

INTERNATIONAL

# *Logistic Summit & Expo*

México 2012

7 y 8 de Marzo | Centro Banamex | México D.F.

## [ SUPPLY CHAIN INNOVATION ]

### **Perspectiva en mercados emergentes**



Edgar Blanco

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# **Supply Chain Innovation: An Emerging Markets Perspective**

**Edgar E. Blanco**

*MIT Center for Transportation & Logistics*

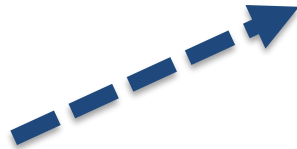
March 7<sup>th</sup>, 2012

International Logistics Summit & Expo - Mexico

# Traditional Supply Chain Leaders



# So, how did SCM end up here?



... but most importantly ...  
how can **you** get there too?!



*Jason Pontin, Editor MIT  
Technology Review  
April 2012*

“Innovation is not invention, still less is it scientific discovery”

“(…) allow individuals or organizations to do valuable things they could not do before, or they reduce the costs and difficulties of doing something already valued”

# A brief history of Supply Chain Management (SCM)...

# From *idea* to *adoption* ...

1970s

1980s

1990s

2000s

## 1982 – The name

First appearance of the name in the literature

## 1988 – The practice

P&G and WalMart start continuous replenishment program.

## 1997 – The adoption

Widespread diffusion of the name and concept

## 1961 – The idea

Forrester (MIT)

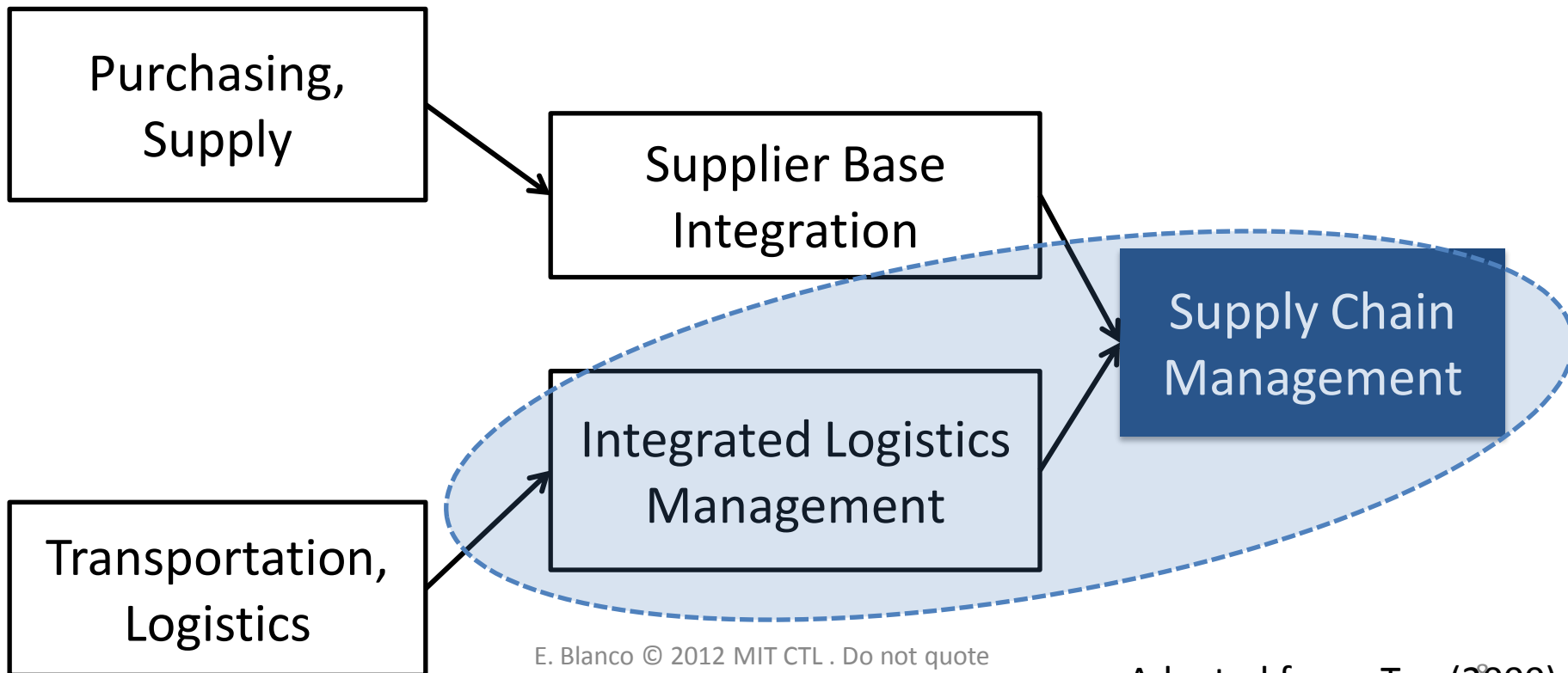
*success of industrial companies hinged on the ‘interactions between flows of information, materials, manpower and capital equipment.’*

## 1990 – The definition

Academics first described SCM to clarify differences from traditional approaches

# *Whence, SCM?*

1970s    1980s    1990s    2000s





# The practitioners definition of **logistics** was 'augmented' in the early 1990s...

*"The 1986 CLM definition of logistics has  
been augmented*

*to include services along with goods and  
information movement.*

*In addition to conforming to customer  
requirements, others view the output of  
the logistics process*

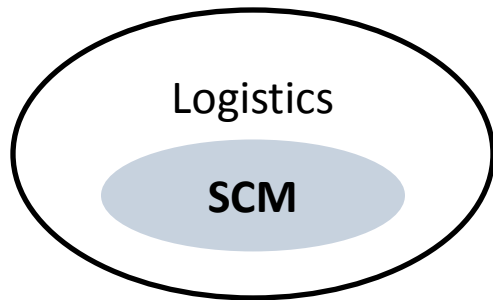
*as creating value for the ultimate  
customer (1992)*

*and contributing to current and future  
profitability of the firm (1994)."*

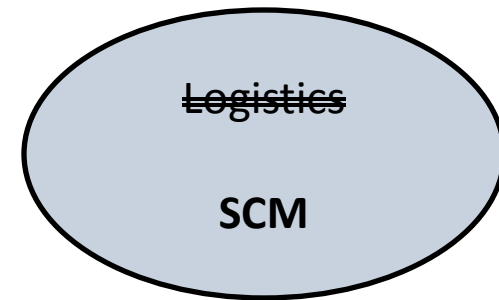
*"Effective January 1, 2005, the  
Council of Logistics Management  
(CLM) became the **Council of  
Supply Chain Management  
Professionals (CSCMP)**"*

creating the *confusion* that prevails today ...

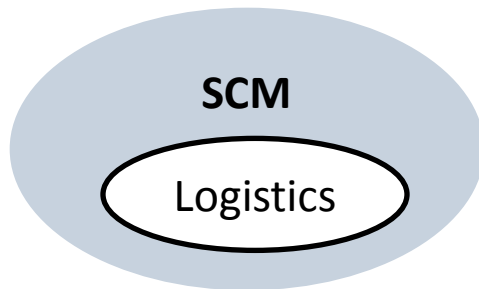
*19% think that...*



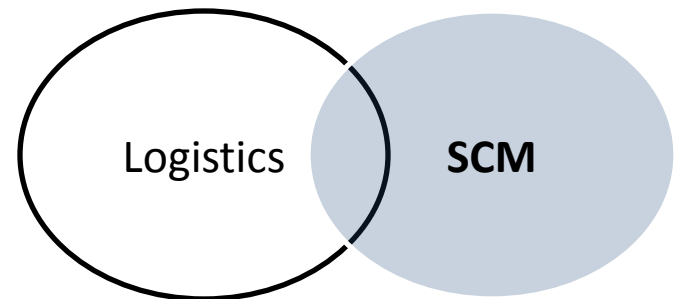
*6% think that...*



*47% think that...*



*28% think that...*



# What is ... **Supply Chain Management?**

... so, let's define a **Supply Chain** ...

