the customers existing environment to MATLAB.**
- **Ability to integrate MATLAB models into production systems.**

Financial Model/Algorithm Development



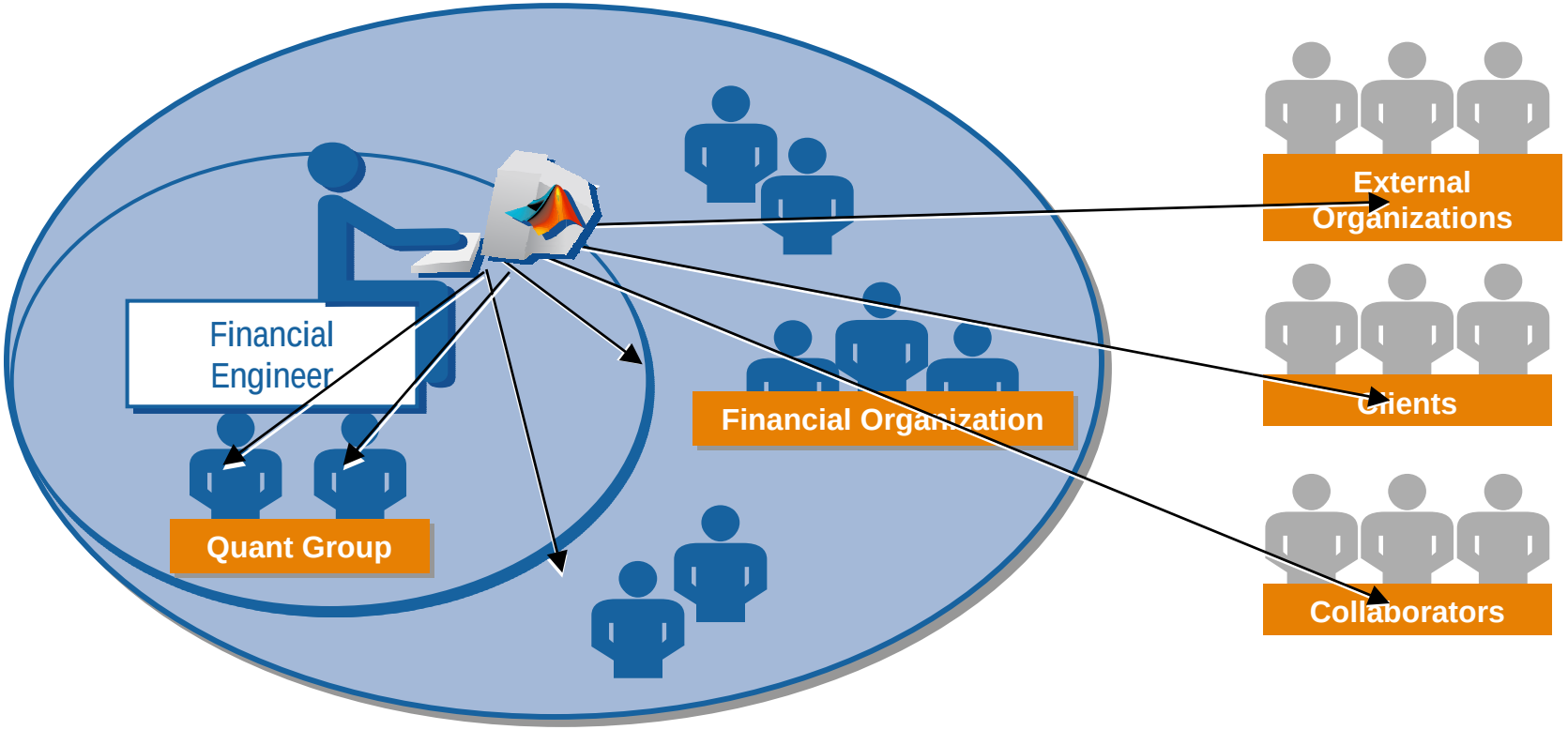
Traditional Tools Used:

