

Certainly, business (should not be) as usual

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The electronics industry business model

1. Fluctuating production cycles
2. Outsourcing waves across groups of countries
3. Contract manufacturing and changing business relationships in the industry

Just-in-time production model.

In order to stay competitive in such an industry, firms must “master[ing] this pace of change... (where) excess inventory or transit time, delays of expensive components, or any finished or semi-finished product containing them, anywhere in the value[e] chain, results in value[e] loss” (Curry and Kenney 2004: 114).

This affects *who* can participate in its global supply chains and *how* (under what conditions).

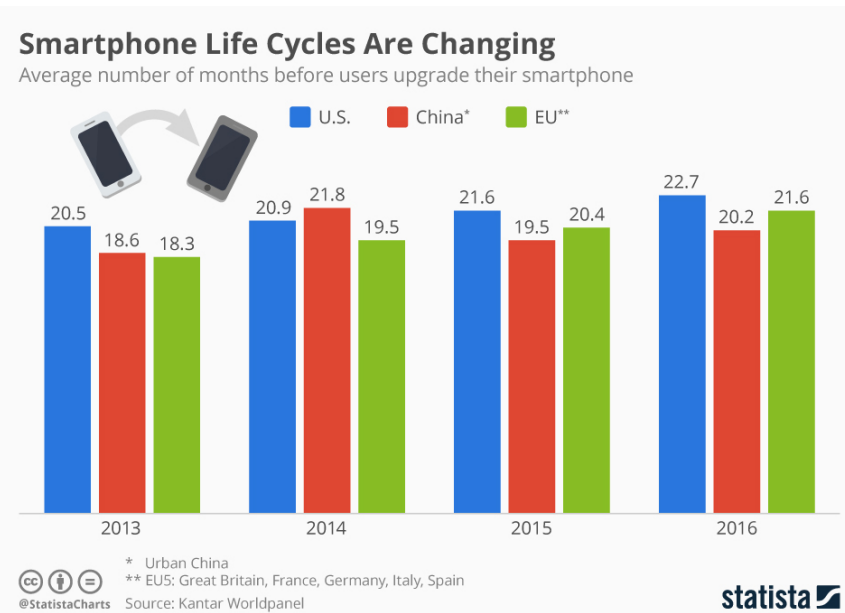
Fluctuating production cycles

Fluctuating production cycles is a **significant contributor** to excessive working hours and overtime

This is because consumer electronic products, in particular mobile phones, have **short life-cycles** and a **quick end-of-life period**

Year **2007**: After iPhone model unveiled, time to market was **6 months**

Year **2012**: After iPhone model unveiled, time to market was **2 weeks**



Suppliers can face:

- rapid increases in their time to market orders with little lead time or forewarning
- late orders or changes to orders that lead to quick ramp-ups in factories

