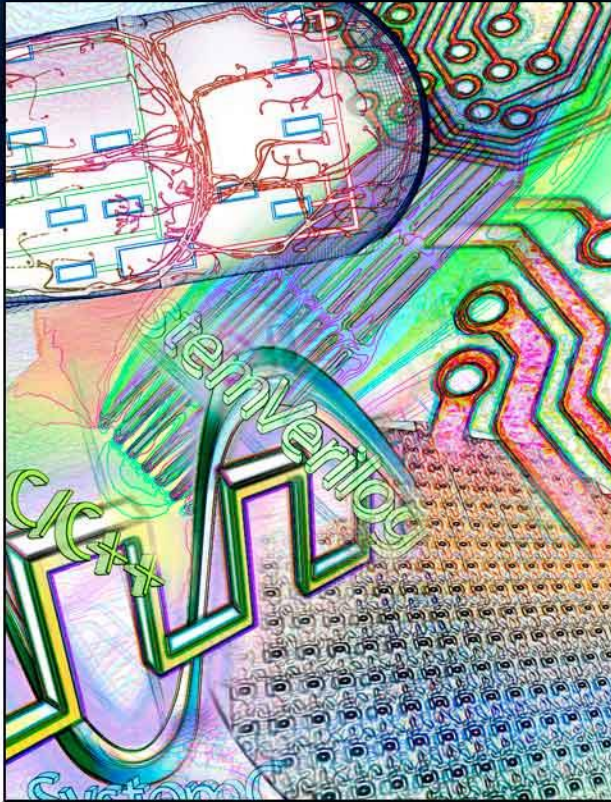# International R&D in EDA – Perennial Search for Talent & Ideas

Serge Leef

Vice President and General Manager
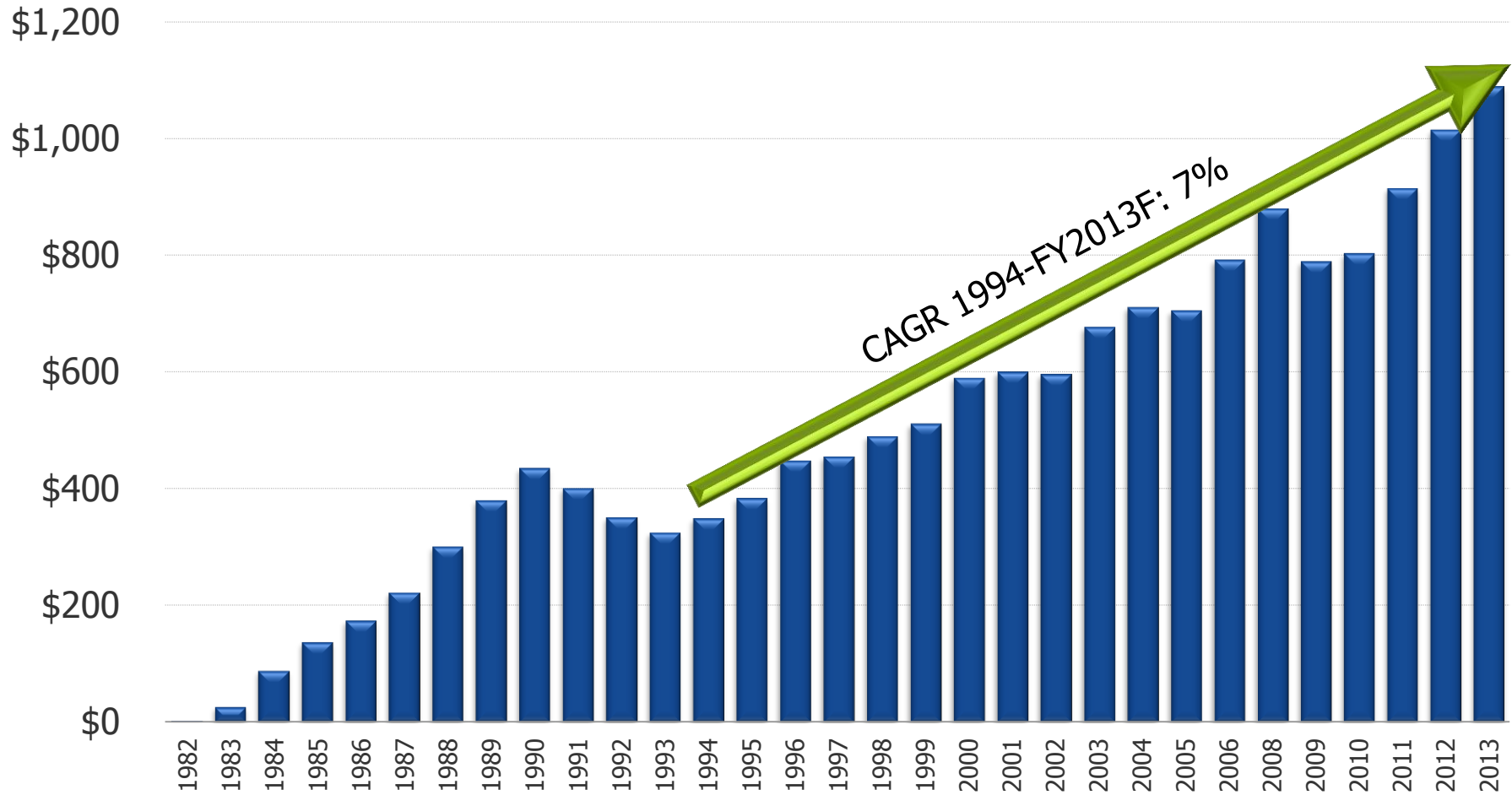
- New Ventures
- System Level Engineering Division