- Excel
- VB
- C/C++
- Third Party Libraries

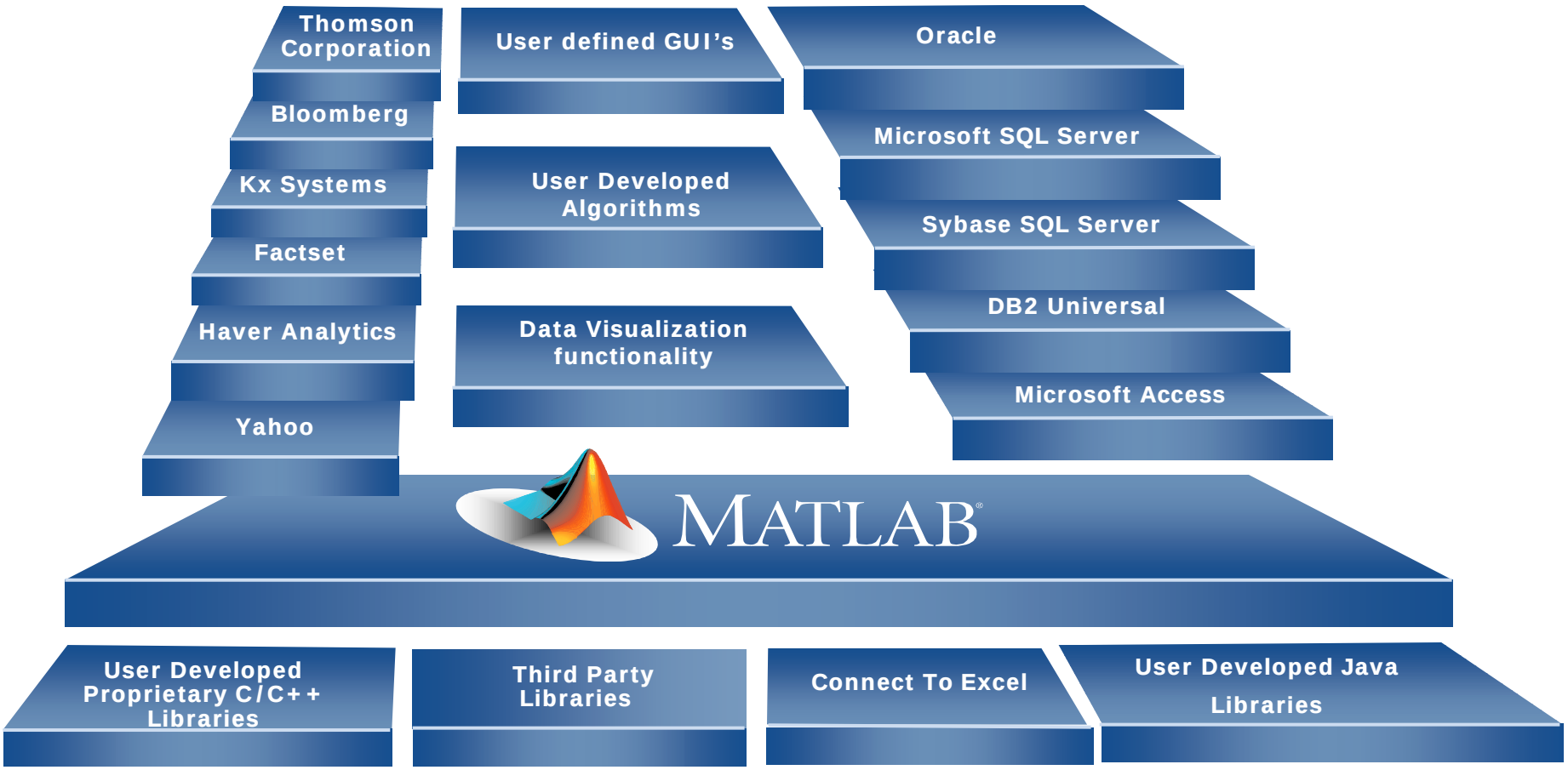
Building a Financial Modeling Platform

- **Goals:**
  - **Enable customers to rapidly develop and deploy MATLAB applications onto the desktop.**
  - **Seamlessly integrate MATLAB generated components into other languages, applications and production systems.**