*A set of three or more entities directly involved in the upstream and downstream flows of products, services, finances, and/or information to fulfill a customer need*

# ... and *Supply Chain Management* ...

*the systemic, **strategic coordination** of  
traditional business functions  
within a company **AND** the supply chain,*

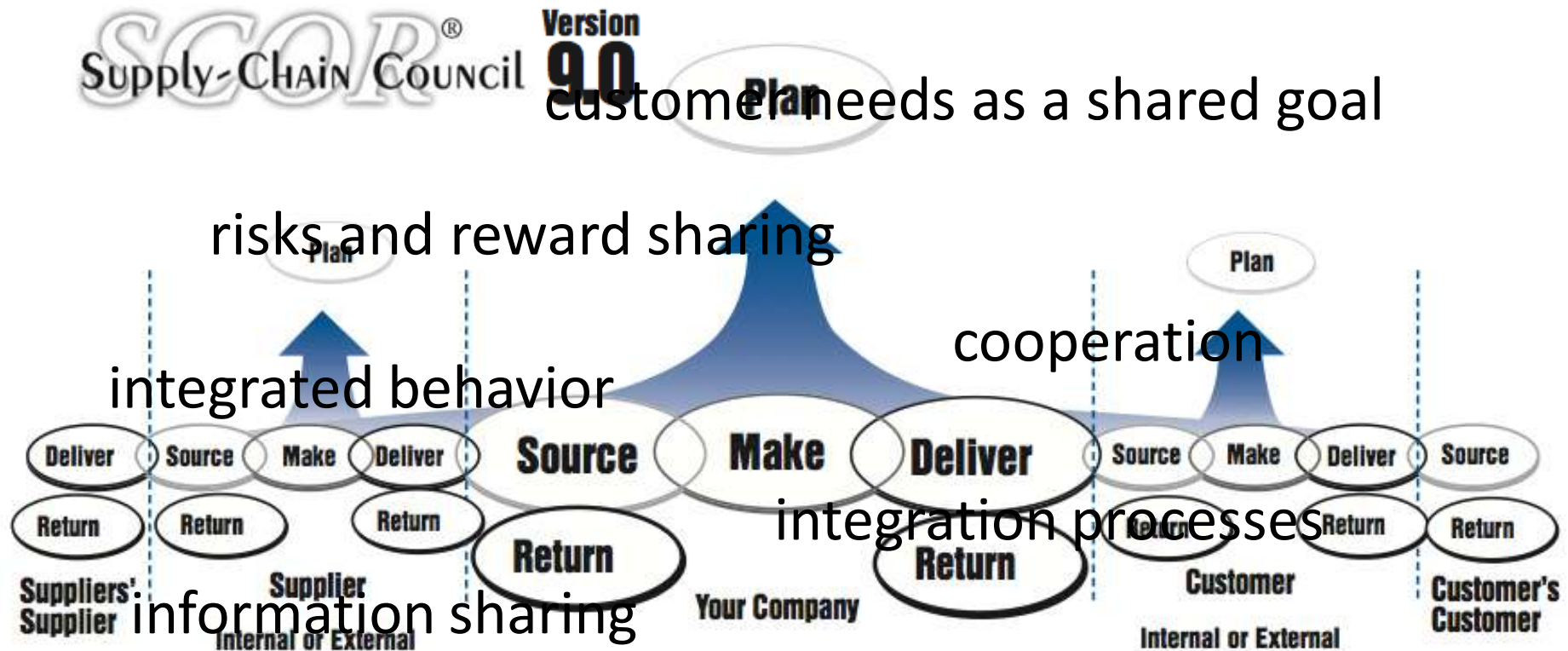
*to improve the **long-term performance** of  
the individual companies **AND** the  
supply chain as a whole*

.. a *management philosophy* ...

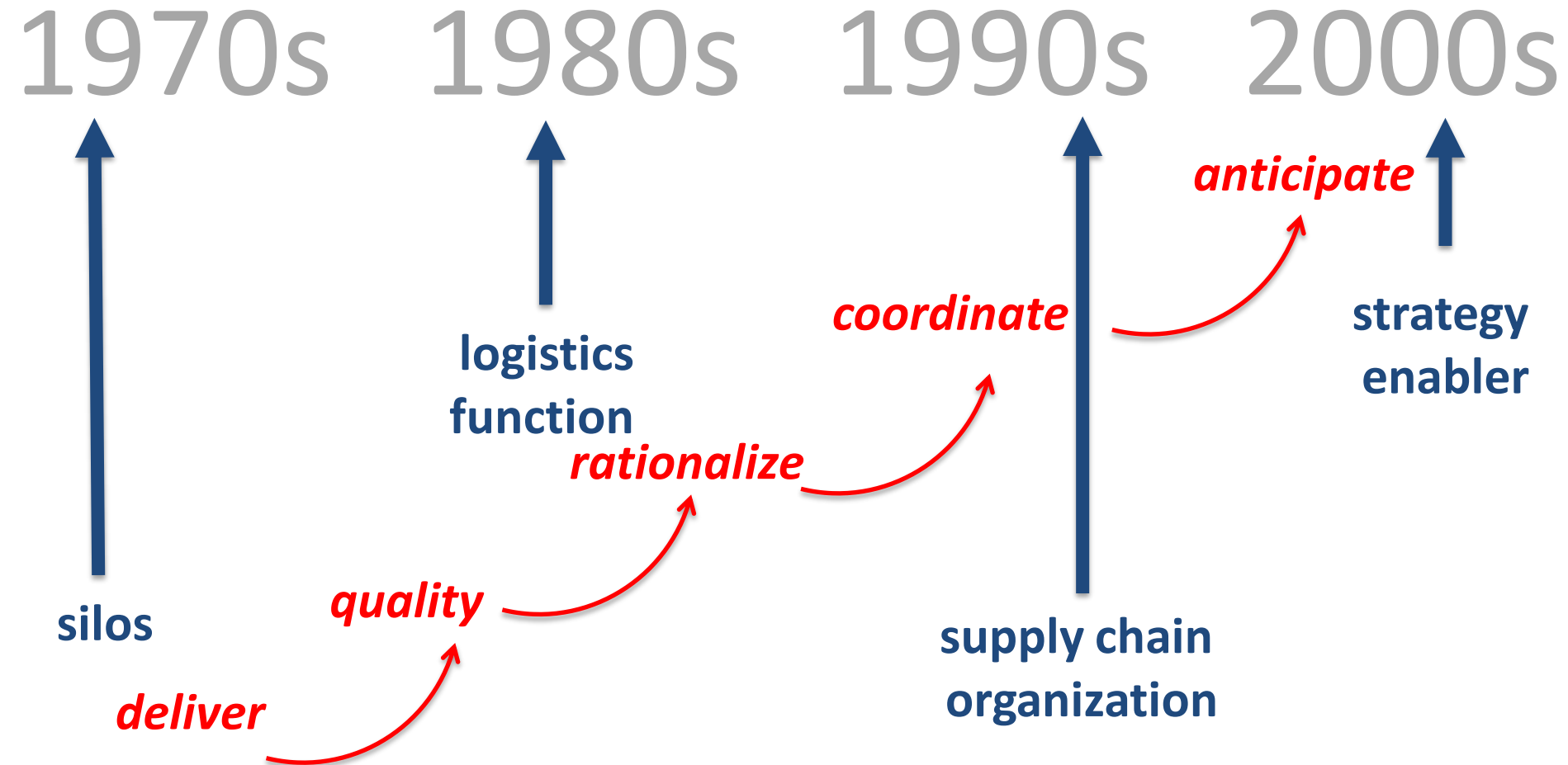
*the recognition by an organization of the systemic, strategic implications of the tactical activities involved in managing the various flows in a supply chain*

- a **systems approach** to viewing the SC as a whole
- a **strategic orientation** towards **cooperative efforts** to synchronize and converge intra- and inter-firm capabilities
- a **customer focus**, to create sources of customer value

.. and a *set of activities and processes* ...