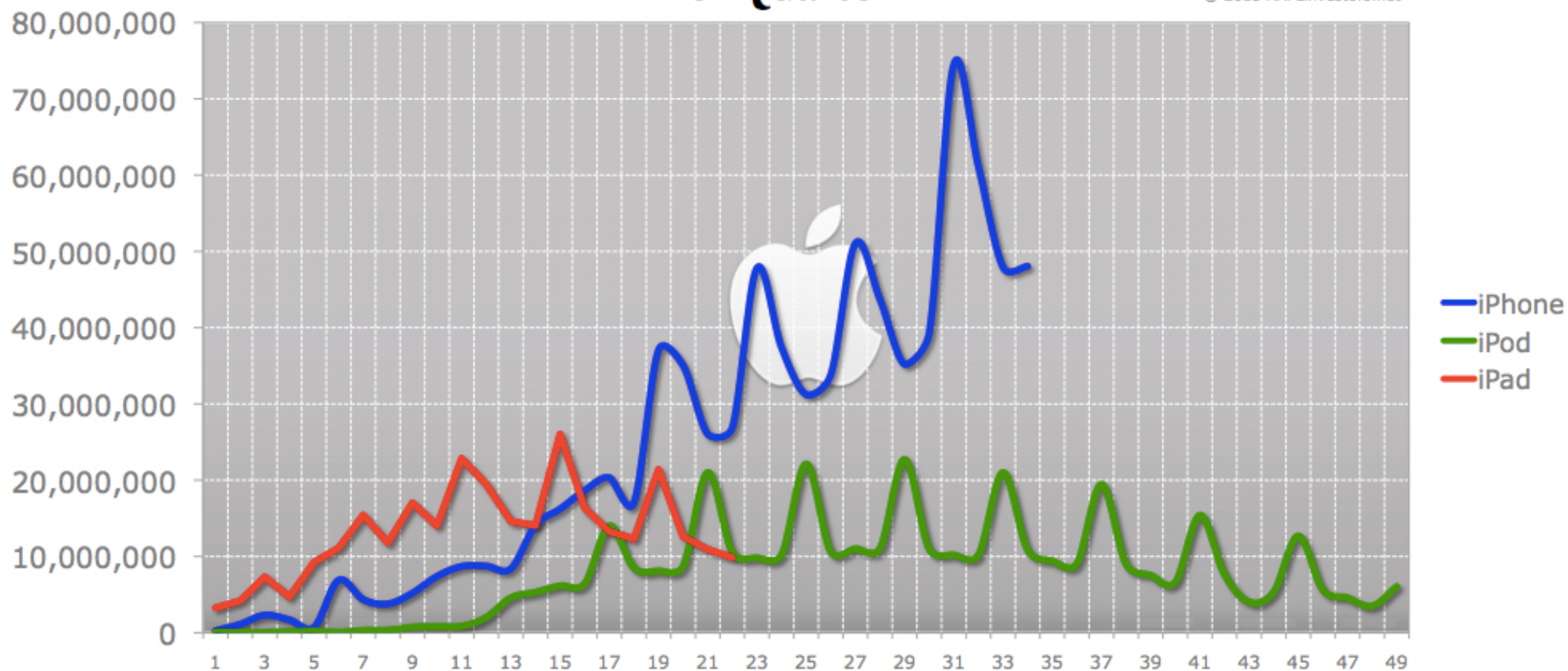
In order to manage upswings in production, suppliers often increase overtime hours and hire temporary workers.

‘High volume, low mix’ manufacturing tends to face more high peak production cycles that can create excessive over-time

