

Your Passport To Future Horizons

Making Sense Of The Industry 'Tea Leaves'

Analyse The Facts

- ◆ Economy (IMF)
- ◆ Unit Sales (WSTS/Markets)
- ◆ Fab Capacity (SEMI/Company)
- ◆ ASPs (WSTS)

Interpret The Analysis

- ◆ Historical Precedents
- ◆ Underlying Trends
- ◆ Experience & Understanding
- ◆ Common Sense



All Inter-Related But Mathematically Disconnected

The Global Semiconductor Industry Analysts



About Future Horizons

31st Anniversary “Taking Care Of Our Clients” Founded April 1, 1989



Malcolm Penn
(Venner, ITT SC, ITTE,
Dataques)
Chairman & CEO
SC Industry Analysis &
Executive Support



Lane Mason
Denali, IBM Micro,
Vanguard, Viking Research
Dataquest
Senior Industry Analyst
Worldwide Memory
Market Analyst



Mike Bryant
(HP, Fujitsu, Westell,
Soundcraft)
Chief Technology Officer
IC & System Design
Analysis & Support



Jo Penn
PR & Events Mgr
WebSite & B2B Network
Events & Forums
Client Support

Masanori Sugane
(ITT SC, Infineon,
Oxford SC, Etc)
Japan Industry Analyst

Jean Evans
Administration
Assistant

Paula Gilzean
Company
Secretary



Sergey Orlov
Research Analyst
Russia/CIS Operations
Business Opportunity
Development

What



How

Top Down, Bottom Up With Multiple Cross Checks & Common Sense
We Are Independent & Honest PLUS Unashamedly Glass Half Full
We Tell It Straight, Not What's Politically Correct ... & The Reasons Why

Why

No Other Analyst Has The Same Breath Of Industry Experience
(From 1962, Spanning Technology & Design Though Operations, Sales & Marketing)



Company Chronology & Background

- ◆ **Company Founded (Apr 1, 1989)**
- ◆ **Worldwide Semiconductor & Microelectronics Industry Focus**
- ◆ **European & Russia/CIS Semiconductor Industry Specialisation**
- ◆ **Cover Full Spectrum – From Advanced Research To End Markets**
- ◆ **Market Research, Technology Analysis & Industry Training**
- ◆ **Custom Consulting & Marketing Studies**
- ◆ **Independent Industry Expert Witness, Board Advisor & Non-Exec Director**
- ◆ **Due Diligence & IP/Product Development & Positioning**
- ◆ **Business Development Opportunities & 1-2-1 Contacts**
 - **Off-The-Shelf Research Reports & Industry Intelligence/Analysis**
 - **Bespoke Research Assignments - From Proof Of Concept To Full Market Development**
 - **Due Diligence Analysis - From Seed Funding Through IPO**
 - **Competitive Benchmarking & Positioning - From the Basic IC Design & Technology Up**
 - **Unique Combination Of Chip Design Know-How With Market & Operations Insight**

Global Organisation, Headquartered In Sevenoaks, Kent, UK

Regional Offices In The UK & Russia

Affiliates In Europe, India, Israel, Japan, Russia & USA



Malcolm Penn - Founder, Chairman & CEO

- ◆ **1962-69 EE Degree (Industry Sponsored)**
(British Aerospace & London University)
Professional (Rock, Blues & Jazz) Musician
- ◆ **1966-69 Electronic System Design**
(Professional Test & Measurement Equipment)
- ◆ **1969-80 ITT Semiconductors**
(Logic, DRAM, ASSP, Operations & Business Development)
- ◆ **1980-82 ITT Europe**
(Telecoms System House, Now Alcatel)
- ◆ **1982-89 Founded Dataquest Europe**
(IT Industry Market Research, SCs & EDA to Telecoms, PCs & OE)
- ◆ **1989 Founded Future Horizons**
(Industry Analyst & Consultant)

>5 Decades Of Semiconductor Industry Experience
(Longer Than ANY Other Industry Analyst & Most Industry Execs)



Mike Bryant – Chief Technology Officer

◆ **Hewlett Packard, Telecommunications Division**

- Audio & PCM Test Equipment
- Large-Scale System Performance Monitoring S/W

◆ **Fujitsu Microelectronics**

- Analogue & Digital VLSI ICs For ISDN, Voice Data Compression, X.25 Frame Relay Controllers & Telecom Systems, HDL & Logic Synthesis

◆ **Westell**

- ADSL and HDSL modems
- High performance ATM switching & network interface cards
- SNMP based management system (DSLAM)

◆ **Soundcraft**

- Professional audio mixing equipment using high-performance DSP/24 bit A-D and D-A, with Ethernet, ATM, USB, Firewire, Bluetooth, ADAT and TDIF interfaces

>4 Decades Experience In The Electronics Industry

Future Horizons Since 1991 (Incl Work For European Commission As External Expert Project Reviewer)



Lane Mason – Senior Industry Analyst

- ◆ **Denali**
 - Memory Analyst
- ◆ **Vanguard Semiconductor**
 - Memory Marketing Director
- ◆ **IBM Microelectronics**
 - DRAM Strategic Marketing Manager
- ◆ **Viking Research**
 - Memory Industry Analyst
- ◆ **Viking Research**
 - Memory Market Research Director