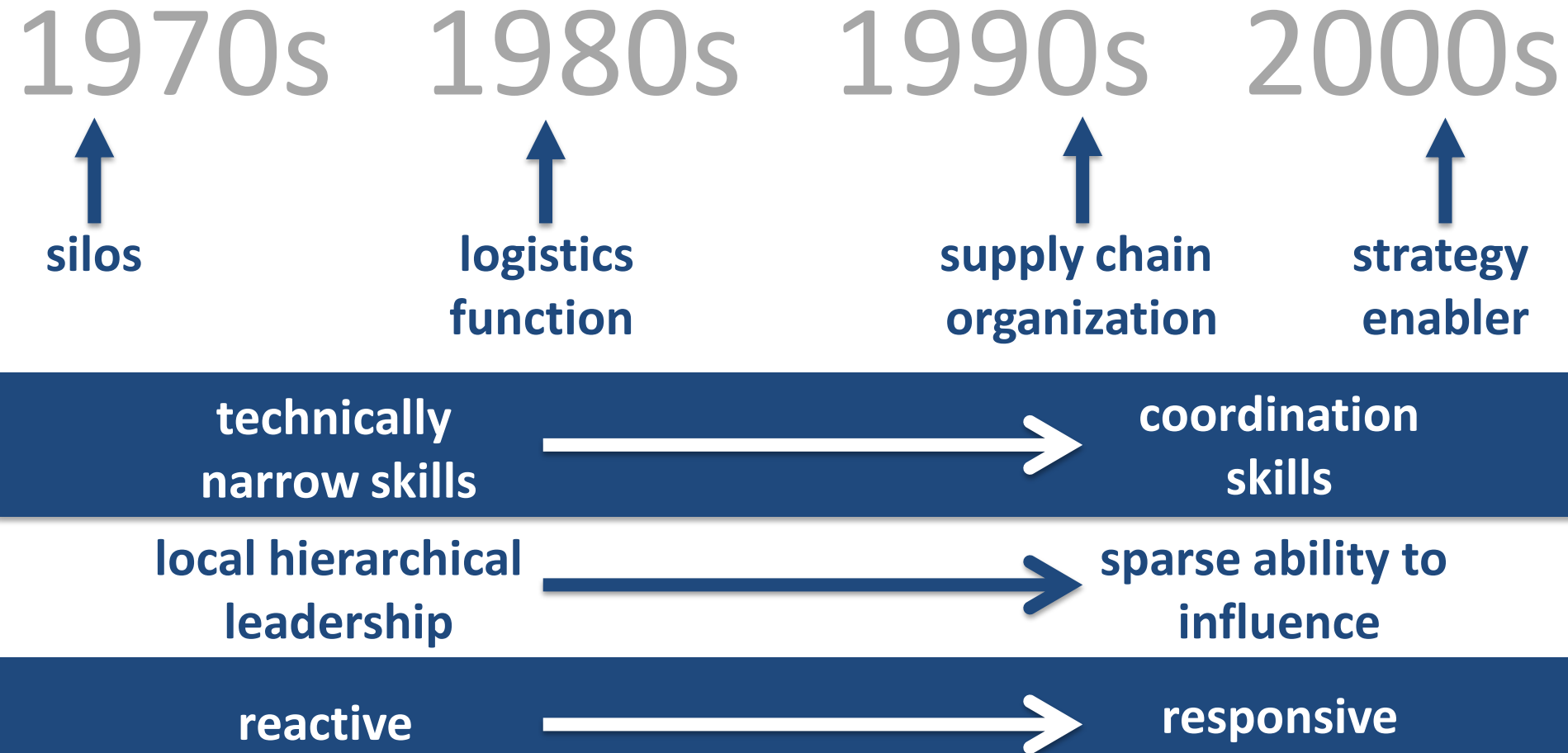


# ...a different **organization** & **focus**





# ... with different needs



... but, why is **SCM** strategic today?

# The Ford River Rouge Complex (1927 – 1960)

All under one roof/one company:

- Docks
- River access
- Railroad track
- Electricity
- Ore processing
- Foundry
- Assembly



*Photo: Wikimedia(2011)*

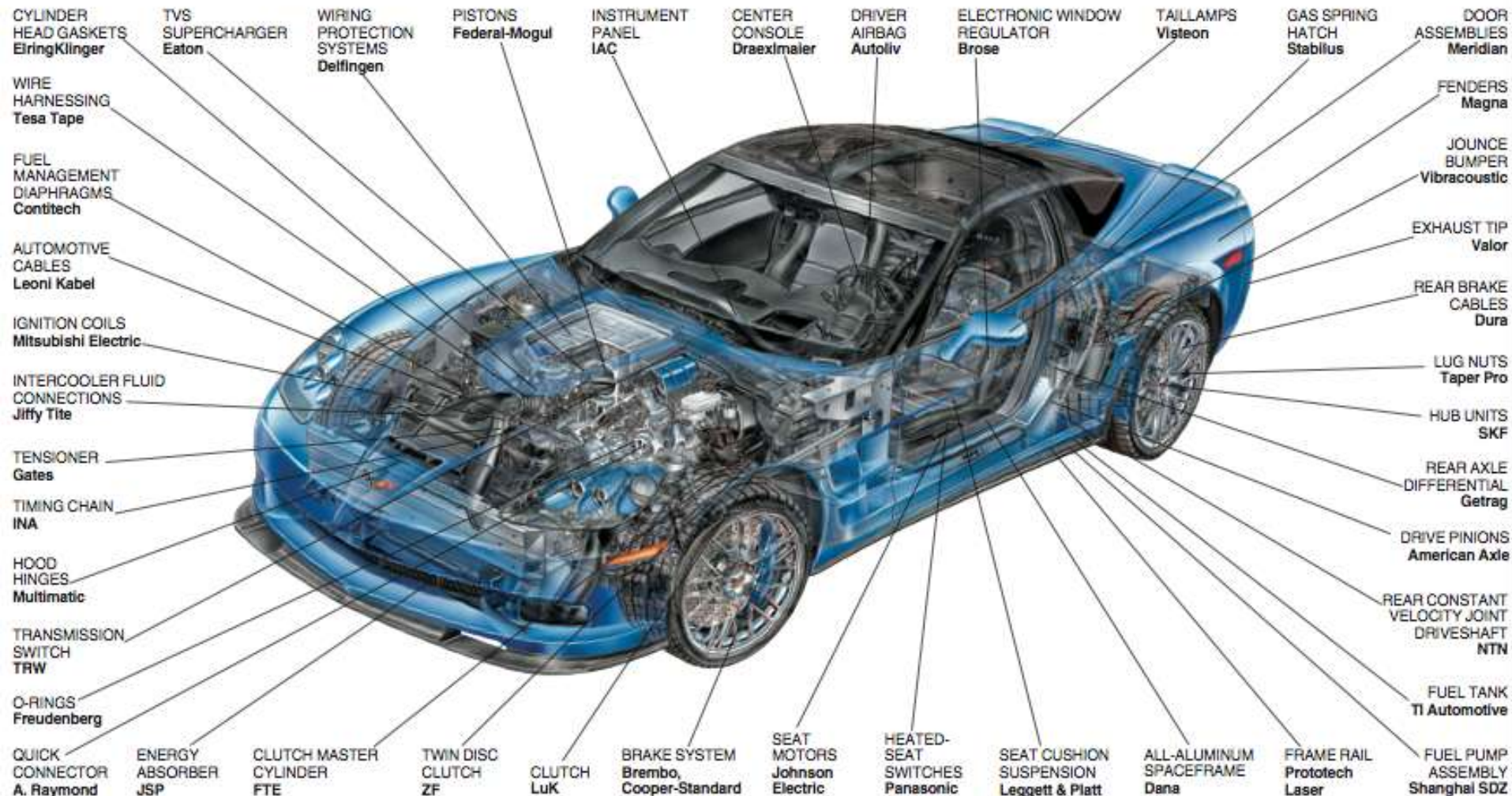
In 1960s started decentralization...



Graphic: Auto News (2010)

