



TechSandBox
Process Control
The Evolution of an Industry

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Innovation Driven by I/O, Software, Services, Connectivity

1959: 1st industrial control computer at Texaco (Thompson Ramo Wooldridge, Bristol (now Emerson), Leeds & Northrop)

1960's

- 1st data acquisition system (IBM)
- 1st board level products (DEC's Unibus)
- 1st instrument interface: HP-IB / GPIB / IEEE-488 (HP)
- 1st PLC (Bedford Assoc → Modicon)

1970's

- 1st DCS (Honeywell)
- 1st analog and digital I/O boards for computer buses (Q-bus, Multibus)

1980's

- 1st analog and digital I/O boards for PCI bus (Tecmar/Scientific Solutions, Data Translation)
- 1st hardware-independent PC-based measurement & control software (LABTECH followed by Intellution)



Innovation Driven by New Platforms: I/O, Software, Connectivity

DATA TRANSLATION[®]

ComputerBoards

**NATIONAL
INSTRUMENTS**[™]

OPTO 22

**ANALOG
DEVICES**

LABTECH 
High Performance Data Acquisition &
Process Control Software



OSIsoft[®]



NATIONAL INSTRUMENTS
LabVIEW

Intellution[®]

Modbus
Data Highway
Optomux

RS-232
RS-422 / 423
RS-485
IEEE-488

HART

Foundation Fieldbus
Profibus

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LABTECH



**High Performance Data Acquisition &
Process Control Software**

**MEASUREMENT
COMPUTING™**

 **NATIONAL
INSTRUMENTS™**

DATA TRANSLATION®

IOtech



analogic 

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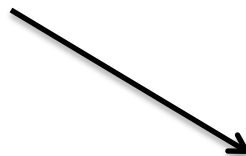
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ComputerBoards