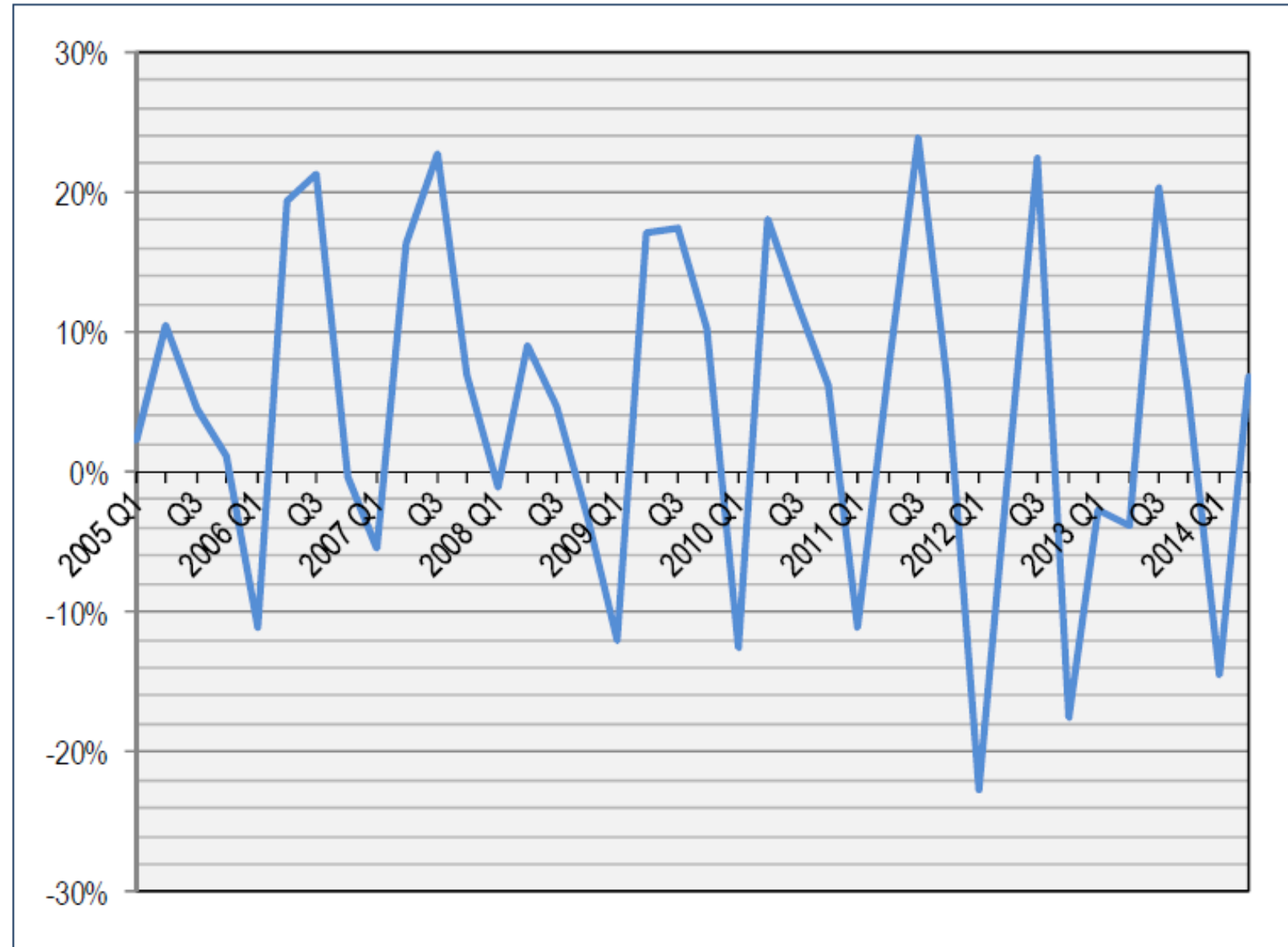
Comparison of quarterly sales of the iPad (beginning third quarter 2010), iPhone (beginning third quarter 2007), and iPod (beginning third quarter 2007).