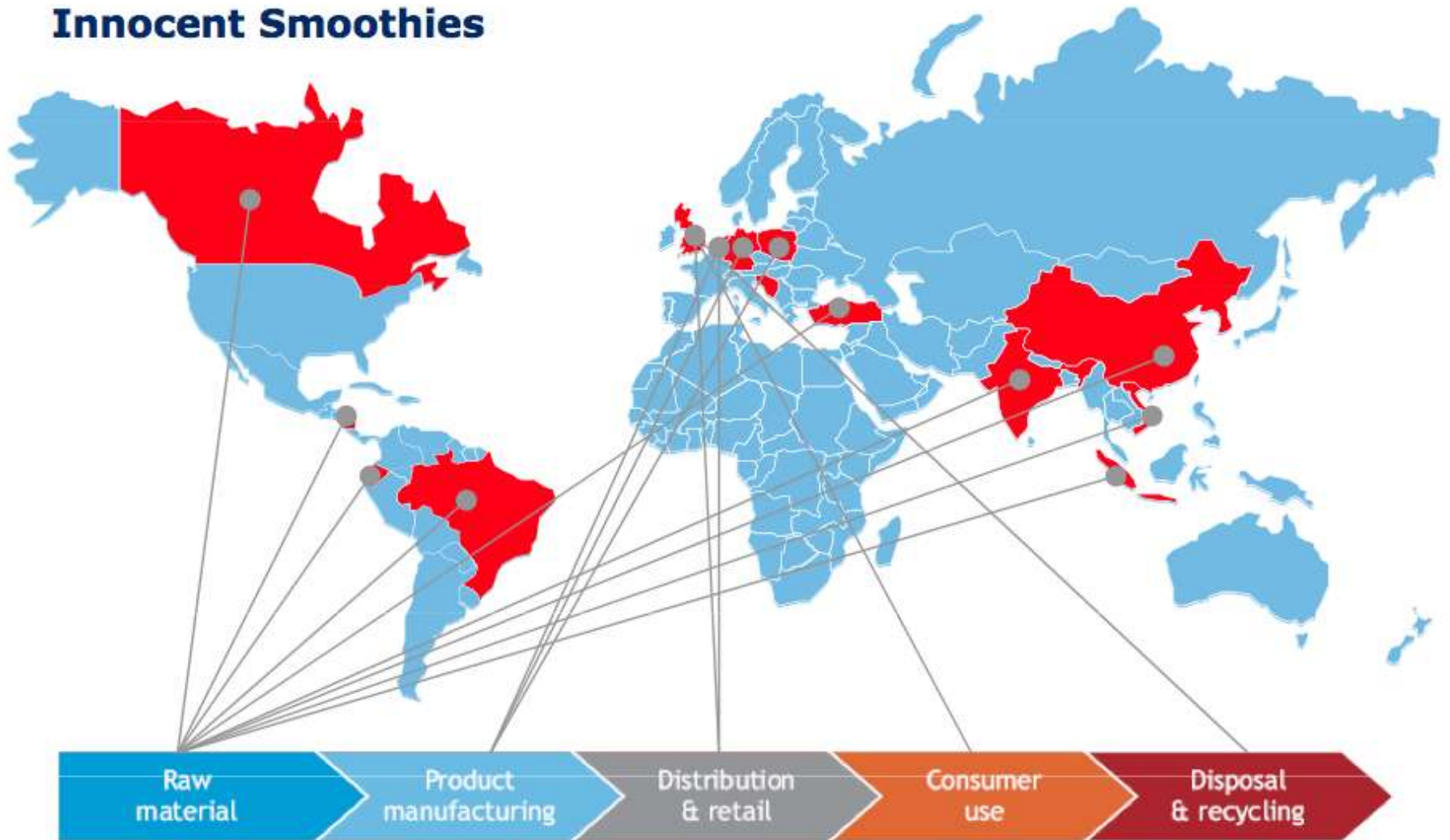


# Suppliers to the 2010 Chevrolet Corvette



# And no so “complex” products...

## Innocent Smoothies



Source: Carbon Trust (2011)

... and a series of **innovations** that make modern SCM possible

1970s

**JIT**  
(1948-1975)

**Internet protocol**  
(1974)

**the container**  
(1955-1970)

**FedEx**  
(1973)

**MRP**  
(1960-1980)

**the barcode**  
(1948-1974)

1980s

**Dell**  
(1985 - 1996)

**yield mgmt**  
(1985)

**IBM PC**  
(1981)

**EDI**  
(1980-1985)

**WalMart + P&G collaboration**  
(1988)

1990s

**Netscape**  
(1994)

**cellphones**  
(1973-1991)

**RFID**  
(1973-1990s)

**amazon.com**  
(1994)

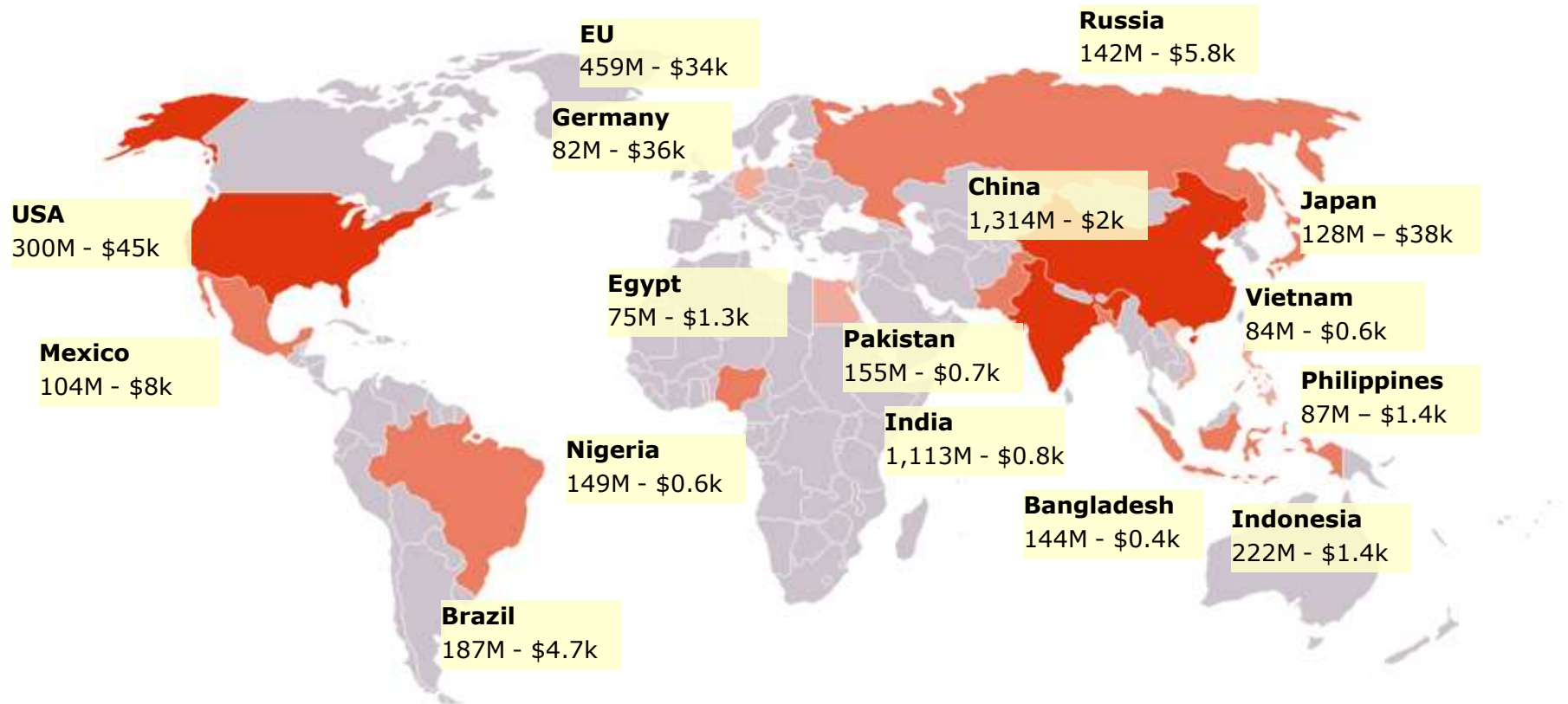
# Lessons learned from SCM evolution so far...

- Supply Chain Management is a sustainable competitive advantage
- Requires very different talent and skills
- Accelerated by global drivers, technology and process innovations



# What about SCM in **Emerging Markets?**

# Why are Emerging Markets important?



**Country**  
Population – GNI per Capita

**World**  
6,440M – \$7.5k

*Source: Wikipedia, World Bank 2006 Database*

# Emerging Markets Dynamic 1: **Urbanization** to new levels

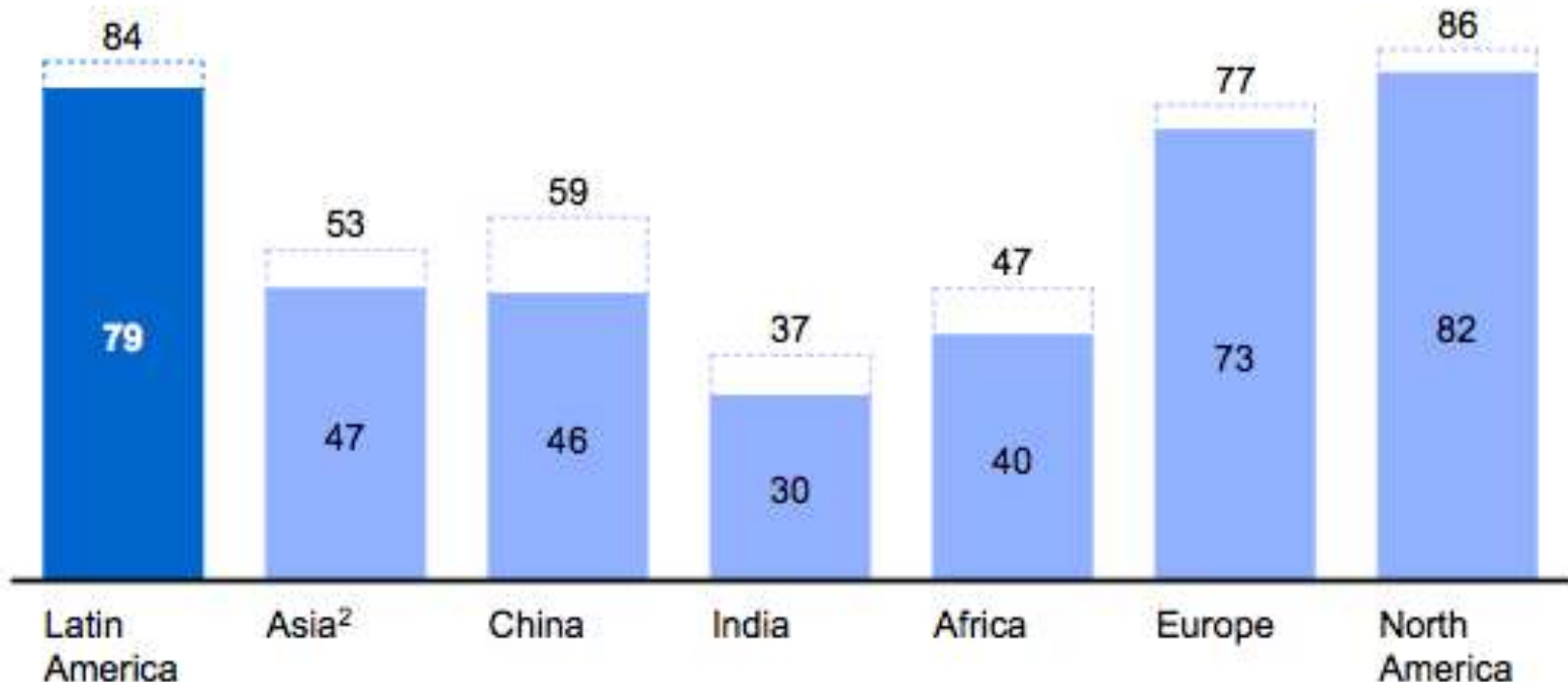
(and no sign of slowing down...)