>4 Decades Semiconductor Memory Experience
Future Horizons Since 2008
(Incl Work For Successful SK-Telecom Hynix Acquisition)



Sergey Orlov – Research Analyst

- ◆ **1989 - AmSovInvest Project Manager**
(One of the first JV companies in former USSR)
- ◆ **1991 - Future Horizons Account Manager**
- ◆ **1993 - Executive Director East-West Electronics**
(wholly-owned subsidiary of Future Horizons)
- ◆ **2001 - Marketing & Commercial Director of Elint**
(Future Horizons' Russian Affiliate)

>3 Decades Semiconductor Industry Experience
Future Horizons Since 1991



Research Philosophy (Experience & Common Sense)

History May Not Repeat Itself ... But It Does Rhyme A Lot (Mark Twain)

"Plus ça change ... plus c'est la même chose" *(The More Things Change ... The More They Stay The Same)*

◆ Analyse The Industry Fundamentals – Ignore Them At Your Peril

(By The Time A Trend Or Market Is Clear It's Already Far Too Late To React)

◆ Customers & Markets Shift Dramatically – It's A 10-15 Year 'Renewal' Cycle

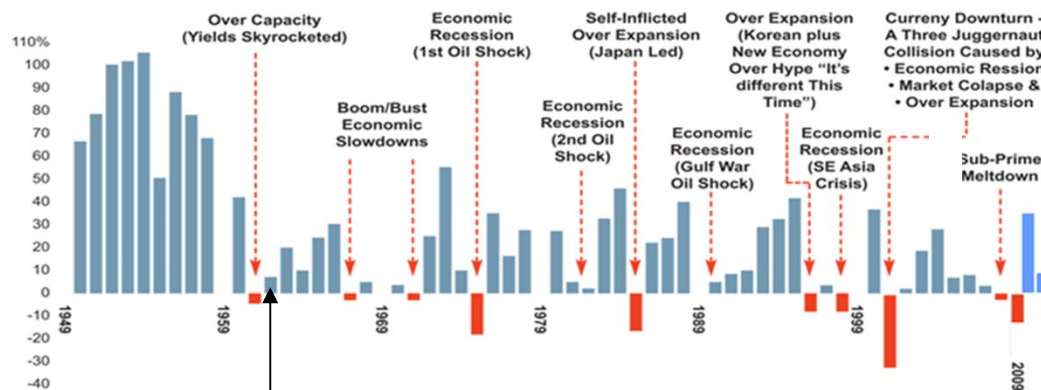
◆ Create Your Own Destruction – If You Don't Your Competitors Will

◆ NEVER Believe Your Own PR Or Management Spin - Hype Springs Eternal!

◆ Long-Term Visibility Is Good – Near-Term Poor (3-6 Months At Best)

◆ Vision & Commitment – If You Don't Believe It Can Be Done It Won't Be Done

◆ We Tell The Facts *Plus* The Rationale – Not What Is Politically Correct



My Industry Experience Started Here ...

- ◆ Focus On The Basic Fundamentals
- ◆ Look For Changes In Industry Characteristics
- ◆ Analyse Deviations From Long-Term Trends
- ◆ Analyse Cause Of Cycles, Not 'Best Historical Fit'
- ◆ Sales Value = Units Sold x Price Sold For
- ◆ Markets Don't Buy Chips - Only Customers
- ◆ All Markets Are Finite - They Eventually Saturate
- ◆ Over Capacity => Meltdown => Revenue Downturn
- ◆ Look For The Facts Not Hype, Fashion Or Denial
- ◆ Past Industry Cycles Poor Indicator Of The Future
- ◆ Good Old-Fashioned Common Sense & Experience (Slide Rule Sanity Check Mentality)



Future Horizons Organisation & Services



- ◆ Market Research Reports - *Covering Basic Industry Statistics*
- ◆ Research & Due Diligence Reports - *Expert Advice & Analysis*
- ◆ Dedicated Studies - *For a More Focused Analysis*
- ◆ Industry Networking Events – *With Key Industry Executives*
- ◆ Monthly Newsletters - *For The Latest News & Information*
- ◆ Dedicated Research - *For Added Insight & Analysis*
- ◆ Flexible Resource Support - *A Few Hours To Custom Study*
- ◆ Clearly Defined Objectives - *You Get Exactly What You Want*
- ◆ Controlled Budget - *Pay Only For What You Want*
- ◆ Insight & Analysis - *From Seasoned Industry Veterans*
- ◆ Expert Opinion - *From Litigation Thro Political Advice & Support*



Industry Awareness Workshops & Webinars

FutureHorizons
The Global Semiconductor Industry Analysts

FUTURE HORIZONS Presents

"The Silicon Chip" Industry Training Seminar
A One-Day Introductory Seminar To The Integrated Circuit Industry - Technology, Manufacture And Markets

A Focused Training Seminar From Future Horizons The Global Semiconductor Industry Analysts

"The Silicon Chip" Industry Training Seminar

Electronics is now the biggest manufacturing industry in the world. What is more, it is growing at an average annual rate of eight percent per year and getting even bigger. With nearly percent of the world's total computing power ever made built in the last two years, the world is rapidly moving from being an industrialised society into the digital age. Driven by the endless advances in semiconductor electronics, ICs around the world are producing over 500 million transistors a second, each costing less than one thousandth of a US cent, one tenth the price of an office stapler, daily turning old dreams into show stopping, commercial realities. The electronic circuits they produce are fundamentally, and inversely, changing the world we live in and with it, creating vast new industries and economic wealth. This seminar provides an opportunity for IT professionals to gain a complete insight into, and better understanding of, the silicon chip industry.

