

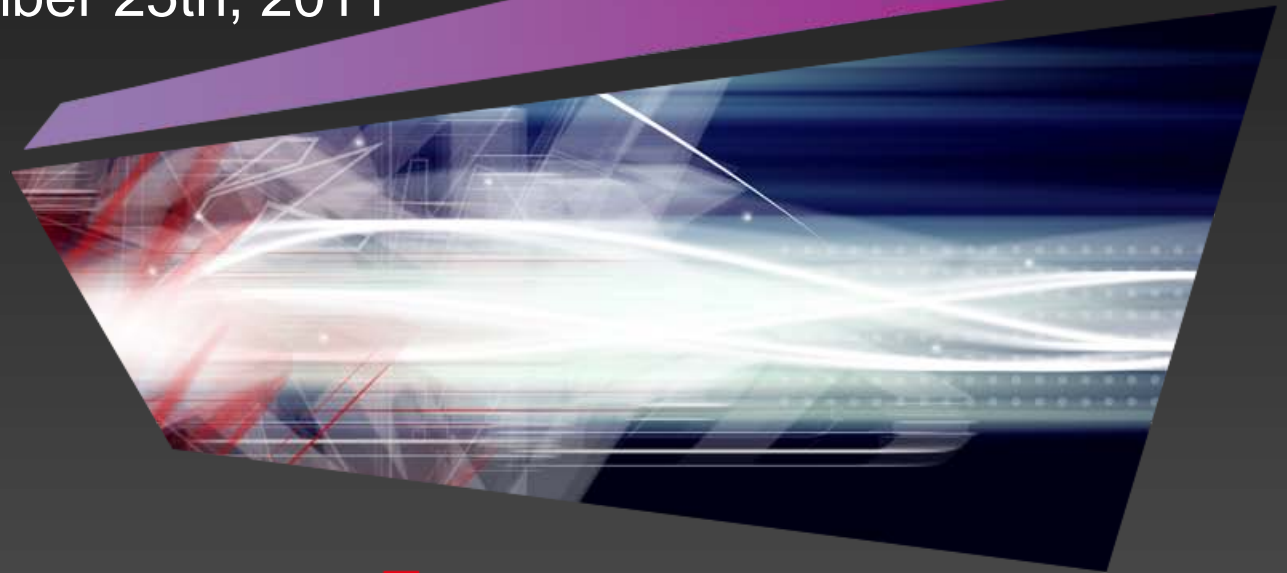
Silicon South West

The Semi Startup Model is Alive!

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An EMEA wide perspective...



- Focus: Help get chips out of the door
- Worked with dozens of startups over the last decade
 - Startup Accelerator Program – CE, Israel
 - VC network
 - De-risk investment

Agenda

- The fundamentals are intact
- Why profitability is so hard
- Israel: A case study
 - Success factors and what we can learn from them
 - UK - Israel : A comparison
- Startup engagement models
- Summary
- Call to action

Electronics is booming!

- 4.5 Billion Cell Phones today!
- 5 Billion people connected to Internet by 2015 (Source: NSN)
- 7 trillion wireless devices serving 7 billion people in 2017!?
(Source: WirelessWorldResearchForum (WWRF))
- Many growth areas with **massive** need for innovation:
 - Infrastructure bandwidth requirements explode due to HD Video
 - Smart Mobile devices
 - Automotive safety and control
 - Health care
 - Lifestyle
 - Environmental control
 - Smart Grid
 - Smart Home

Tons of opportunity!

Sensors

A/D & D/A

Intelligence (SoCs)

Low Power

Bandwidth

Key technical challenges...

- System-on-Chip complexity:
 - 500M Gates, 100+ IPs, AMS, Embedded Software
- Highest performance at lowest power
 - CPU subsystem
 - Graphics compute subsystem
 - Memory subsystem
- Bandwidth -> optical on-chip interconnects
 - PON market
- Process complexity increases AMS design challenge
 - E.g. SERDES IP: 30 P&R engineers in 28 nm vs. 5 in 40 nm

The good news: We know how to deal with those challenges!
(Thanks to EDA!)