## Latin America is the most urbanized developing region—almost 85 percent of the population will live in cities by 2025

Population living in urban areas,<sup>1</sup> 2009 and 2025

%

2025  
2009



<sup>1</sup> Urban population according to national definitions.

<sup>2</sup> Excluding China and India.

SOURCE: United Nations Population Division Department of Economic and Social Affairs, *World population prospects: The 2009 revision*, March 2010; McKinsey Global Institute analysis

# Megacities with population > 5M

1900s



(1)

**London ~ 6.5M**

Osaka(?), New York ~ 4M

Paris, Berlin ~ 3M

Tokyo ~ 1.5

1950s



(5)

**Tokyo ~ 13M**

**New York ~ 12M**

**Osaka ~ 9M**

**London ~ 8M**

**Paris, Shanghai ~ 5M**

2000s



(78)

**Tokyo ~ 35M**

**Mumbai, Mexico City ~ 20M**

**São Paulo, New York ~ 19M**

**Shanghai ~ 17M**

**Kolkata, Delhi ~ 16M**

**Beijing, London ~ 15M**

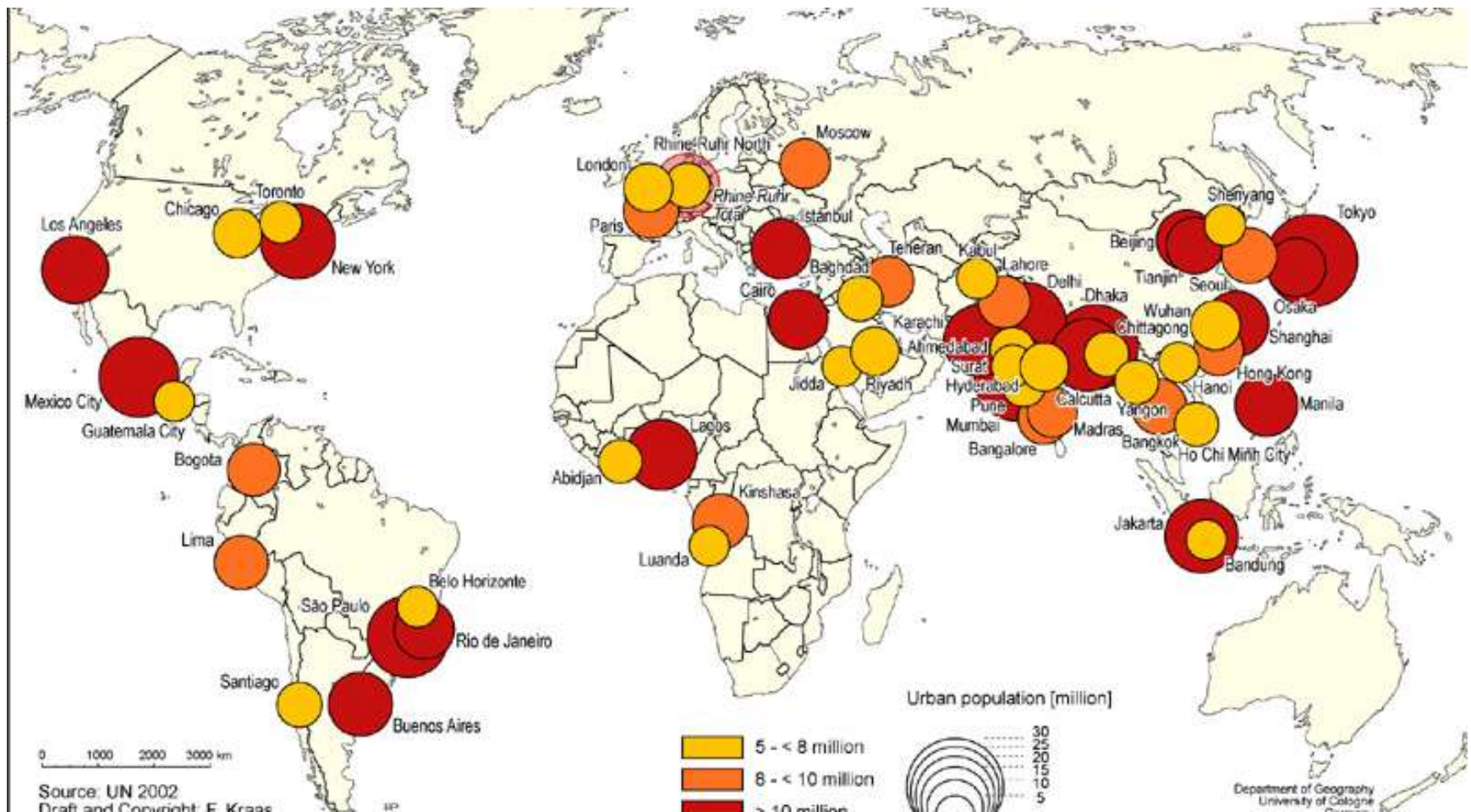
**LA, Buenos Aires ~ 12M**

**Rio, Paris, Manila ~ 11M**

**Moscow, Istanbul ~ 10M**

**.... 45 more**

# Megacities with population > 5M





# Megacities keep growing

- 100 mega-cities represent **38% of global GDP**
- Projected to **double** by 2025
- Complex environment ...

*Source: MGI (2011)*



# Putting density in Perspective



Rank	City / Urban area	Country	Population	Land area (in sqKm)	Density (people per sqKm)
1	Mumbai	India	14,350,000	484	29,650
2	Kolkata	India	12,700,000	531	23,900
3	Karachi	Pakistan	9,800,000	518	18,900
4	Lagos	Nigeria	13,400,000	738	18,150
5	Shenzhen	China	8,000,000	466	17,150
6	Seoul/Incheon	South Korea	17,500,000	1,049	16,700
7	Taipei	Taiwan	5,700,000	376	15,200
8	Chennai	India	5,950,000	414	14,350
9	Bogota	Colombia	7,000,000	518	13,500
10	Shanghai	China	10,000,000	746	13,400
11	Lima	Peru	7,000,000	596	11,750
25	Sao Paulo	Brazil	17,700,000	1,968	9,000
27	Mexico City	Mexico	17,400,000	2,072	8,400
28	Santiago	Chile	5,425,000	648	8,400
35	Rio de Janeiro	Brazil	10,800,000	1,580	6,850
36	Monterey	Mexico	3,200,000	479	6,700
39	Guadalajara	Mexico	3,500,000	596	5,900
42	Madrid	Spain	4,900,000	945	5,200
43	London	UK	8,278,000	1,623	5,100
46	Buenos Aires	Argentina	11,200,000	2,266	4,950
90	Los Angeles	USA	11,789,000	4,320	2,750
114	New York	USA	17,800,000	8,683	2,050



# Grinding halt...

**Table 4-6. Average, evening peak auto and bus speeds in Brazilian cities**

City	Auto	Bus
Belo Horizonte	23	16
Brasilia	45	27
Campinas	24	17
Curitiba	22	19
João Pessoa	26	18
Juiz de Fora	30	21
Pôrto Alegre	29	20
Recife	24	14
Rio de Janeiro	26	19
São Paulo	16	11

Source: Vasconcellos et al. (2000), p. 628, fig. 1.



4 – 5 Km/h



10 – 15 Km/h



## Zona de Máxima Restrição de Circulação - ZMRC

Decreto 49.487/08 de 12/05/2008



# Emerging Markets Dynamic 2:

## **Small stores** matter

(and they only take cash)



# Channel Complexity

## MOM & POP STORE



- 200 – 1500 sq.ft.
- Owner operation & individual decision-making
- Counter
- Knowledge & proximity to community
- Informality (p.e. taxes, invoicing, financing)
- Smaller size products
- Slow volume, high frequency, few items (500 – 5,000 SKUs)
- Examples: Tiendas de barrio, ferreterías, panaderías, kioskos, mayoristas, droguerías, autoservicio independiente, etc.

## MODERN RETAIL



- 5000 sq.ft or more
- “Corporate” decision-making process
- Self-service
- Multiple outlets, shared brand
- Organizational structure, physical infrastructure, IT technology
- Regular size products
- High volume, high frequency, many items(30,000 – 150,000 SKUs)
- Examples: Supermercados, hipermercados, tiendas de conveniencia, cadenas de autoservicios etc.