Metrabyte



KEITHLEY



Tektronix



DANAHER



FORTIVE

The Behemoths are Hungry: Emerson, Schneider, Siemens, ABB, GE



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Intellution®



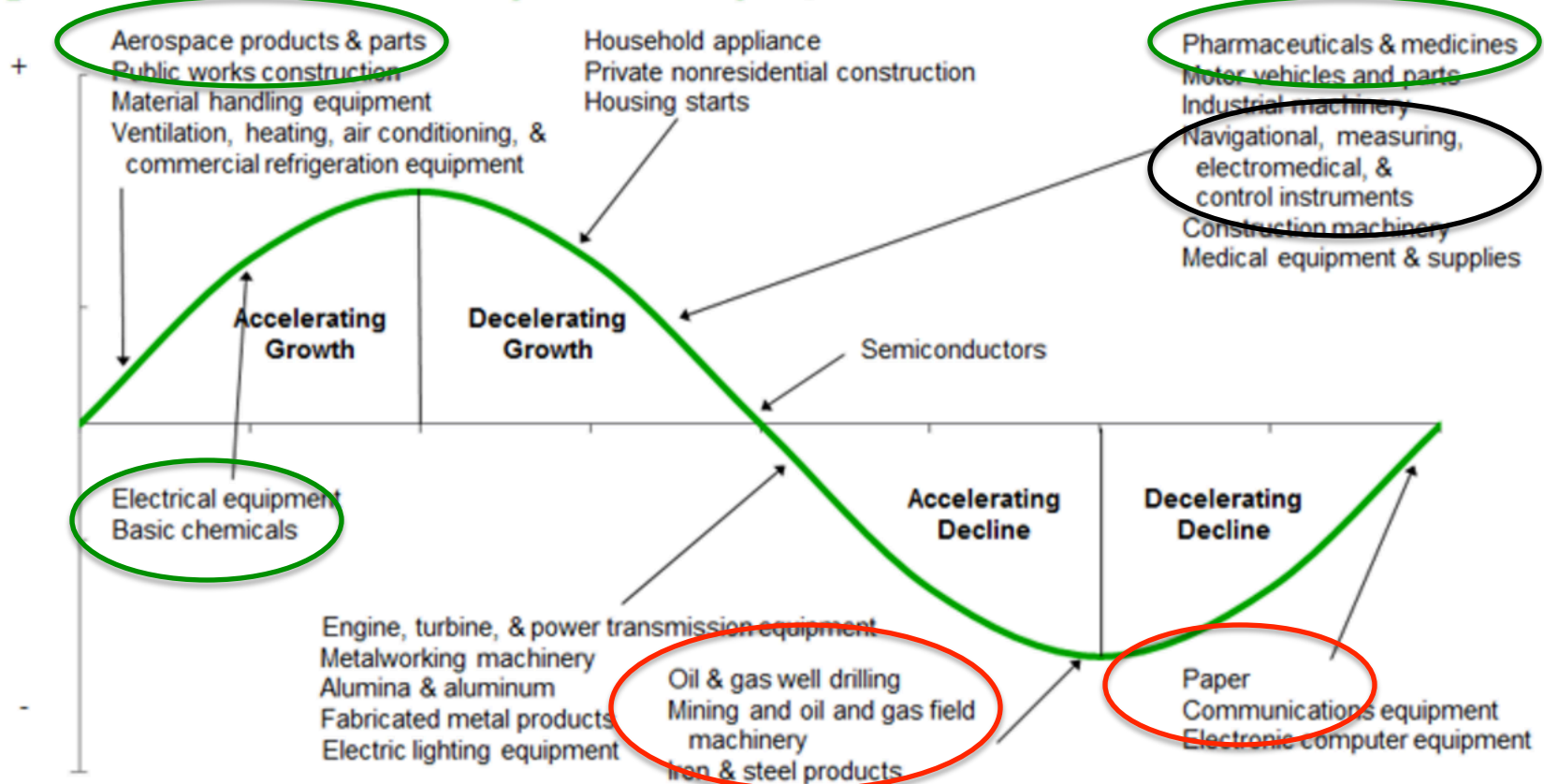
EMERSON™



GE
Intelligent Platforms

Buyers: Good News and Bad News

Figure 1 – Industrial Sector by Phase of Cycle, November 2015