iPad vs iPhone vs iPod Per Quarter

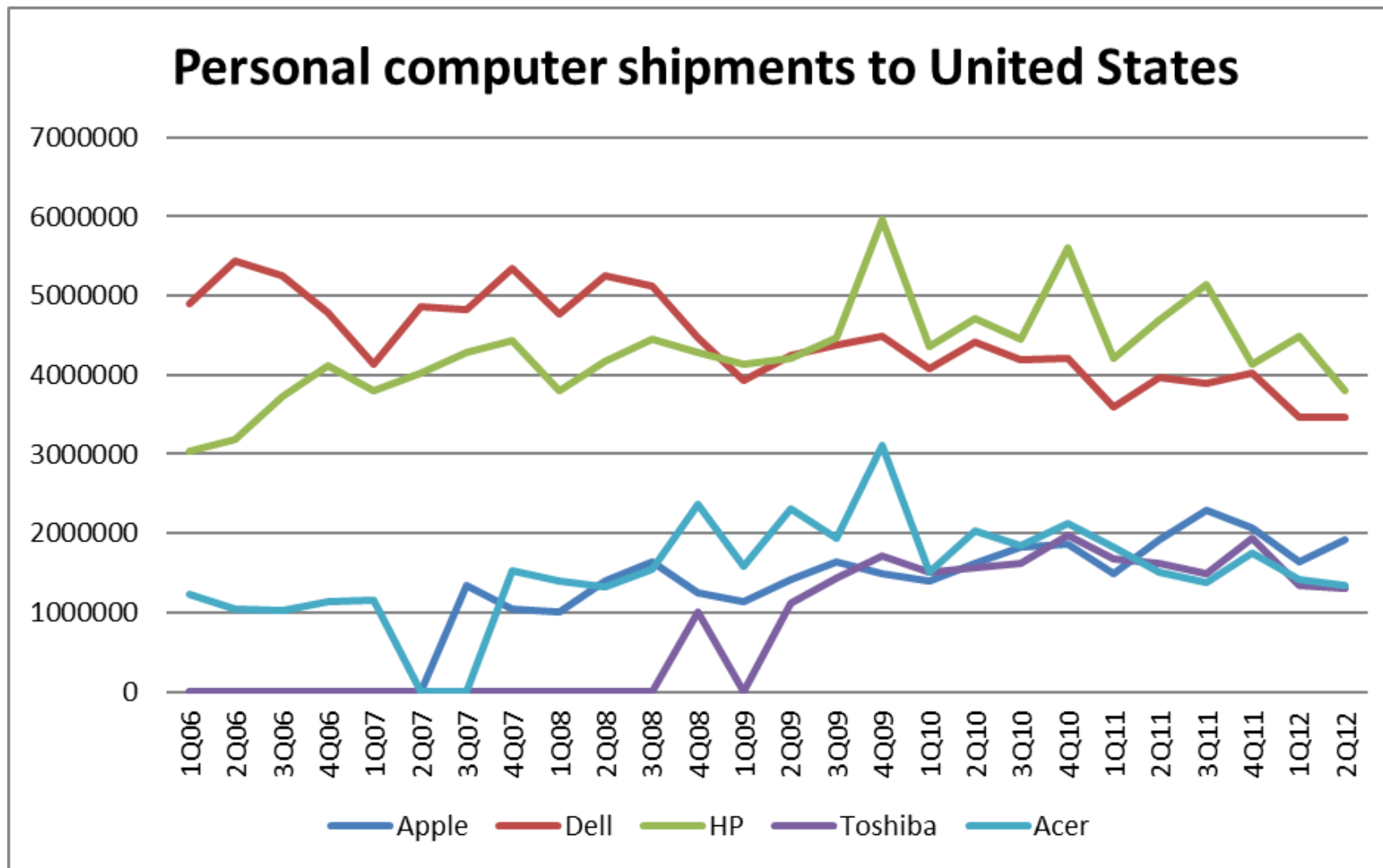
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Percentage change in quarterly shipments of Apple Mac computers to the United States, 2005–14



Source: <http://aaplinvestors.net/stats/computers> [accessed 16 June 2014].



Source: <http://aaplinvestors.net/stats/marketshare/> (accessed 16 June 2014)

A study on electronics production in Vietnam (2016) shows varying peak times

Component or final product manufactured at the factory	Peak months
PCBs for smartphones, DVD players, LDC screens	June to September
Camera modules for smartphones	September to December
Parts for printers	May to July
Wi-fi routers, headsets, mobile phones	July to September
Mobile phone antennas	November to February; July to August to coincide with launch of Samsung's new products
Mobile phone cameras and parts	April to July (for Samsung)

- During peak production periods, firms increased overtime hours, shifts, and hired temporary workers.
- At one factory, 100% of workers had overtime during peak production periods.