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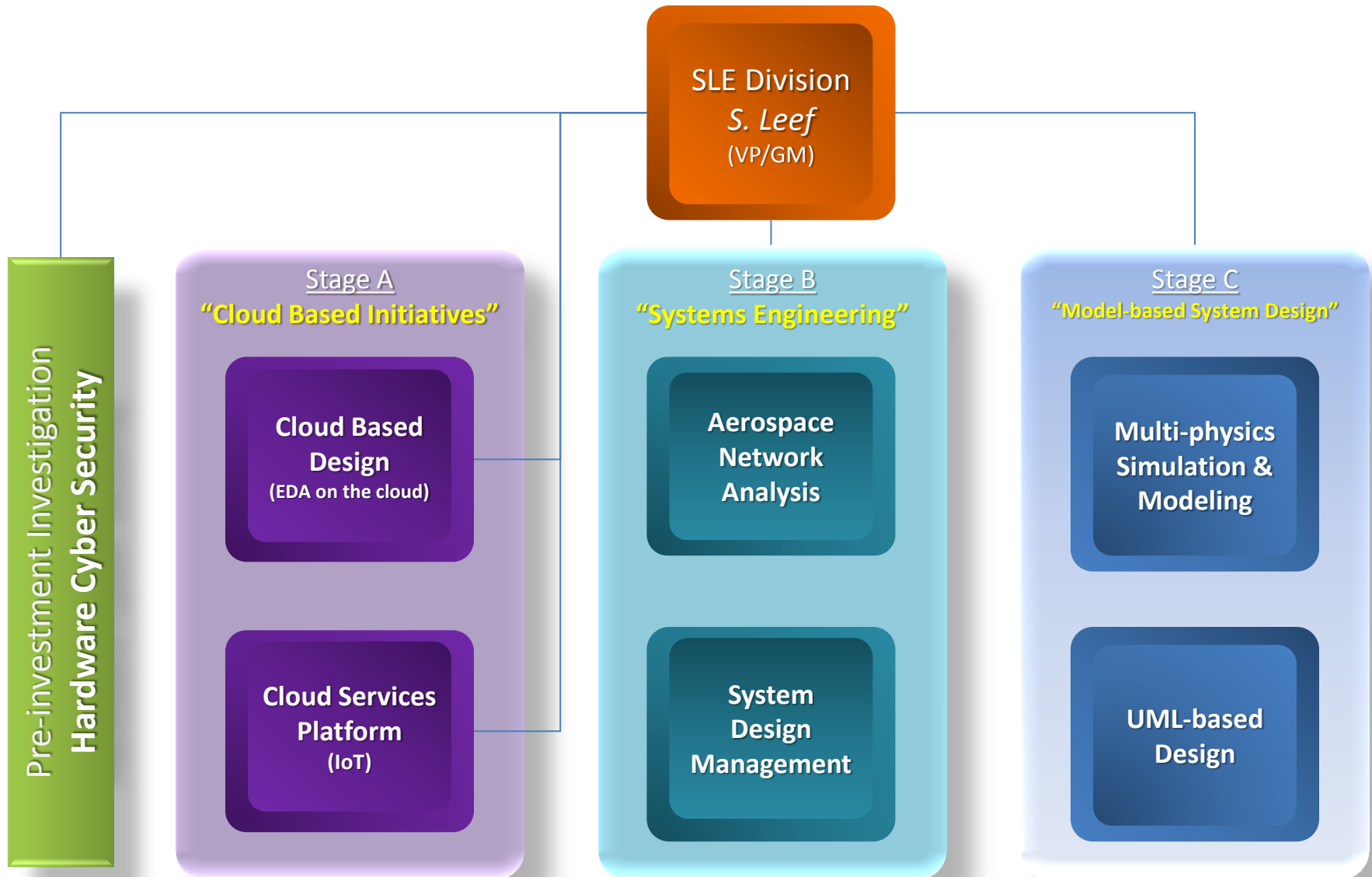# Mentor Graphics – A Pioneer in Electronic Design Automation