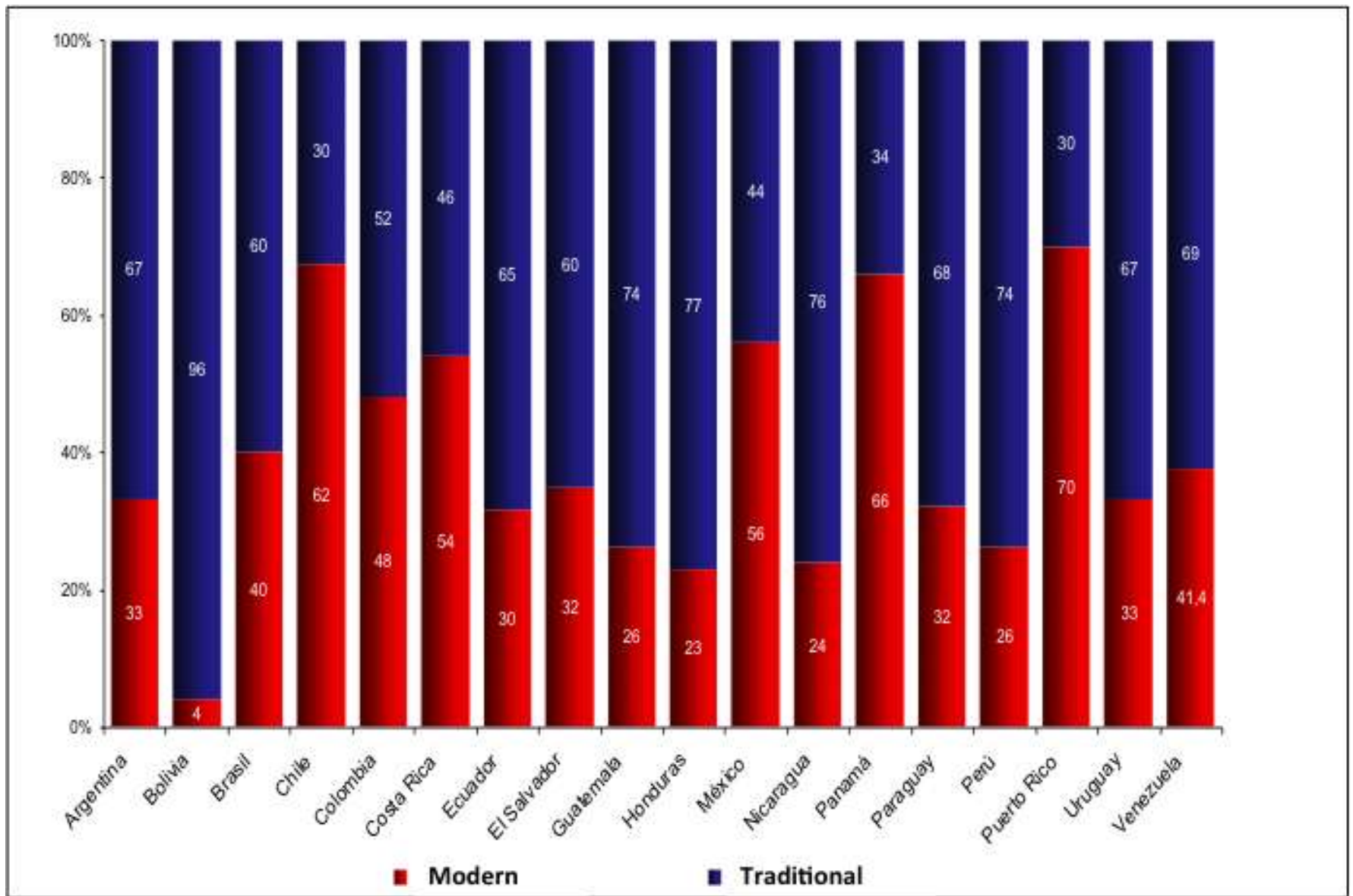






**GRAN SUPERMERCADO** La Gr  
• VIVERES • POLLO • VERDURAS Y AL  
Manz





Source: Nielsen (2010)

# Emerging Markets Dynamic 3: **mobile devices** everywhere

(leapfrogged the PC revolution)

# Moore's Law

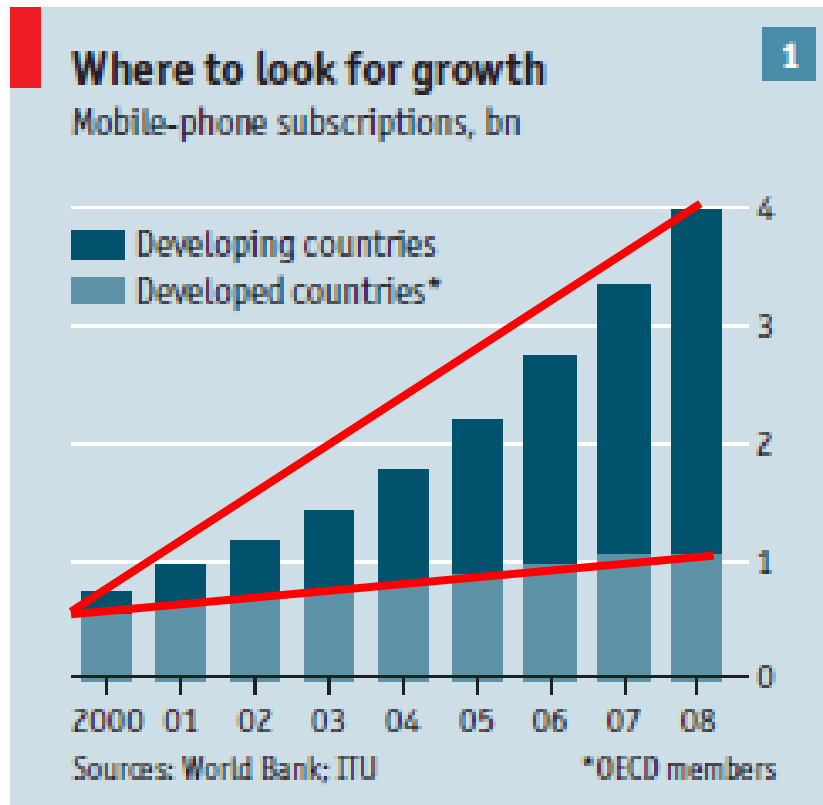
## CPU Transistor Counts 1971-2008 & Moore's Law



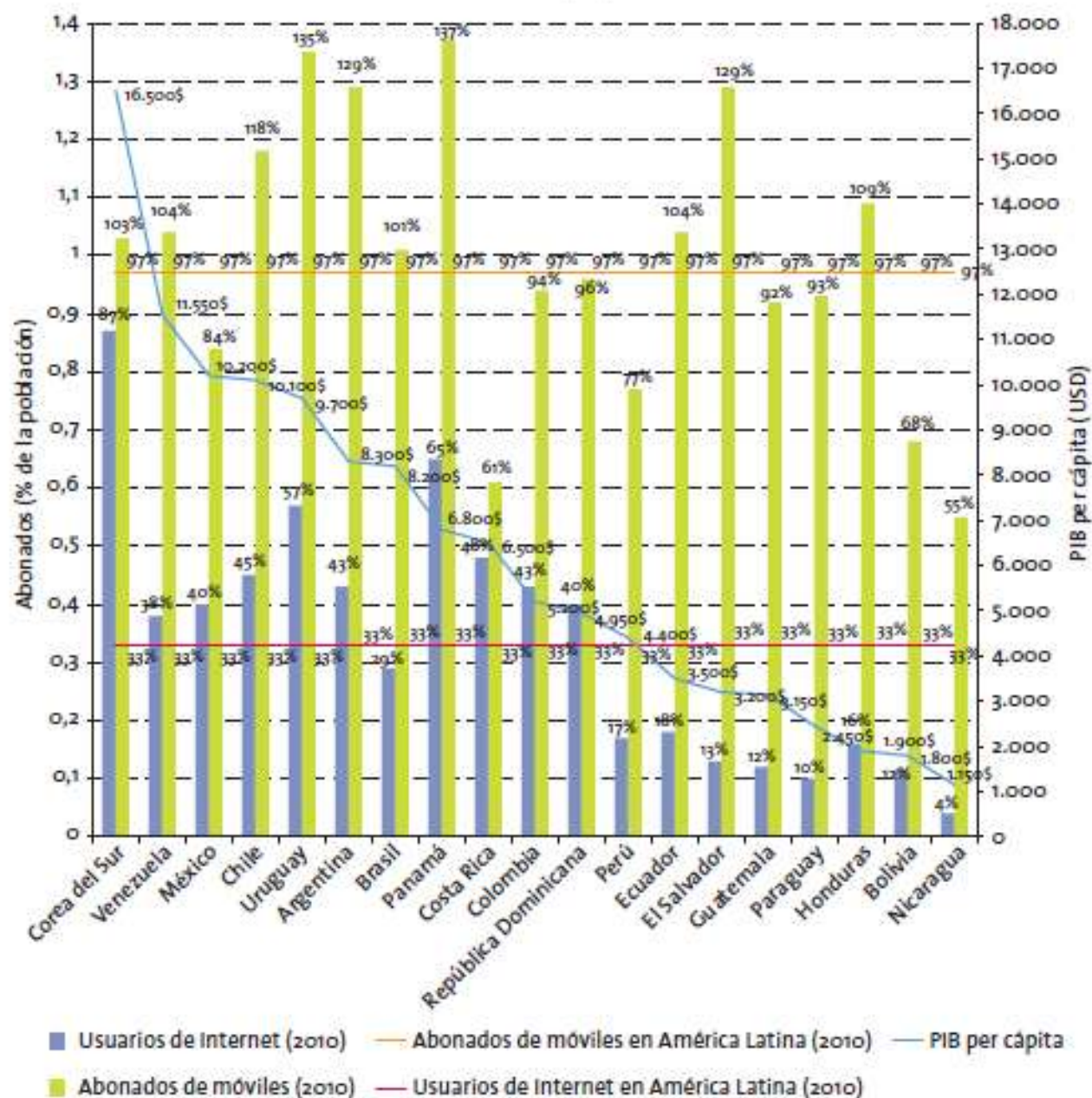
Source: Rotberg (2011)