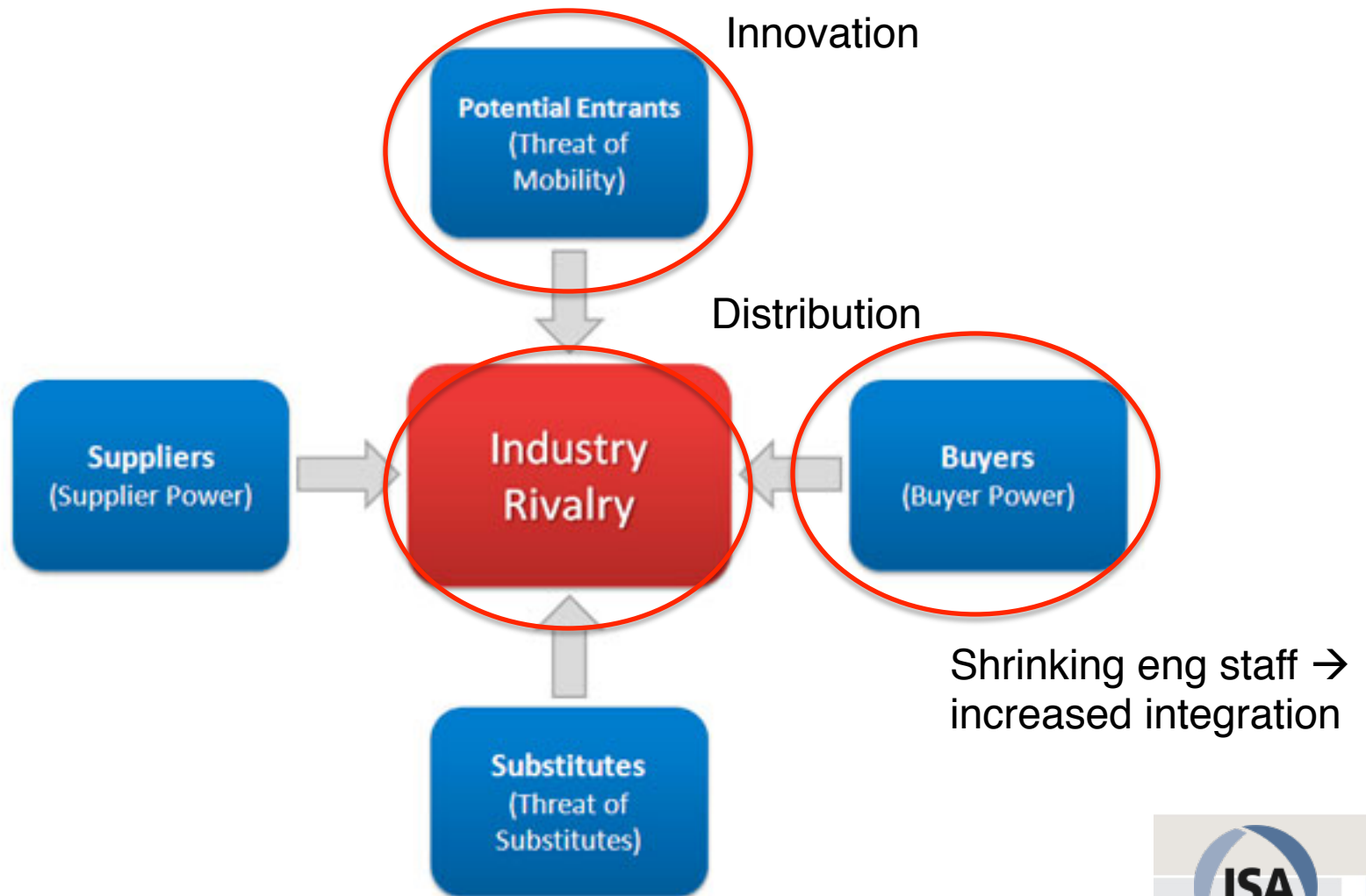
Source(s): MAPI Foundation

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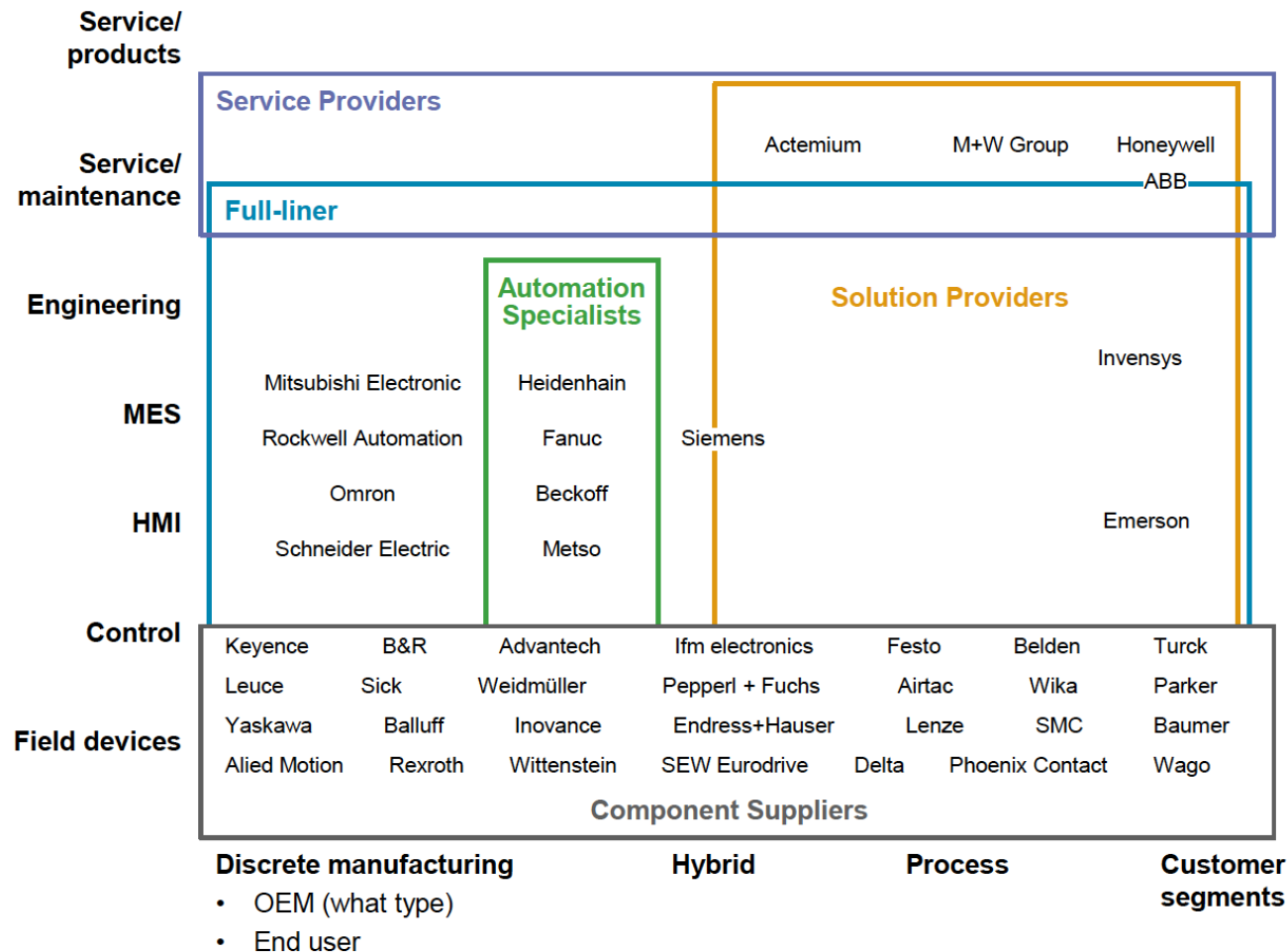