Outsourcing waves across groups of countries

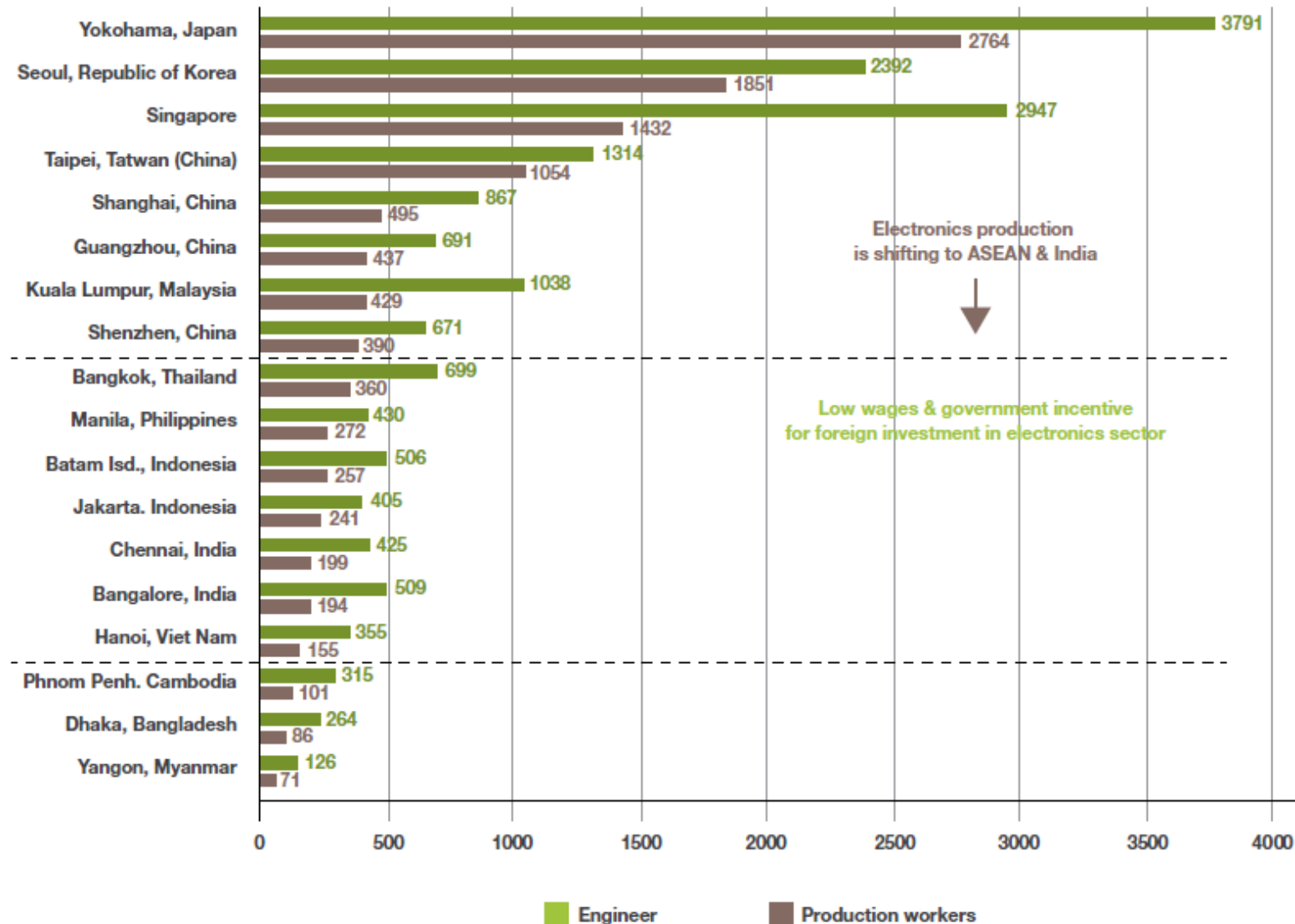
1970s - : Malaysia, Singapore, Taiwan, Thailand

1990s - : China, Indonesia, Philippines, Mexico

2000s - : Czech Republic, Hungary, Poland, Romania

2010s - : India, Vietnam

Figure 2.1: Standard wages of manufacturing workers in Asia, 2013 (US\$ per month)



Source: Matsuzaki, 2015, from Japan External Trade Organization (JETRO).