# Mobile Subscriptions in Emerging Markets



Gráfica 3.1. PREVISIÓN DE LA PENETRACIÓN DE LA TELEFONÍA MÓVIL E INTERNET EN AMÉRICA LATINA EN 2010 EN RELACIÓN CON EL PRODUCTO INTERNO BRUTO (PIB) PER CÁPITA



Fuente: Los autores con datos de Pyramid Research.

Source: Agudelo (2011)





## GSM World Coverage 2009

Over 3.5 billion subscribers across 1,050 networks in 222 countries & regions

For further information, contact the GSM Association by e-mail at [info@ngm.org](mailto:info@ngm.org)

Produced by Europa Technologies Limited for the GSM Association.

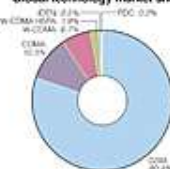
Visit [www.coveragemaps.com](http://www.coveragemaps.com) for GSM coverage map products & services.

The map is a compilation of coverage information provided by network operators world-wide and is based upon the most up-to-date data known to the GSM Association and Europa Technologies at the time of publication (January 2009). Whilst all reasonable efforts have been made to ensure that all such information is accurate, neither the GSM Association nor Europa Technologies accept any responsibility whatsoever for any errors or inaccuracies that may exist.

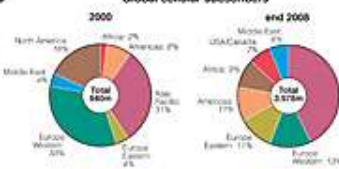
© 2009 GSM Association & Europa Technologies Limited. Edition 2009-A.

- GSM Coverage
- 3GSM Coverage
- ★ Comfone office

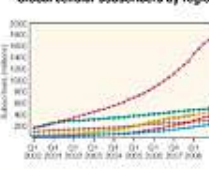
Global technology market shares



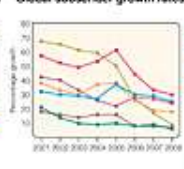
Global cellular subscribers



Global cellular subscribers by region



Global subscriber growth rates



# History's Greatest Trojan Horse





# Unique Partners

- Fragmentation
- Informality
- Low working capital



# Infrastructure

- Rural
- Limited investment
- Low coverage
- Regulation
- Burocracy





# Risk

- Political instability
- Volatility
- Tax complexity
- Corruption



# Tailored Products





# **tailored** SCM innovations needed

... driven by unique emerging market  
characteristics ....

# Mobile Banking

- Cellpay in Zambia, started in 2002
- M-PESA in Kenya
  - Launched 2007
  - Safaricom (Vodafone)
  - Originally to receive money and pay loans
  - Exponential growth
    - 2007
      - 900K users
    - 2009
      - 7M users
      - US\$2M per day, average transaction size US\$20
- Paraguay in 2008 & 2010



# Mobile money for the unbanked TIGO in Paraguay

<http://giros.tigo.com.py/>



The advertisement is split into two main sections: a white left side for sending money and a yellow right side for receiving money. Both sections feature a hand holding a Nokia mobile phone. The left side shows a screen with a recipient's details. The right side shows a screen with a confirmation message. A central yellow box contains a table of savings examples and promotional text.

**¿Cómo envías dinero con Giros Tigo? Fácil**

Sólo tendrás que visitar uno de los puntos adheridos a Giros Tigo, le indicas al cajero el número de la persona a quien quieres enviar el dinero dentro del territorio paraguayo más el monto del giro y listo. Vas a recibir un mensaje que confirmará la entrega.

**¿Por qué ahorras? 4%**

El porcentaje del valor del giro.  
Si la transferencia es mayor a \$10.000.

**Además por el 2% del valor te damos saldo de regalo**  
lo que significa que tu giro te cuesta sólo el 2% del monto que envías.

Estos son algunos ejemplos de cómo ahorras con Giros Tigo

Monto a enviar (Gs.)	Costo del Giro (Gs.)	Saldo de regalo (Gs.)	Valor recibido (Gs.)
100.000	4.000	2.000	2.000
200.000	8.000	4.000	4.000
300.000	12.000	6.000	6.000
400.000	16.000	8.000	8.000
500.000	20.000	10.000	10.000

**¿Cómo recibís tus Giros Tigo?**

Cuando te envían algún giro recibís un mensaje al instante. Luego tienes que pasar por una oficina de Giros Tigo para retirar el dinero.

# Hammock

- Mobile Logistics Planning

HAMMOCK





# Ex: Virtual Retail



# Ex: Tokyo high-rise 3PL

- Inefficient distribution to high-rise buildings in Tokyo Shinjuku area
  - 130,000 workers in 20 high-rise buildings
  - Individual deliveries to office areas
- Creation of Shinjuku Matenro Staff 3PL to deliver goods
  - Collaboration of carriers
  - Micro-urban distribution center
- For-profit venture

*Source, Junichi Yashiro (TURBLOG, 2011)*



# Shinjuku, Tokyo



# Shinjuku X-Docking Process



Sort the goods with buildings to be delivered



Making a final check of the delivery tickets



Loading up the sorted goods in the truck



Leave at 9:30 am for "Morning 10"



Other trucks successively leave



Unload at building and truck leaves to next building





Sant Dnyaneshwar

॥ श्री गणेशाय नमः ॥

**एकमेकांस सहाय्य करु  
अवधेची धरु सुपंथ**

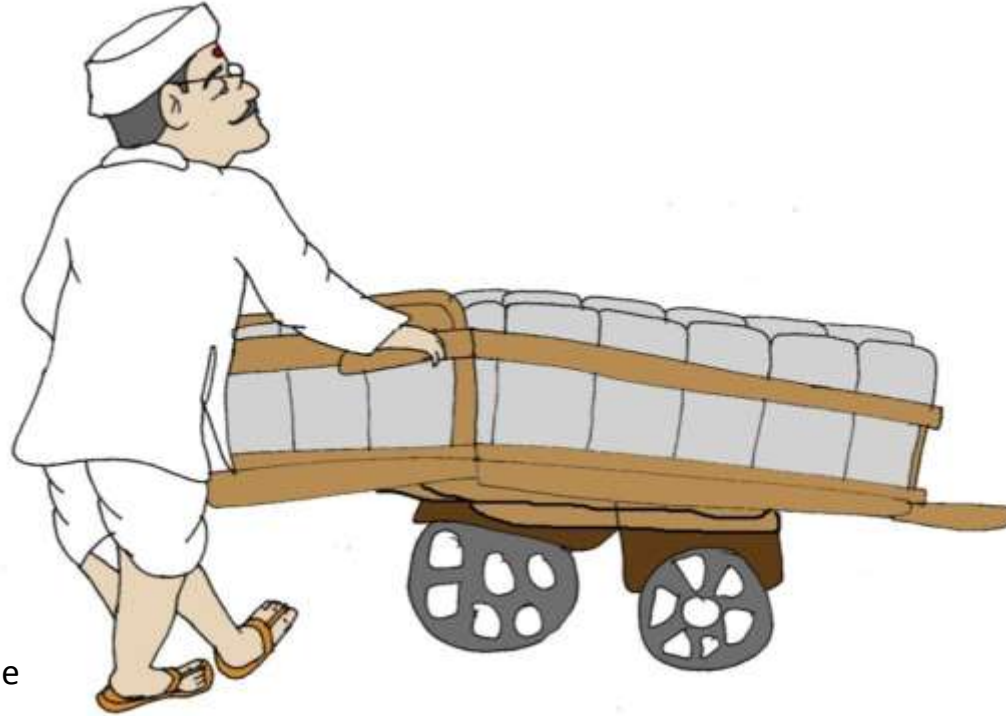


Lord Ganesha



**Founder**

Late Shri Mahadu H. Bachhe



**Sr. Member**

Late Shri Dhondiba Medge

**The Wonder Of Dabbawallas Unfolded**

**NUTAN MUMBAI TIFFIN BOX SUPPLIERS ASSOCIATION**

**Web Site : [mumbaidabbawala.org](http://mumbaidabbawala.org)**

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# ABOUT NMTBSA

- History : Started in 1890
- Charitable trust : Registered in 1956
- Employee Strength : 5000
- Avg. Literacy Rate : 8<sup>th</sup> Grade Schooling
- Total area coverage : 60 Kms to 70 Kms
- Number of Tiffins : 2,00,000 Tiffin Boxes