MATLAB: A Financial Engineering Platform

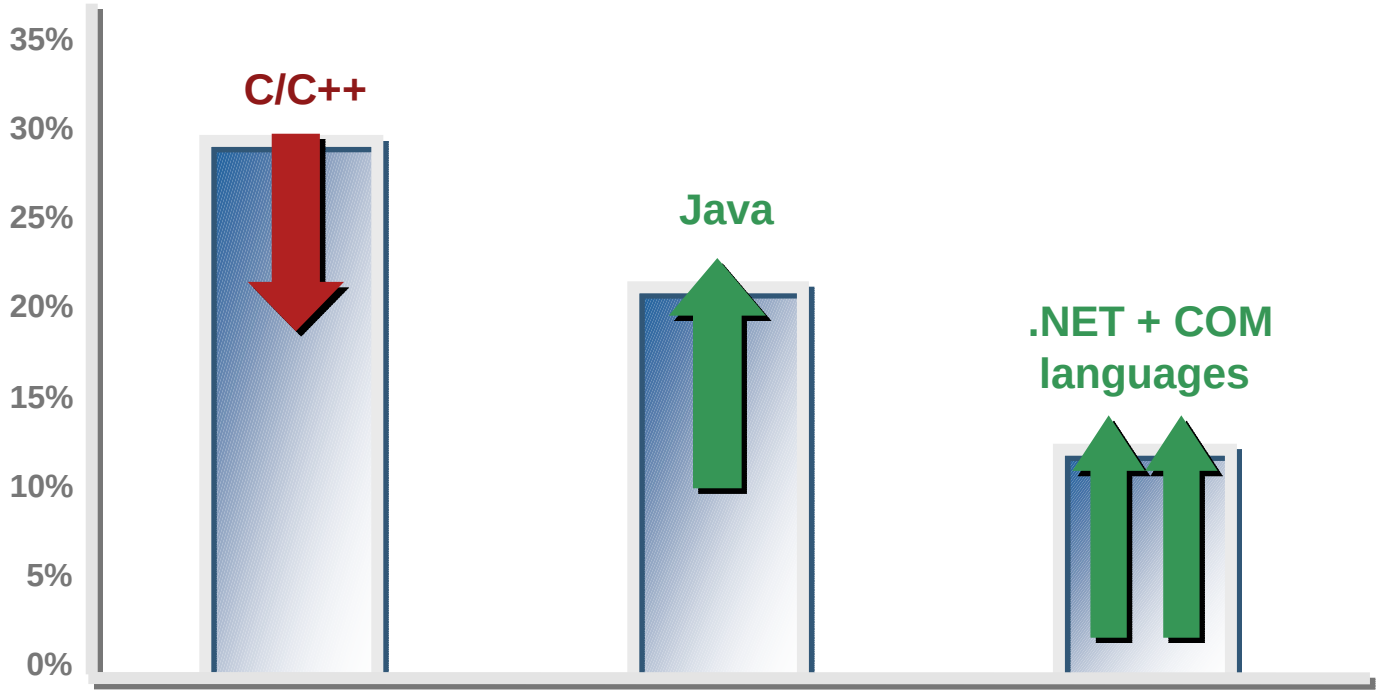