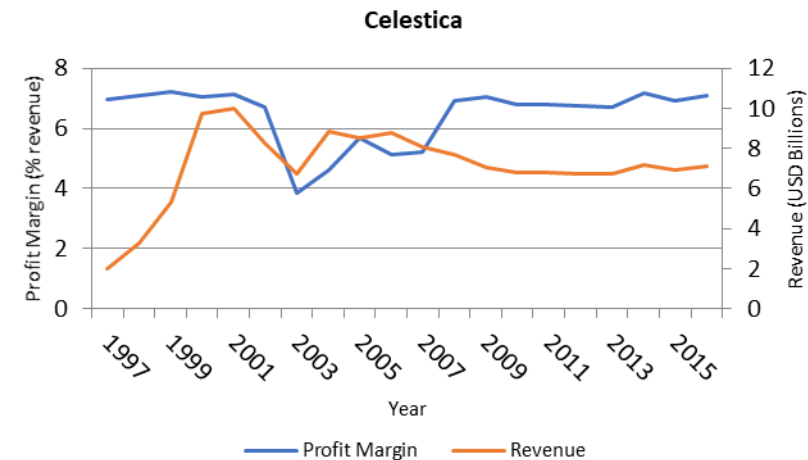
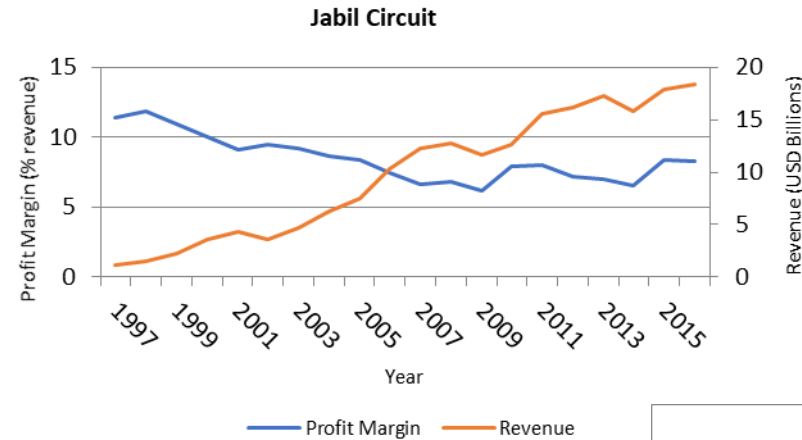
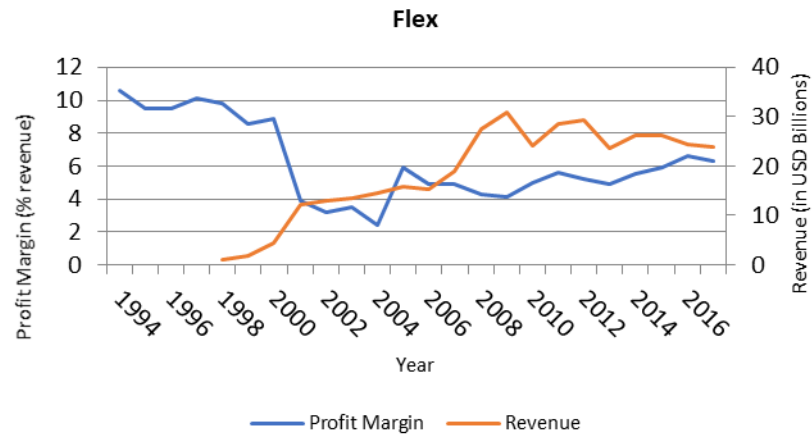


	Revenue (USD million, 2015)	Employees
Foxconn	136,122.8	1.3 million (2015)
Flex	26,147.9	200,000 (2016)
Jabil Circuit	17,899.2	175,000 (2015)
Sanmina-SCI	6,374.54	33,144 (2014)
Celestica	5,639.2	25,000 (2015)