400,000 transactions every day (including return)

i.e.  $400,000 \times 25 \text{ days} \times 12 \text{ months} = 120,000,000$

(120 million or 12 crore transactions per year)

- Time taken : 8 to 9 Hours

Morning 3 Hours Wartime

**(9 A.M. to 12 P.M. for the Collection and Delivery)**

# The Dabba coding system evolution



**Coloured threads**  
End of the 19th century  
to the mid 20th century



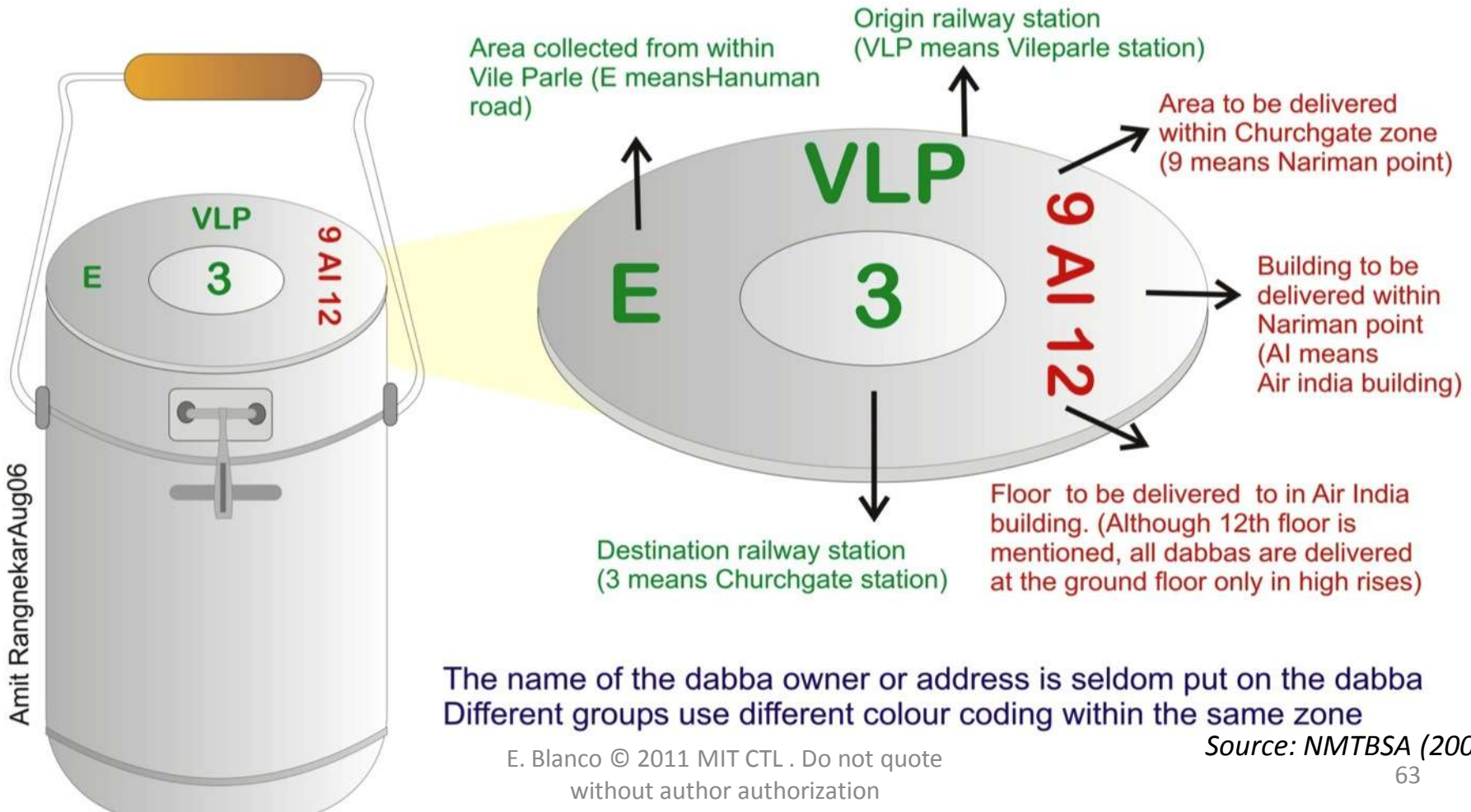
**Coloured cloth tags**  
Mid 20th century  
till the early 1970s



**Oil paint shapes**  
1970s till the  
late 1980s

**Alphabates**  
*A, B, Mu .... Z*

**The Current coding system-** Alphanumerics in oil paint.



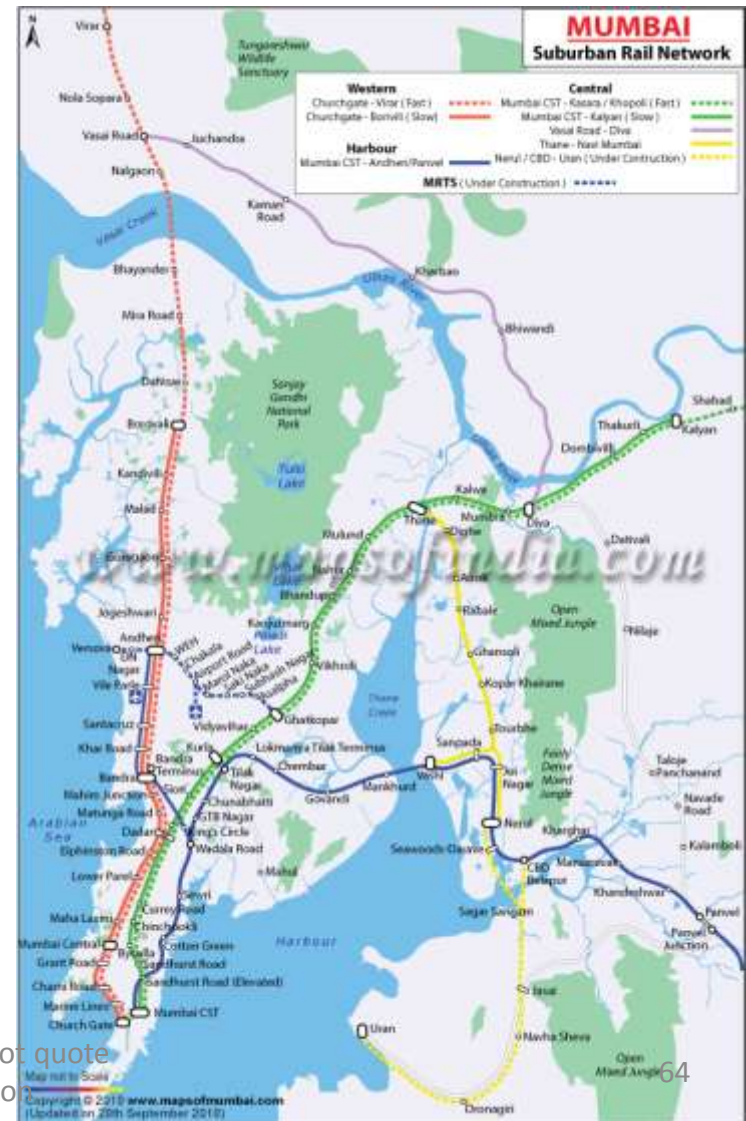


# Shared transport/freight Infrastructure

## Suburban Rail Network

- **2 Zones** – Western (80 km) & Central (120 km, Harbor-100 km)
- Extensive reach: **300 km / 95 stns.** transporting **6.9 Mill. Daily**
- **Avg. 4,500 pass.** packed in 9 car rakes (Cap: 1,700)
- 3 rakes in each train dedicated to freight

*Source, Deepak Baindur (TURBLOG, 2011)*





*Jason Pontin, Editor MIT  
Technology Review  
April 2012*

“Innovation is not invention, still less is it scientific discovery”

“(...) allow individuals or organizations to do valuable things they could not do before, or they reduce the costs and difficulties of doing something already valued”

# Thanks!

## Q&A

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