Electronics industry in central Europe: a new global production location

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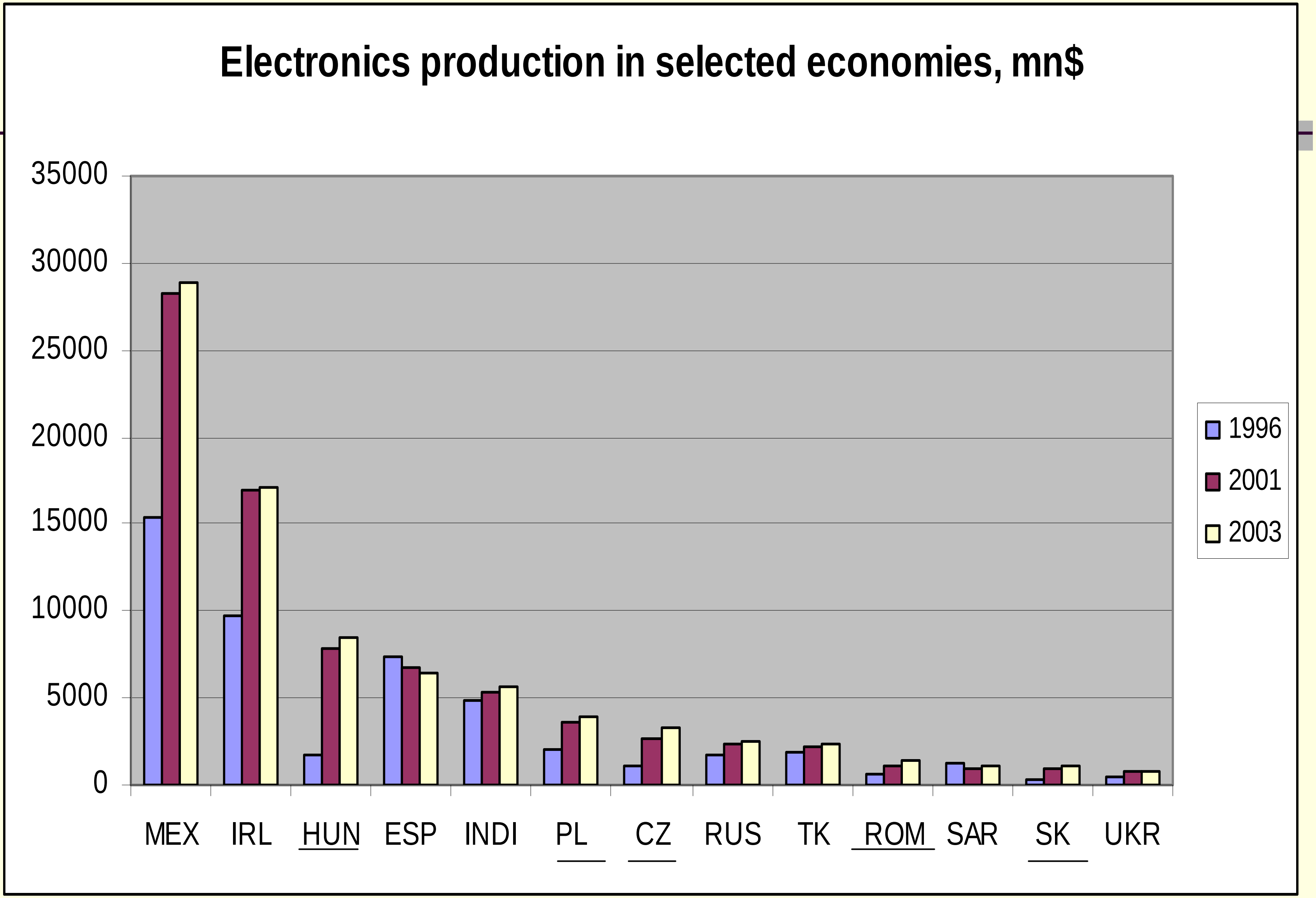
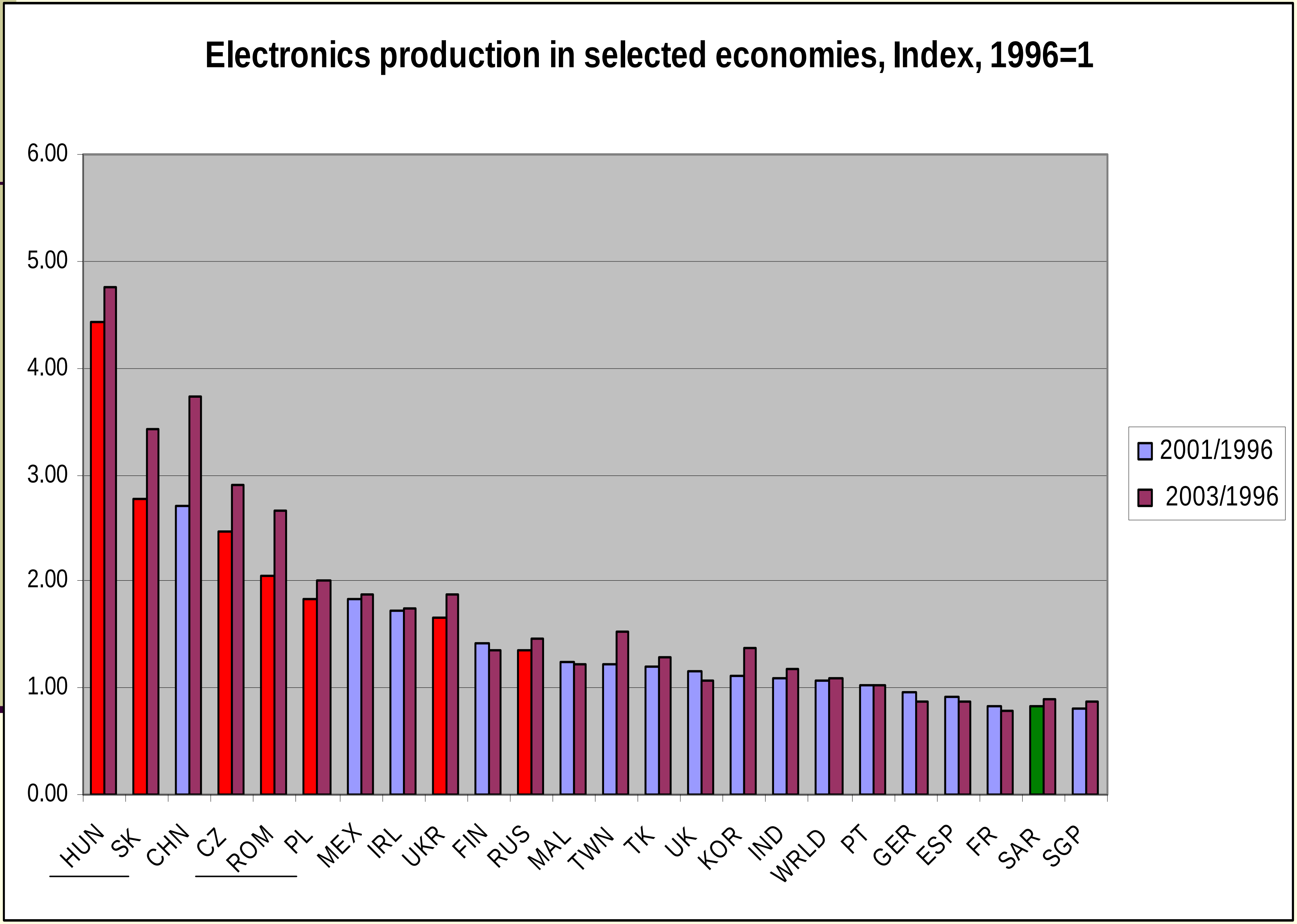
Questions