	Revenue (USD, 2016)	Employees (2014)
Apple	214.23B	92,600
Hewlett-Packard	HP Inc.: 48,238M HP Enterprise: 50.1B	317,500
Dell	54.9B	108,800

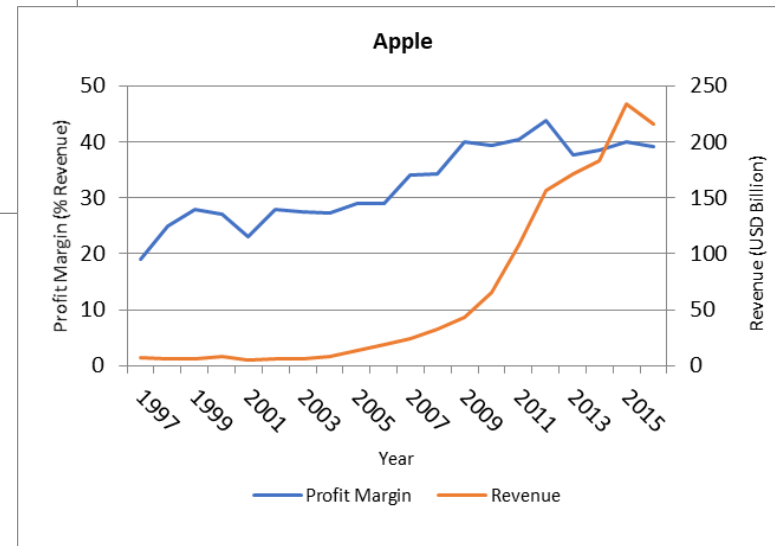
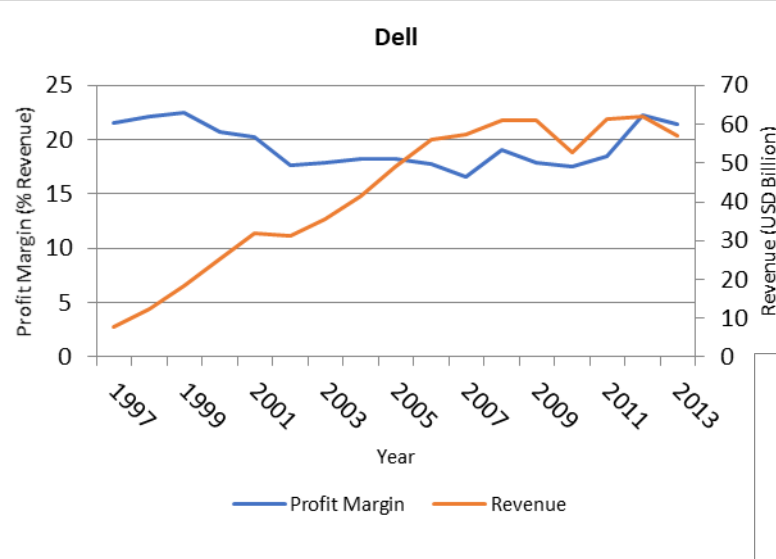
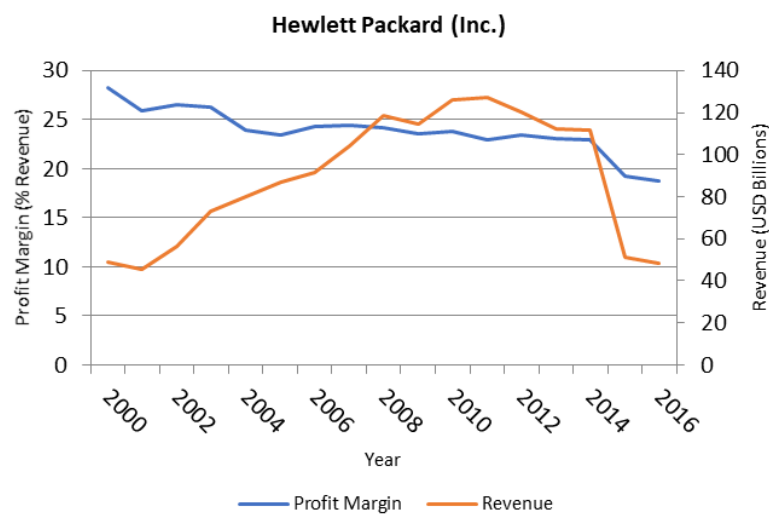
Brands outsource 80% of production to contract manufacturers
(EC 2012)