Tough Market Driven by Power of Buyers, Competitive Rivalry, New Entrants



The Process Control Industry Today

Business design archetypes in the Automation Industry



Source: Oliver Wyman analysis, expert interviews

- Focus on a few customer segments
 - Competency for complete automation systems for the segments
 - Attack on established players, primarily via innovation (price)
- < 5% of the total market**

- Differentiation through industry/solution competence
 - Focus on process industry
 - Low value added (production)
- ~ 15–20% of the total market**

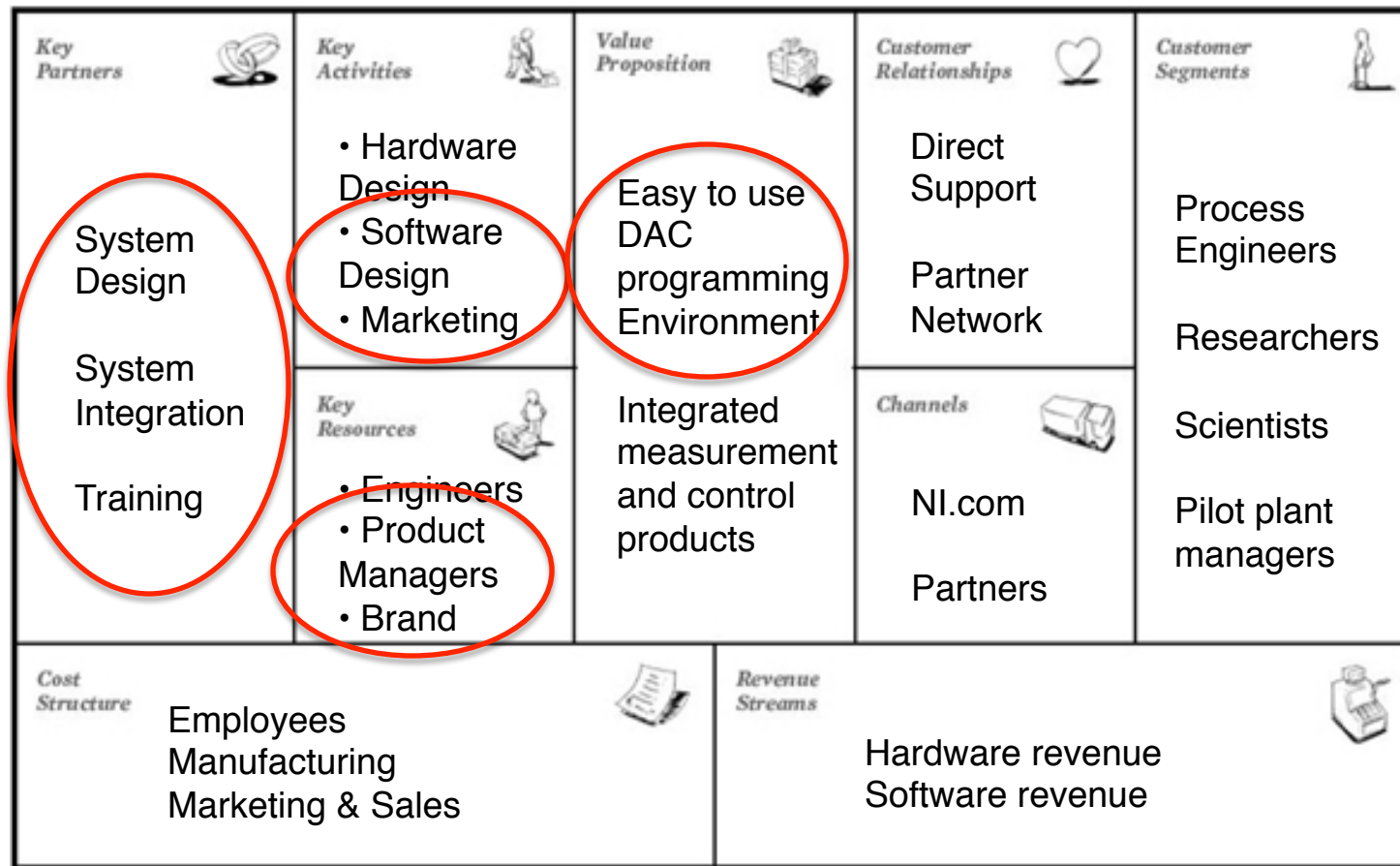
- Broad range of services (system approach/kit)
 - Broad range of customers (both in discrete manufacturing and process industry)
 - Typically history in the control segment
 - Completion of portfolio upwards (MES) and downwards (components)
- ~ 35–45% of the total market**

- Focused product range
 - Relatively broad range of customers (however, often focus either on discrete manufacturing or process industry)
 - Distinction between volume & niche providers
- ~ 30–40% of the total market**

- Service Provider
- ~ 5% of the total market**

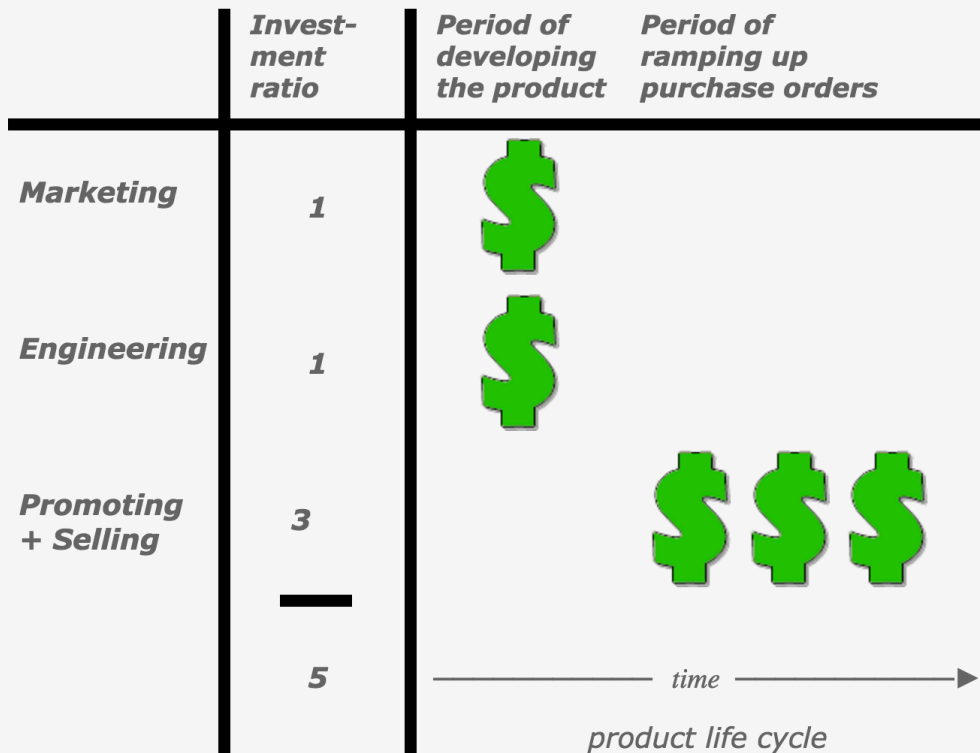
Who Survived and Why?