- How do we explain the emergence of central Europe as global production location in electronics?
- What management and policy lessons we can draw from the success of CEE electronics?

Structural change in electronics industry works in favour of Central Europe as production location

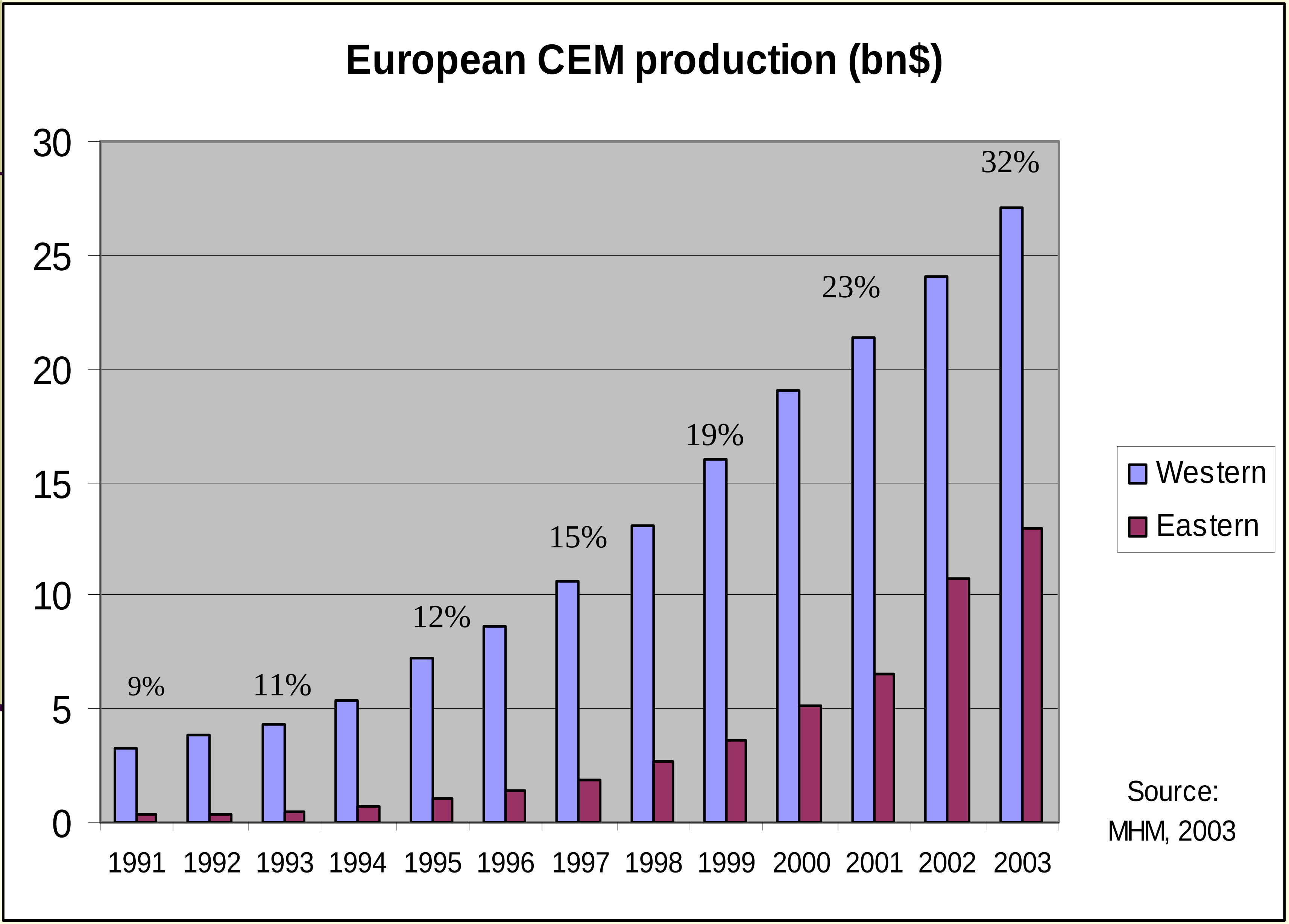
- from highly localised to highly globalised production pattern
- decoupling of manufacturing from product development and their dispersion across firms and national boundaries
- focus on reducing costs of integral supply chain through outsourcing, relocation to low cost sites, reduction in number of suppliers, common standards to improve flexibility and global product range
- shift from expensive to cheaper areas but also to locate close to main markets in order to achieve flexibility


Electronics production in selected economies, mn$
35000
30000
25000
20000
15000
10000
5000
0
MEX
IRL
HUN
ESP
INDI
PL
CZ
RUS
TK
ROM
SAR
SK
UKR
1996
2001
2003


Electronics production in selected economies, Index, 1996=1
6.00
5.00
4.00
3.00
2.00
1.00
0.00
2001/1996
2003/1996
HUN
SK
CHN
CZ
ROM
PL
MEX
IRL
UKR
FIN
RUS
MAL
TWN
TK
UK
KOR
IND
WRLD
PT
GER
ESP
FR
SAR
SGP

Major companies

- **OEM**
  - Philips
  - Siemens
  - IBM
  - Nokia
  - Ericsson
  - Motorola
  - Sony
  - Matshushita
  - Samsung
- **CEM**
  - Flextronics
  - Celestica
  - Jabil
  - Solectron
  - Elcoteq
- **Endogenous manufacturers**
  - Videoton
  - Tesla Ecimex