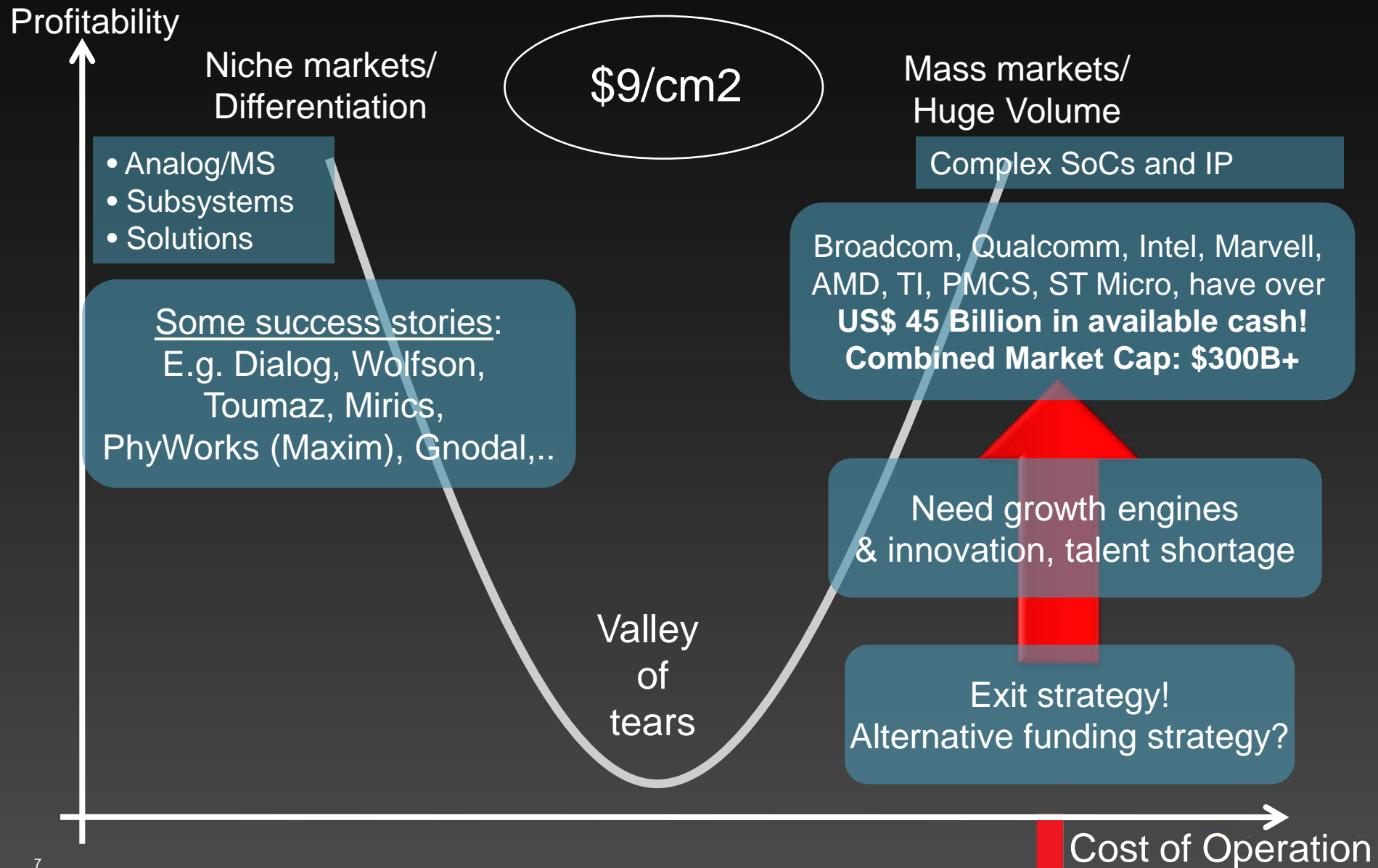
One unresolved business challenge:

Fabless Semi get \$9/cm²,
regardless...!

(Source: Future Horizon)

Cost+ vs. value based
business model !!!

Profitability becomes very hard!