National Instruments Business Model



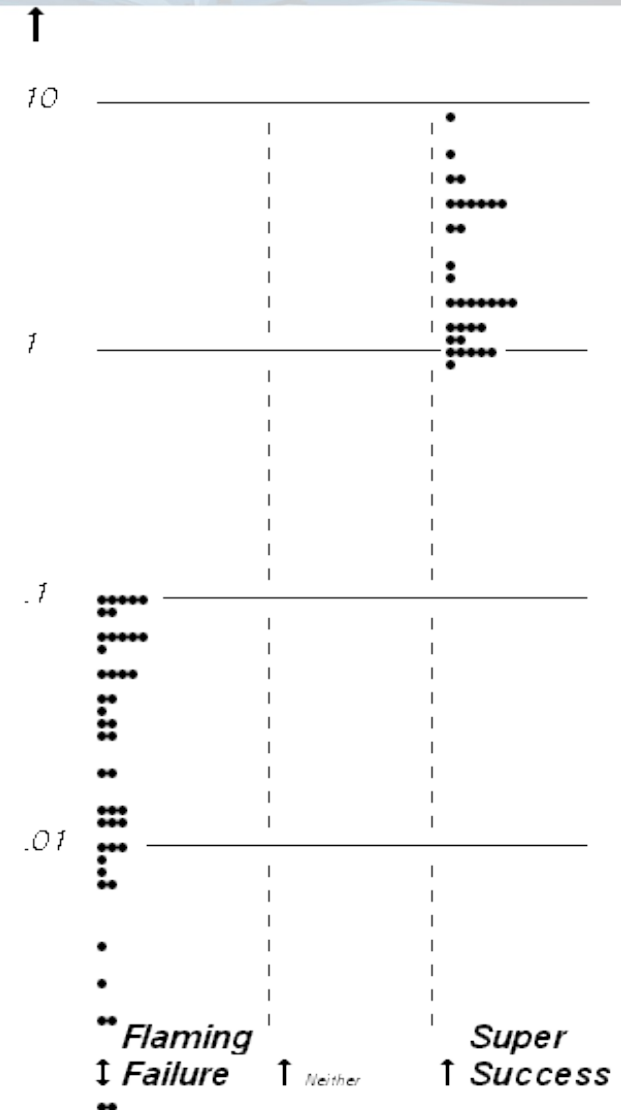
The Market Research / Engineering Investment Ratio is More Than 2.5 : 1