A battle of low margins amongst contract manufacturers



Source: SEC filings

Margins for brands also not growing



Source: SEC filings

Changing business relationships in the electronics industry

Due to falling profit margins **brands** are moving away from commodity hardware consumer products and into high margin business services/cloud computing, storage and printers

- consolidating their supplier base
- outsourcing more to 1st tier suppliers

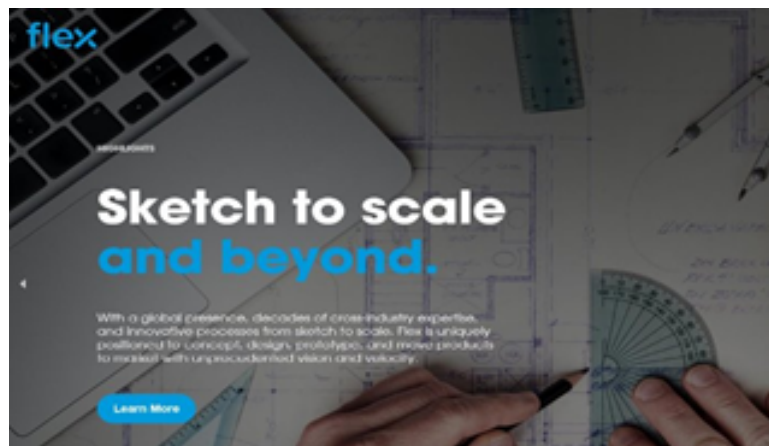
E.g. Hewlett-Packard broke up into two companies: HP Inc on hardware portfolio and HP Enterprise to rival IBM

→ opens up opportunities for contract manufacturers to enter design for hardware and manufacturing innovation



Hewlett Packard
Enterprise





flex

- Footwear manufacturing largely unchanged in past 40 years
- Macro challenges like Labor Rate inflation and TTM required different set of solutions
- Situation: Nike needed a *step change in their operations*
- Question: Could Flex bring a *new perspective* to change their business?
- After an extended assessment of learning Nike's business, and Nike understanding Flex's capability and Exec Commitment, a partnership was formed to manufacture athletic shoes
- Leverages the *Flex Platform*, with emphasis on
 - Automation
 - IT systems
 - Production reporting
 - Responsiveness to Demand
 - Customization
- Initial production line set up in Product Innovation Center in California

flex

Foxconn's Top Deals

The deal to takeover Sharp is the company's second-biggest acquisition.

Date completed	Target	Value, excluding debt, in billions
2010	Chi Mei Optoelectronics*	\$5.3
2016	Sharp (66% stake)	3.5
2006	Premier Image Technology	1.3
2004	Ambit Microsystems	1.0
2014	Asia Pacific Telecom (15%)	0.4
2014	SK C&C (4.9%)	0.4

*Acquired by Innolux, whose controlling shareholder is Foxconn.

Source: Dealogic

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What do these changes in contract manufacturing mean for worker conditions?

As contract manufacturers diversify, e.g. to automotive, footwear, and aerospace, will there be different outcomes?

As brands diversify away from first generation contract manufacturers, will they push second generation of contract manufacturers to better working conditions? Can there be an industry/scalar effect?