MATLAB: A Financial Engineering Platform



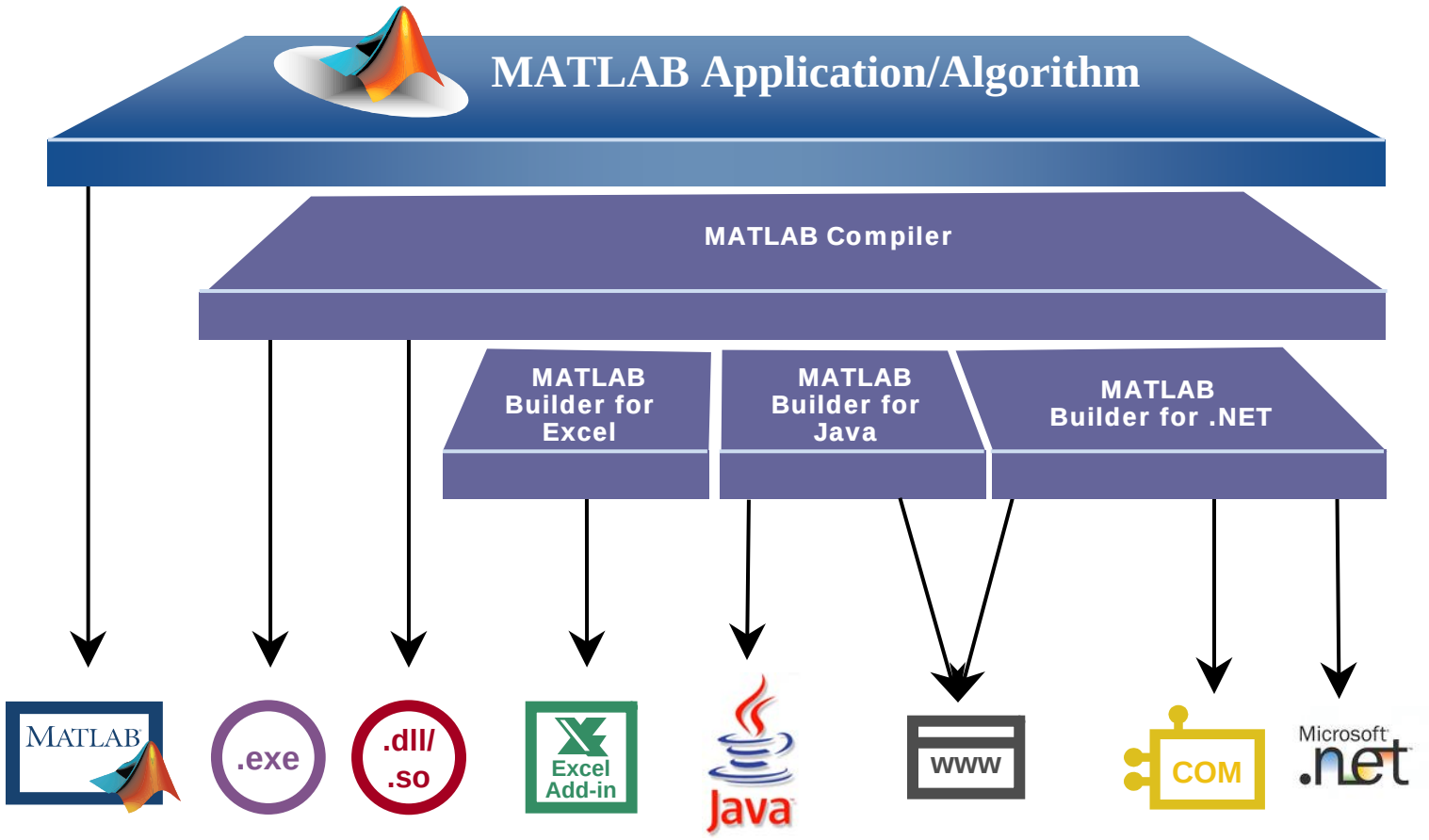
Programming Languages:

C/C++ share declining while .NET and Java grow

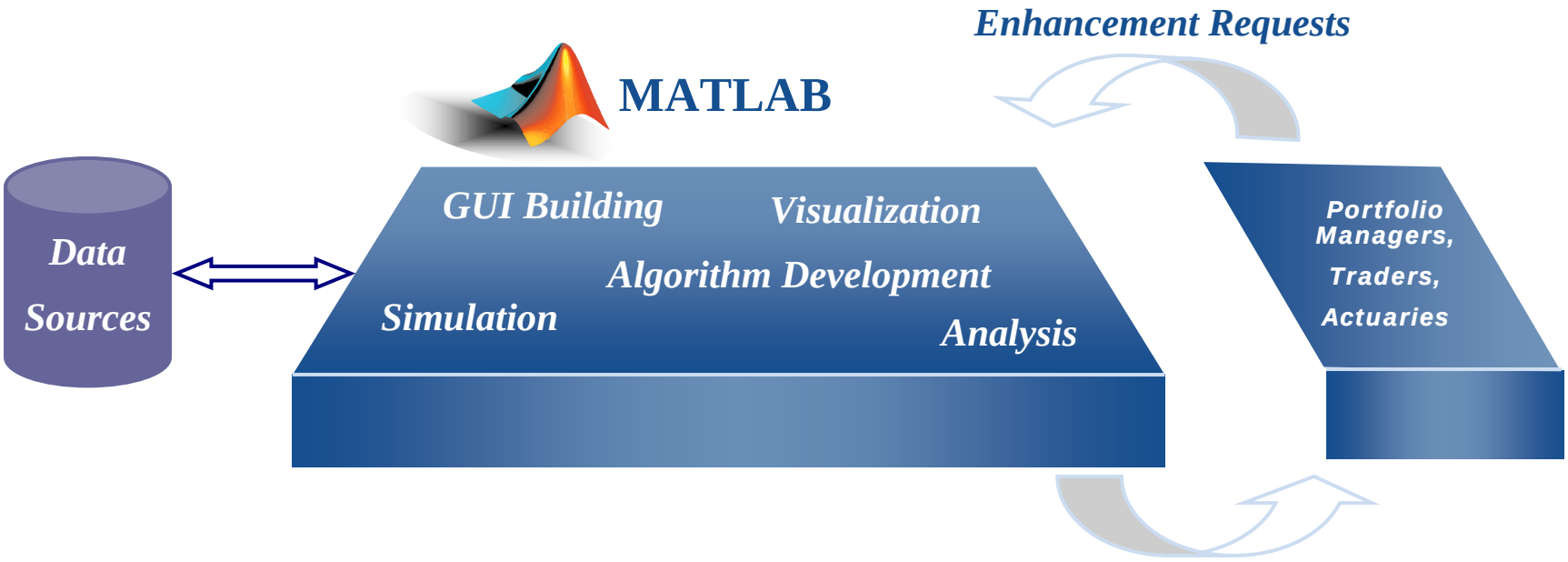


(Arrows Show Trend From 2004 to 2005)