- A global company (founded in 1981) headquartered in Portland, Oregon
- 78 offices and R&D centers located strategically across the globe
- Revenue - $1.2B - 60% international; 40% U.S.
- One of top three EDA vendors
- Focused on growth through internal development

Mentor Annual Revenue Growth

CAGR 1994-FY2013F: 7%

New Ventures Portfolio

SLE Division
S. Leef
(VP/GM)

Hardware Cyber Security
Pre-investment Investigation

Stage A
"Cloud Based Initiatives"

Cloud Based Design
(EDA on the cloud)

Cloud Services Platform
(IoT)

Stage B
"Systems Engineering"

Aerospace Network Analysis

System Design Management

Stage C
"Model-based System Design"

Multi-physics Simulation & Modeling

UML-based Design

Major International R&D Centers

- Original rationale for international operations
  — Driven by cost savings
  — Inability to find talent in the competitive US labor market

- Current drivers
  — Cost differences are becoming increasingly negligible
  — Magnet for talent wishing to remain in place, but having few, if any, high tech employers domestically
  — Highly differentiated engineers and scientists

- Significant international R&D sites for Mentor
  — Noida and Hyderabad, India; Lahore, Pakistan
  — Cairo, Egypt; Paris & Grenoble, France; Newbury, UK
  — Budapest, Hungary; Krakow, Poland; Haifa & Tel-Aviv, Israel
  — Moscow & St. Petersburg, Russia, etc…

- Moscow: Major site connected with 3 divisions of Mentor
  — BSD – Board Systems Division
  — ESD – Embedded Software Division
  — MAD – Mechanical Analysis Division

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My Experience with Remote R&D in Russia (1)

- **Started in 1995; connection to PhysTech was made**
  - Former PhysTech team member became a Mentor employee
  - Unique blend of hardware and software skills in high demand
  - Established contract relationship with his former team in Moscow
  - Mentor donated EDA software to PhysTech during collaboration

- **Operational model**
  - Assignments in / results out; up to 35 people involved at the peak
  - Most of the technical dialog in English with project leads
  - Business agreements reached in Russian with Managing Director
  - Engineers used PhysTech infrastructure and continued teaching
  - Many had high-speed internet access from home and worked from home, frequently matching US PST time zone hours
  - Extremely dedicated to high quality and project success

My Experience with Remote R&D in Russia (2)

- **Outcome**
  - Work contributed significantly to business success of the Mentor product ($150M+ in revenue over the period of collaboration)
  - Failed to differentiate themselves from other off-shore operations
    - I started advising them on differentiation necessity early-on
    - Somehow they proved unable, unwilling or incapable
  - Relationship fell apart with sudden death of the Managing Director
  - Project continuation handed out to Egypt and India sites

- **Attempts at Expansion**
  - Numerous attempts made by the Managing Director to expand
  - Team had many interesting technical ideas that did not match demand
  - Team totally lacking understanding of customer needs and value creation
  - I acted as advisor and introduced them to other customers, but had no bandwidth to spend any serious (official) energy

- **Observations**
  - Incredibly talented, creative, scientifically deep, highly capable team
  - Lack of business literacy and market awareness killed growth prospects

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Organic vs. External Innovation

- **Big companies rarely succeed in innovating**
  - Stagnant organizations resistant to change (IBM PC example)
  - Risk/reward ration is all wrong ($10M exit event)

- **Cycle: dissatisfied employees to entrepreneurs**
  - Purchase model: front and buyout
  - Notable successes and failures: examples

- **Solution**
  - Accept a combination of organic and external
  - Looking at 100 opportunities per year
  - Closely examined 20
  - Bought 7 - ranging from $2m to $70m
  - Each GM seeks related or augmenting startups
  - I looked at 10 last year: Sweden, Germany, Hungary, US, France

- **Attractive: early and late stage startups**

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What makes a good environment for technology ideas and start-ups?

- Location, public policy and culture play key roles
- Creativity is only one factor leading to possible success
- Elements essential for successful innovation ecosystems:

- Educated work force
- Business-friendly legal systems
- Availability of "risk capital"
- Culture of "failure"

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Summary: Comparing Success Factors

Success factor	US	France	Japan	China	India	Russia
Educated work force	Yes	Yes	Yes	Yes	Yes	Yes
Business-friendly legal systems	Yes	No	Yes	Yes	No	?
Availability of "risk capital"	Yes	Some	No	No	No	?
Culture of "failure"	Yes	No	No	No	Yes	?

- **Educated work force alone is not sufficient for success**

- **Where does Russia stand?**

Int'l R&D in EDA: Perennial Search for Talent & Ideas

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