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Silicon Chip

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FUTURE HORIZONS Presents

Industry Forecast Seminar

Concerned About The Industry Outlook For 2009 and Beyond?

Get The Proven Experts View At Future Horizons' Annual Semiconductor Review And Forecast

A Focused Industry Briefing From Future Horizons The Global Semiconductor Industry Analysts

Seminar Programme Includes:

- 2009 Market Forecast ...
- The Key Factors Analysed
- Blue Sky Or Continuing Storm?
- Industry Applications Drivers ...
- IC Content & Forecast
- Market Outlook ...
- 3 Year Regional & Product Forecasts
- Supply & Demand ...
- Wafer Fab Capacity Trends

Tuesday Jan 27, 2009
Hilton London Olympia Hotel, London, England

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Industry Forecast

FutureHorizons
The Global Semiconductor Industry Analysts

FUTURE HORIZONS Presents

"The IC Economics" Industry Training Seminar
A One-Day Introductory Seminar To The Economic Fundamentals Of The Integrated Circuit Industry

A Focused Training Seminar From Future Horizons The Global Semiconductor Industry Analysts

"The IC Economics" Industry Training Seminar

The seminar is a must for anyone working within the chip industry. Helping you to understand what drives the industry's economics and how this directly impacts organisations that exist within it. Designed to provide you with a complete insight into the economic fundamentals of the IC industry, to include:

- Industry Background, Structure, Business Models & More! & More!
- Analysis Of The Factors Driving Industry Growth
- Review Of The Issues Determining Industry Economics, covering factory costs, yields, die size trends, process defects and industry cost models
- IC Economics, Industry Characteristics & Strategies For Success

Simply explained, this inexpensive course provides an opportunity for participants to gain a better understanding of the whole IC Economics Industry. Future Horizons has over 180 man years experience in the electronics industry, experiencing first hand nine out of the ten past recessions and the economic cycles trying with them. Future Horizons are more than qualified to bring you the global economic facts you will need to understand and successfully compete in this industry.

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IC Economics

Please Check Our Website For Details, Dates & Locations

All Seminars Can Be Held In-House If Preferred, Please Call

In-House Industry Outlook Clinic

Resident At Your Premises, 1 Day, 1 Week or More

1-ON-1 Market Research Support

- **Industry Update Presentation**
- **1-On-1 Group Sessions**
- **Support Specific Projects Or General Enquiries**



In-House Market Research Workshop

How To Undertake Effective Market Research & Analysis

One Day Workshop

- **Research Methodologies**
- **Do's & Don't's**
- **Effective Report Writing**
- **Spread Sheet Structure & Analysis**
- **Tricks Of The Trade**

1-ON-1 Mentoring

- **Work At Our Sevenoaks, Kent, UK HQ**
- **Observe First Hand Research & Analysis In Practice**
- **Work On Your Project Or Our On-Going Research**
- **One Week Minimum Assignment, Longer By Agreement**



The CEO Service

... The Ultimate Non-Exec, Non-Exec Service

1-ON-1 Sanity Check

- **Market Research ... What You Won't Get Doing It In-house**
- **Analysis ... What Does It Really Mean?**
- **Market 'G2' ... What Does The Market Really Think?**
- **What The Board/Employees Won't Want To Tell You**
- **What You Think You Don't Want To Hear!**
- **Quarterly Exec Presentations**
- **Beyond The SC Monthly Update Report**



Contact Details – www.futurehorizons.com

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The Global Semiconductor Industry Analysts

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About Future Horizons

In the industry for the industry, Future Horizons provides industry analysis and consulting services on the global semiconductor industry, from the underlying science and technology to the manufacture and applications.

- ▶ **About Us** - Company background and experience
- ▶ **Executive Services** - C-level support for independent insights or validation support
- ▶ **Industry Events** - Training workshops and seminars for enhanced industry awareness
- ▶ **Consulting & Due Diligence** - IP to business development, for creators and investors
- ▶ **Newsletters & Commentary** - Regular research briefings and industry insights

"No device, no invention, however ingenious, can survive without a market!" ... "Revolution In Miniature, history and impact of semiconductor electronics" by Ernst Braun & Stuart Macdonald, Cambridge University Press

IF S2021 19th Jan 2021 Webinar
Registration Here [Click for details](#)

Penn In The Press
Read the latest news around the web about Malcolm Penn, CEO of Future Horizons

Increase Staff Productivity
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Industry Forums

Get In Touch

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