Deploying to Multiple Targets



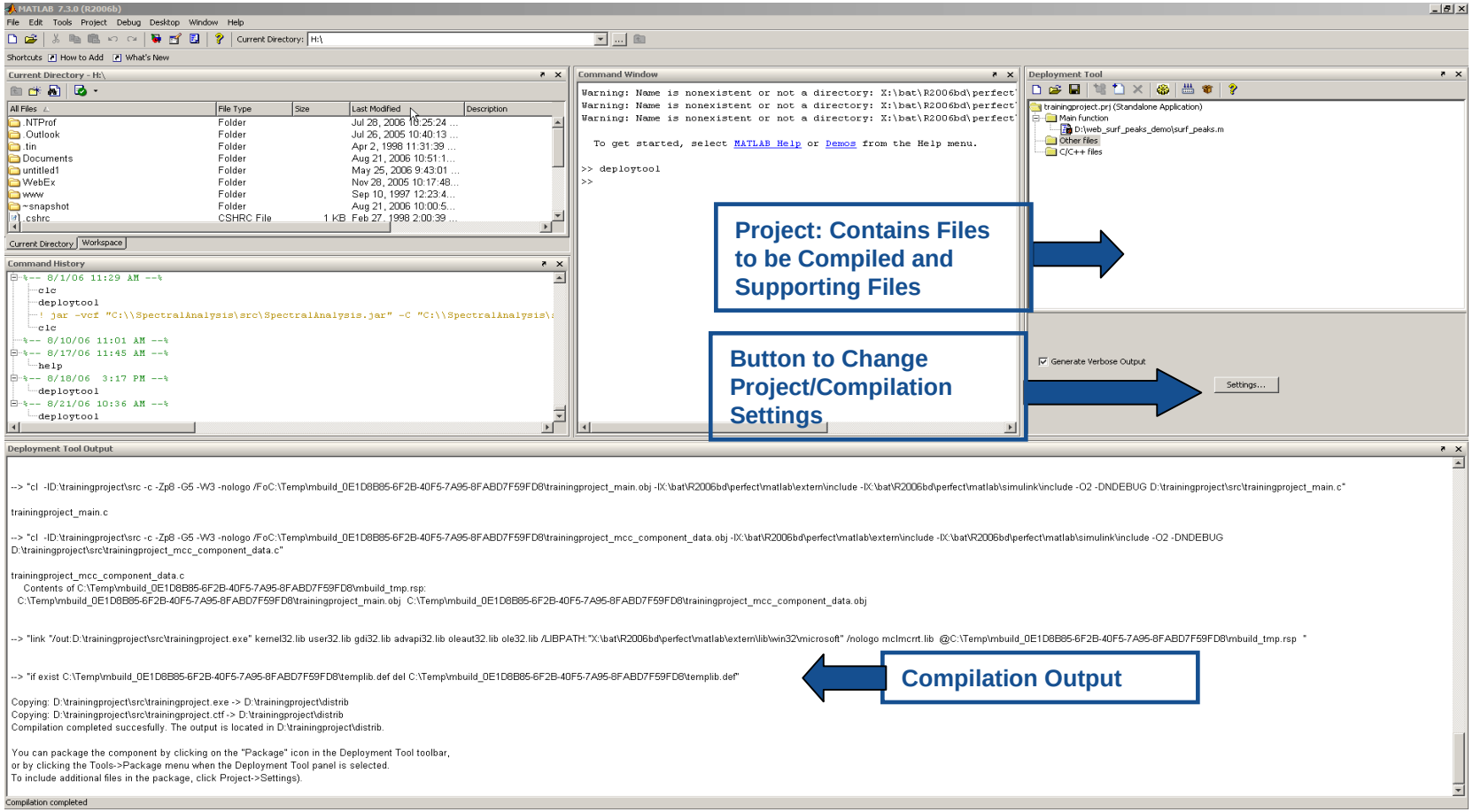
Deploying with MATLAB



Traditional prototype to production system port
… development timeline **2 weeks ~ 6+ months**

