EDA In Crisis –

-- Should I Stay Or Should I Go ?

DAC 09 Panel:

A Personal Perspective

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Personal Perspective:

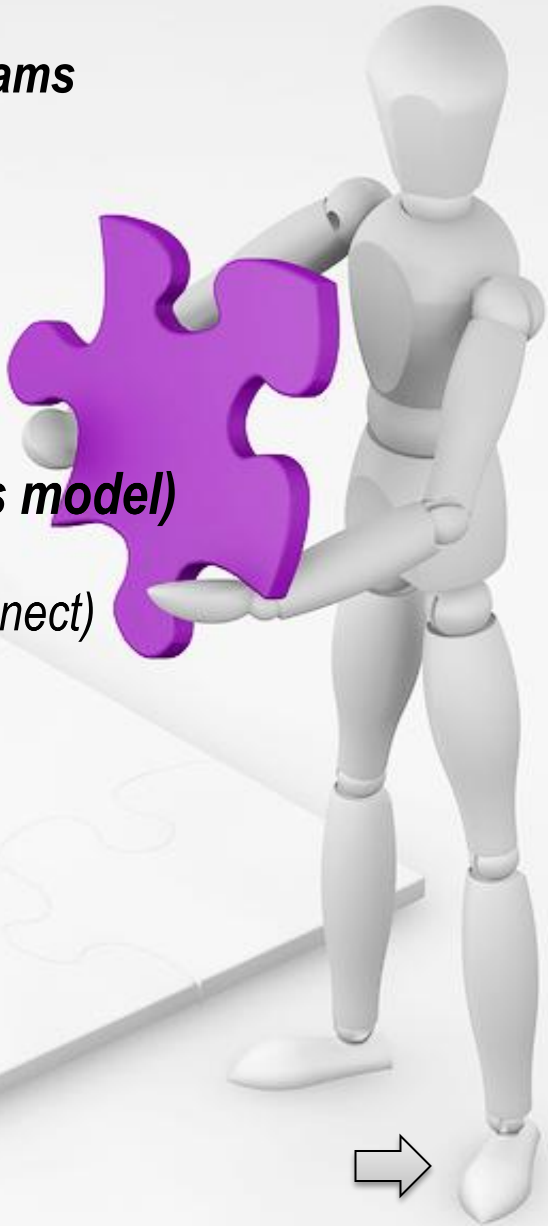
- ***Early 2008 (BI): Left Cadence to find next big thing.***
  - *Hot Areas at the time: Social Networking ? Cleantech?*
  - *How does this connect with 25+ years EDA/Semiconductors ?*
  - *How does one stretch into new areas while still leveraging core competencies ?*
- ***Last 15 months have developed a perspective on topic***
- ***Conclusions:***
  - *The next big markets will likely need EDA technology*
  - *We may not call it EDA*

“Map of Industry”:

- ***High Level:***
  - *$1 Trillion Electronics marketplace*
  - *$200 Billion Semi-Conductor*
  - *$4 Billion EDA*
- ***Market Driven by “Mega markets”***
  - *Information Technology (first wave)*
  - *Internet Backbone (second wave)*
  - *Mobile Consumer (third wave)*
- ***All three Markets saturating and commoditizing (that was before the recent recession)***

EDA Market Drivers:

- ✓ ***Information Technology:*** ***IDM focused (internal EDA teams dominate)***
  - *Growth Driver: EDA from internal to commercial context.*
  - *Growth Driver: Productivity in the digital flow*
- ✓ ***Internet Backbone: Standard Parts Focused (fabless model)***
  - *Growth Driver: Mixed Signal (high performance interconnect)*
  - *Growth Driver: FPGA fabrics*
- ✓ ***Consumer Mobile:***
  - *Growth Driver: low-power design*
  - *Growth Driver: RF design*



EDA Business Observations:

- ✓ ***Market inherently low growth (many sins committed in order to accelerate growth)***
- ✓ ***Market is not really a market (rather it is a collection of micro-markets)***
  - *Open to startups in new areas*
  - *Very difficult to displace incumbent*
- ✓ ***Previously "niche" technologies can quickly grow based on end vertical market growth.***
  - *Ex: Analog, Mixed-Signal, RF*

EDA Business Drivers: Successful Product Flow

- ***Timeframe:***
  - *Year 1-2: R&D development*
  - *Year 3: Seed FAE, 3-4 customers…$2-3M revenue*
  - *Year 4: Ramp sales force... $10-12M in revenue*
  - *Year 5-12: Cash Cow stage…excellent margins..*
  - *Year 13-15: time for re-architecture..*

- ***Lessons:***
  - *It is a long road*
  - *Solution needs to be available when market "pops"*

What does this all lead ?

- ✓ ***What are the key next mega-markets ?***
  - *My Guess:*
    - Consumer Medical Devices (Health Care)
    - Electronic Grid Infrastructure (Energy)

- ✓ ***Key Characteristics of both markets:***
  - *Potential for large volume (parts and data)*
  - *Currently consumes a very large percentage of GDP*
  - *Technology has potential for a significant solution.*

What does this mean from a technology POV?

✓ ***Medical:***

- *Traditionally uninteresting market due to limited volume*
- *Missing many of the key innovations developed in IT*
- *A stratified view of health treatment does not exist.*
- *Medical EDA anyone ?*
- *Lots of opportunity… and lots of challenges*

What does this mean from a technology POV?

✓ ***Energy:***

- *Headline: Many inefficiencies between generation and consumption…some say 50% loss*

- *Lots of spaces of focus (generation, materials, etc)*

- *Smart Management of devices, homes, cities, regions can lead to significant savings*

What does this mean from design POV ?

- ***Products have different stress points vs today's "mega" markets***
  - *Lifetime of Products (10+ years not unusual)*
    - Reliability
    - Obsolescence
    - Evolvability
  - *Design Style looks like old style control systems*
    - Sensor, Analog, DSP, Control, drive control
  - *Product Lifecycle Management has increased importance*
- ***Significant opportunities for design automation***

What am I doing ?

- ***Making bets in core technologies important in these spaces ?***
  - *Wireless Power:* *www.wipower.com*
  - *Medical Infrastructure:* *www.etrolz.com*
  - *Excellent learning vehicles*
- ***Making Bets in EDA***
  - *EDA for LLC products:* *www.systemcenteringsolutions.com*
  - *Manufacturing for "low volume":* *www.direct2silicon.com*
- ***Thinking about how EDA will evolve with Mcad, PLM, ESW***
  - *Intel/Windriver and IBM/Rational are interesting transactions*

What should you do?

- ✓ **_Develop your own world view_**
  - *mine may well be flawed!*
  - *mine is developed based on my own perspective*
- ✓ **_Establish clearly your key core competencies_**
- ✓ **_Position yourself to be educated quickly:_**
  - *University/Research community useful for technology ramp up.*
  - *Investor Information (10K, etc) useful for business ramp up*
  - *Network through your core competencies*
- ✓ **_Test your world view often !_**

Thank You……

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