Israel – From a stretch of farmland into a successful hightech cluster

- Population: ~7.5 million (< Greater London!)
- GDP: \$245B (2010 Est.), ~10% of UK
- 45% of Export is High Tech (\$18.4B)
- Foreign Investments high tech companies
 - \$20B over 15 yrs
- Exits of VC-Backed companies in the last 15 years
 - M&A: \$28B
 - IPO: \$6B



Sources: Google Maps

Sources: CIA World Factbook (2000-2010), Israeli Central Bureau of Statistics, Venture Capital Research Center
Israeli Ministry of Industry, Trade and Labor

In 2010 Israel is the number 1 high-tech cluster outside the US

2010:

- R&D spend – WW No.1 (4.6% of GDP)
 - US is no.7 with 2.7%, Britain no.13 with 1.6%
- Almost 4000 tech startups
- VC money invested in tech startups: \$886M
- Highest per capita venture capital investment: ~\$1M
- Highest number of engineers per population
- Highest number of technology companies traded at NASDAQ: 100
- ~100 Fabless semiconductor companies:
 - ~80 startups, ~20 multinationals

Success factors

- Government jump started VC industry in 1993
 - Government funding VC funds -> Blooming local VC industry
 - Attracting foreign VCs and corporate investors
- Military has dedicated high tech R&D Units
 - Security, cryptography, communications, RF
 - Leading to strong technical knowledge
 - Military alumni network of entrepreneurs
- Immigration of smart technologists (no.1 = Russia)
- Entrepreneurship and risk-taking in Israeli genes
- Israeli's think big and global vs. local
- Keeping close ties to Silicon Valley
- Big R&D sites from US semi companies
- They begin with the end in mind: Exit! \$\$\$

Israel proves that it works ...

- Over last decade \$10B of Exit Value was created by the Israeli Fabless Semiconductor Startups, US \$ 2.0 Billion was returned to the Venture Capital sector
 - Galileo – US\$ 2.7 Billion value, acquired by Marvell (Nasdaq: MRVL)
 - ModemArt – Acquired by Agere, then by LSI
 - Passave – Acquired by PMC Sierra (Nasdaq: PMCS)
 - Mellanox – Public (Nasdaq: MLNX)
 - Zoran – Public (Nasdaq: ZRAN) (Now CSR)
 - Saifun – Acquire by Spansion (Nasdaq: SPSN)
 - DSPC – Acquired by Intel, then Marvell (Nasdaq: MRVL)
 - DSPG Group, Inc – Public (Nasdaq: DSPG)
 - M Systems – Acquired by SanDisk, (Nasdaq: FLSH)
 - EZ Chip – Public (Nasdaq: EZCH)
 - Dune Networks – Acquired by Broadcom (Nasdaq: BRCM)
 - Libit – Acquired by Texas Instruments (NYSE: TXN)
 - Coppergate – Acquired by Sigma Designs (Nasdaq: SIGM)

...and it still works in 2010...

- In 2010, 6 companies had exits at a total value of over US\$ 650 Million

<u>Israeli Company</u>	<u>Acquirer</u>	<u>Exit Value</u>
Wintegra	PMC Sierra (PMCS)	US \$ 300 Million
Dune Networks	Broadcom (BRCM)	US \$ 180 Million
Percello	Broadcom (BRCM)	US \$ 86 Million
Pegasus	Yifang Digital Ltd	US \$ 60 Million
Comsys	Intel (INTC)	US \$ 30 Million
Sightic Vista	Broadcom (BRCM)	US \$ 15 Million

Success stories in progress ...

- Provigent (Acquired for \$ 313M - by Broadcom 22nd March 2011)
- Broadlight
- Primsense
- Ntrig
- Anobit
- Siano
- DesignArt Networks
- Celeno
- Altair
- Valens

Israeli Startups think Global!