M/E Ratio™, the Marketing/Engineering Investment Ratio™



Marketing*/Engineering Investment Ratio™

* includes promoting and selling



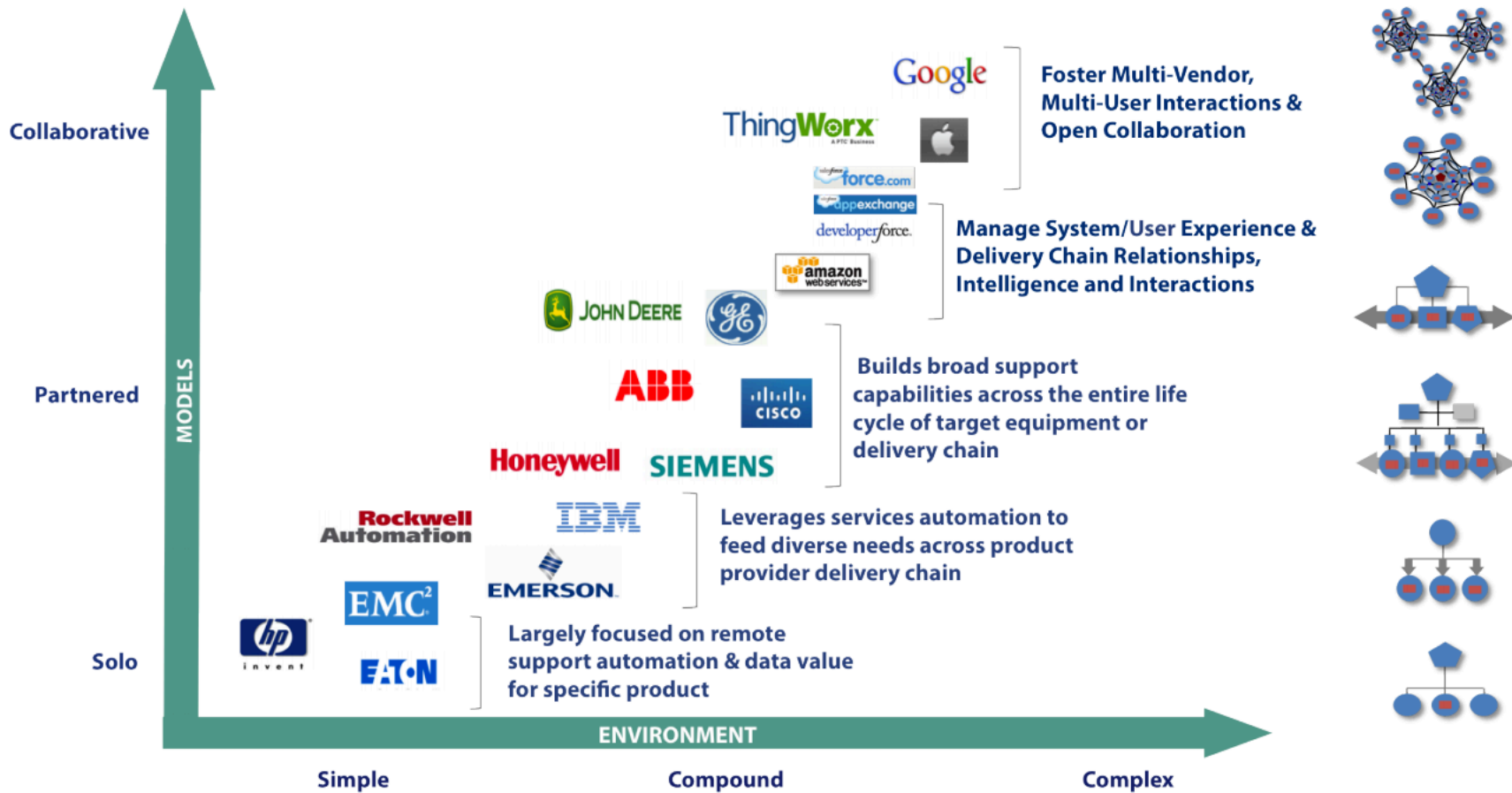
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Source: Ralph Grabowski <http://www.marketingvp.com/invest/success.htm>
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<http://marketingvp.com>
Results through June 17, 2010
●● multiple data at one M/E Ratio™



Companies are evolving into complex connected applications that drive interactions between and among devices (IoT), people, systems, as well as multi-party collaboration



Questions?

Thank you!

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