MATLAB prototype to production system
… Push button in the new project manager

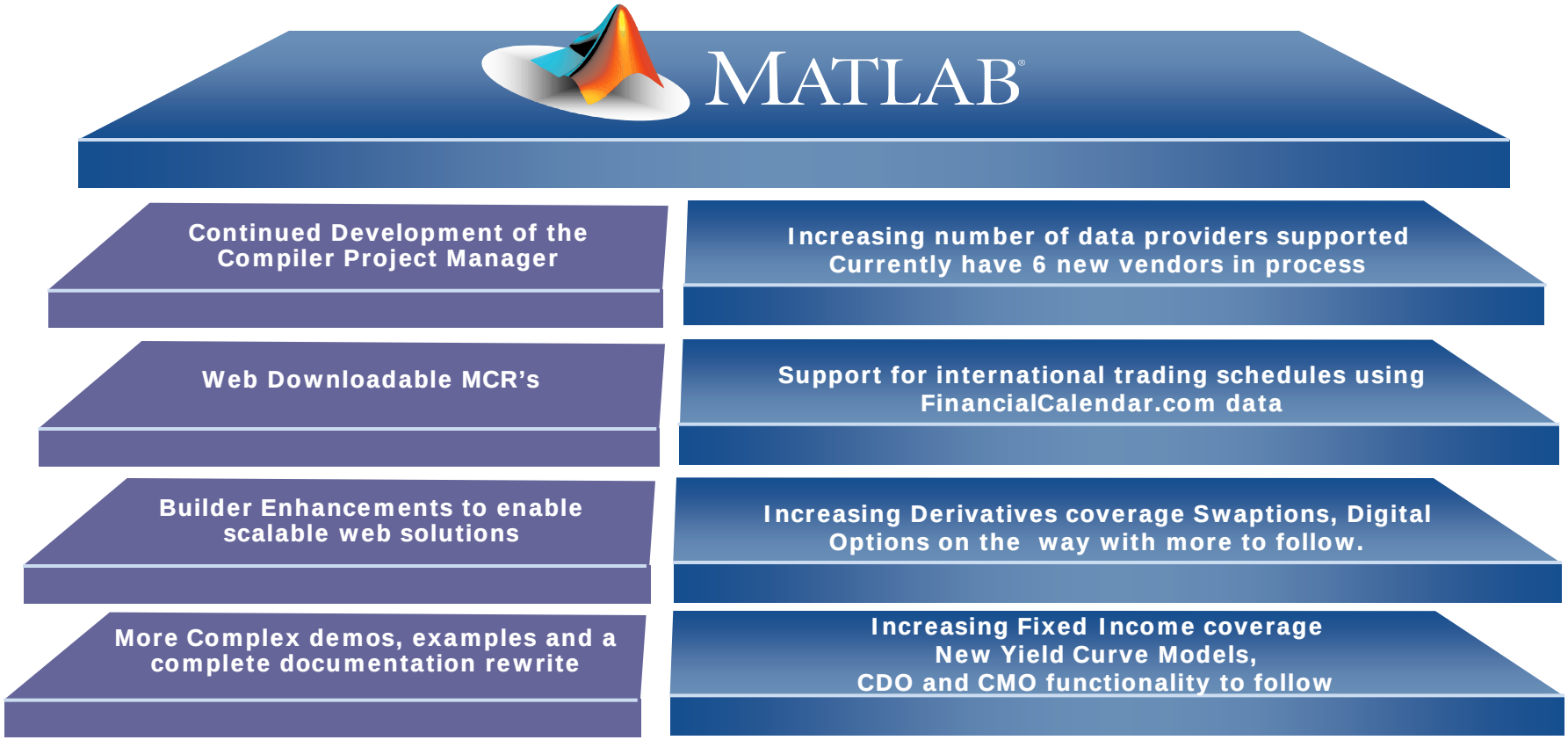
2006b: Compiler Project Files



Future Directions

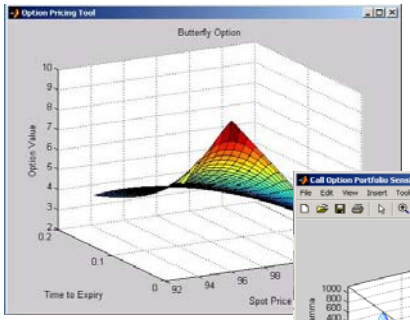
- **Strengthen and improve financial products**
  - **Incorporate the customer feedback over the next several product releases**
    - **New financial functionality**
    - **Data Sources**
- **Compiler & Builder upgrades**
  - **Continued focus on easier deployment**
  - **Java Builder**
  - **.Net Builder**
  - **Excel Builder**

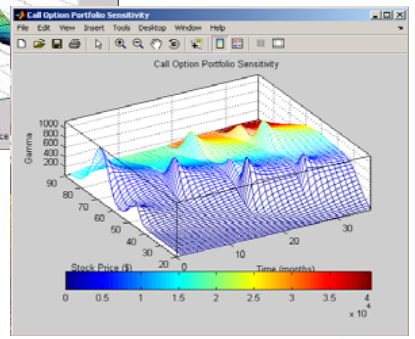
MATLAB: Building the Platform

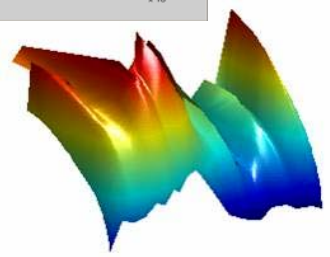


Future Plans … Customer Feedback

- **Developers attended marketing seminars and customer visits worldwide over the last ten years.**
- **The Financial Development Team held Customer Focus Group meetings in**
  - **2004**
    - **Boston**
    - **New York**
    - **London**
  - **2005**
    - **Zurich.**
  - **2007**
    - **Chicago.**
  - **2008**
    - **Europe (Venue TBD)**
- **Work with leading professors in business schools.**







Componentization .. Embed MATLAB algorithms Across the Enterprise