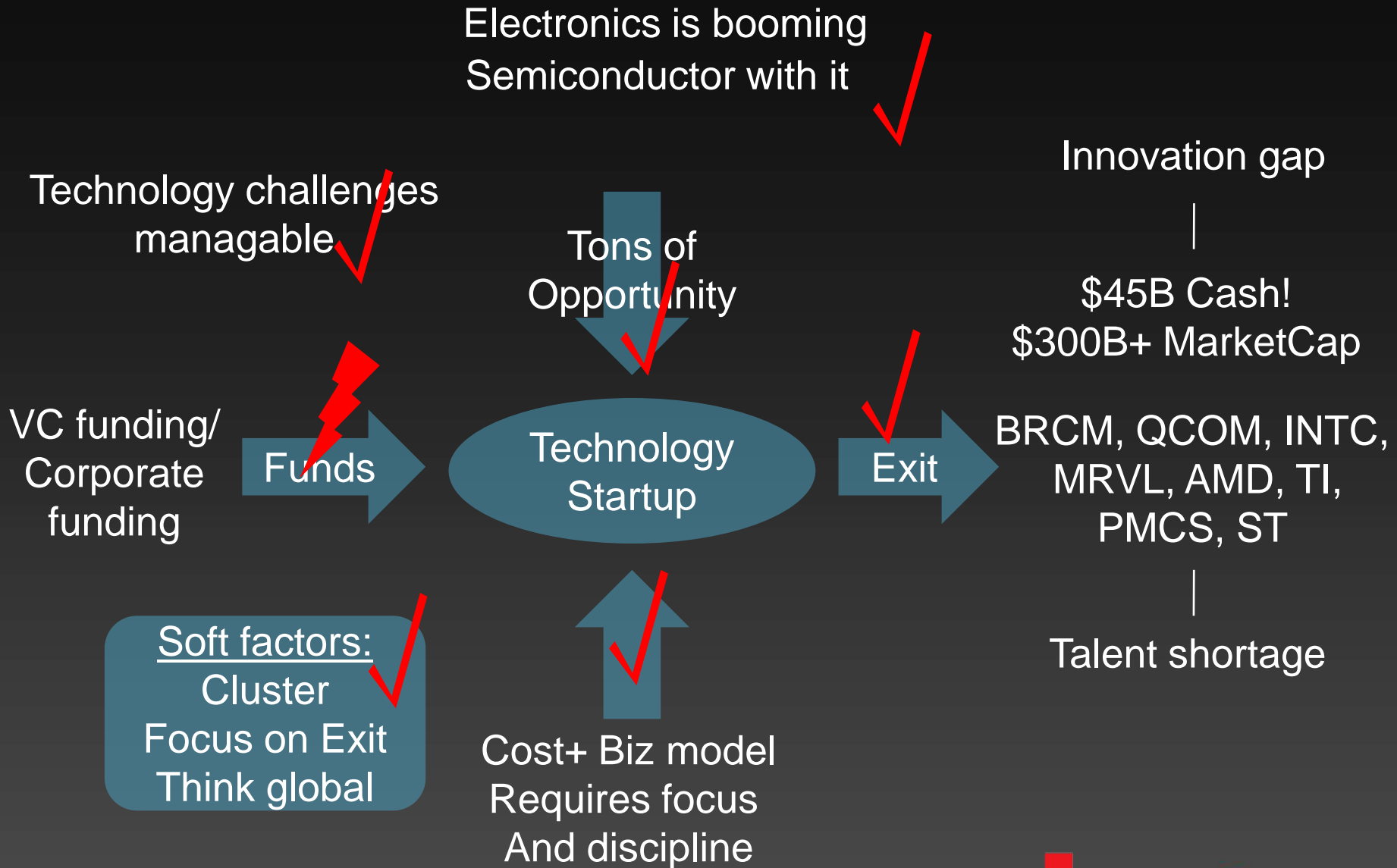
A comparison - My very personal perception!

Area	Israel	UK
Government	Funds High Tech and VCs! -> High Tech = 1/3rd of GDP!	Mr. Cameron's GBP 1M Engineering award!?
Cluster	Israel IS ONE Cluster	3-4 Clusters?
VCs	Still very active	Nervous?
Management / Network	Military alumni Business schools	Excellent Academia Business Schools
Approach	Think Big and Global, Focus on differentiation, Partner for the rest	Engineering excellence -> reluctance to rely on 3rd parties?
Partners	Global vs. local	Local vs. Global?
Focus	Exit, \$\$\$	Technology 1st?
Mindset	Entrepreneurial Hard workers Risk Takers	Entrepreneurial Hard workers Control?

Engagement models

- **Design Services**
 - Nice way to get started, but ...
 - Not scalable, low margin, „I take the risk, you get the reward“
- **Silicon IP: Tough!** You need to ...
 - Anticipate trends, be part of standardization bodies
 - Be 1st to market
 - One size fits all does NOT work
- **AMS IC – Yes**
 - With a dozen top notch analog designers you can conquer the world!
 - Focus on a small niche
 - You do not want to go deep submicron
 - Scaling factor from 40 to 28 is 10..15%!
 - 28nm effects are gonna kill you (30+ additional design rules vs. 40nm)
- **SoC's:** Think twice ! HW&SW R&D investment is huge
- **SoC Platforms:** Interesting approach! -> Allows for customization and differentiation, reduced capital need

Summary



Call to action

Silicon South West initiative is key!
Grow it! Tie global bonds!

The opportunity is huge!
Think Big!
Act Global!

Technology is only the medium, not the final goal!
Focus on Exit from the beginning!



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