European CEM production (bn$)
30
25
20
15
10
5
0
9%
11%
12%
15%
19%
23%
32%
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
Western
Eastern
Source:
MHM, 2003

Major CEM Plants in CEE, sales

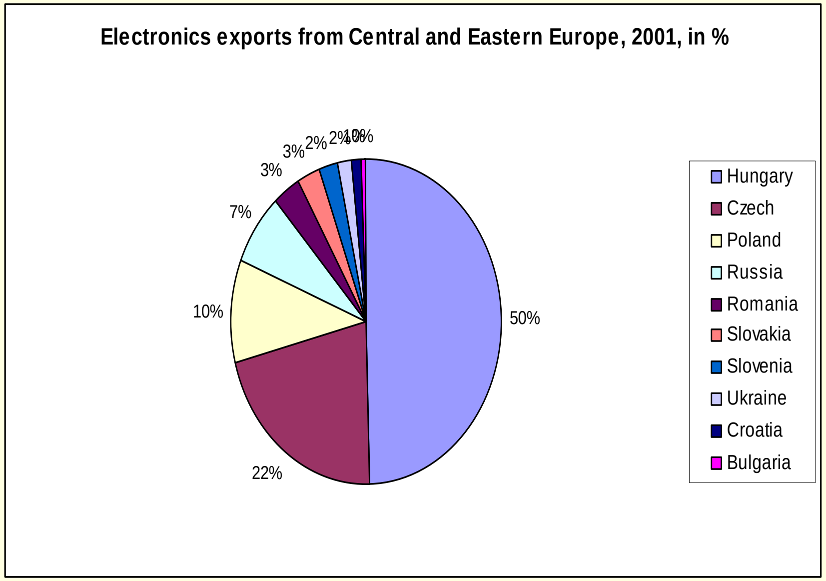
2002 Q1 (MHM Estimates)

	Hun	CzR	Rom	Pol	Bulg	Esto	Slovak	*Clients*
Flextronics	976	209		100				
Elcoteq	420					470		ABB, Allgon, Benefon
Solectron	231		210					Telecom, Consumer, Computer, Danfoss
Sanmina-Sci	264							Telecom, Consumer, PC, Ericsson, Solectron
Videoton	226				16			IBM, Philips, Sony, Alcoa, Valeo
Zollner	225							IBM, HP, VDO Car system, Toshiba, Harman
PCMS	130			35				Automotive, Consumer & Instrumentation
Celestica		207						Dell, HP, Nokia, Sagem
Jabil	74							Communication, PC/Peripheral/Automotive
Sofrel				59				Automotive,Mobile, Consumer
Solid Semecs	51							Atac-Etna, Pelgrim, Caraton, Durigs, Honeywell, Miele, Si
Foxconn		54						
Epiq					30			Eaton, SEB, Valeo
Vogt			30					Siemens, Philips, Osram, Valeo, BSH
Tesla Stropkov							25	Slovak & Czech Telecom, Stetner, E-Kontakt
Kimball				22				Delphi, Alcatel Polska
Metra Blansko		20						Metrawat, Cosinus, Verner

Source: MHM Press Release, Sept 2002

CEE Electronics: Conclusions I

- FDI > the primary vehicle of integration of the CEE electronics firms into global production networks,
- Hungary has moved the furthest along this path, positioning itself as a major low-cost supply base in the region.



Investors’ perspective on CEECs: ‘tiering’ of the region (?)

- Central Europe (Hun, Cz R, Pol) as the first tier > Other countries: the emerging second tier (?)
  - CEE ‘sweet spots’ (Hungary, Czech R and Poland)
  - Developing CEE (Romania, Bulgaria, Baltics)
  - Future CEE low – cost bases (Serbia, Belarus, Ukraine, Russia, Bosnia, Moldova)
- Which factors hinder the emergence of ‘flying gees model’ in electronics on a large scale (?)

Industrial networks in CEE are organised by MNCs and are limited in scope (mainly intra-firm)

- Networks reflect the strategy of the dominant actor – MNC > confined on subsidiary with still limited local subcontracting, are export oriented and are expanding.
- Emerging linkages are confined on parent firm and local subsidiary and their subcontractors in some cases.
- Strategies of MNCs are shaping the profile and objectives of these networks
- EU = the main source of demand for the CEE electronics industry

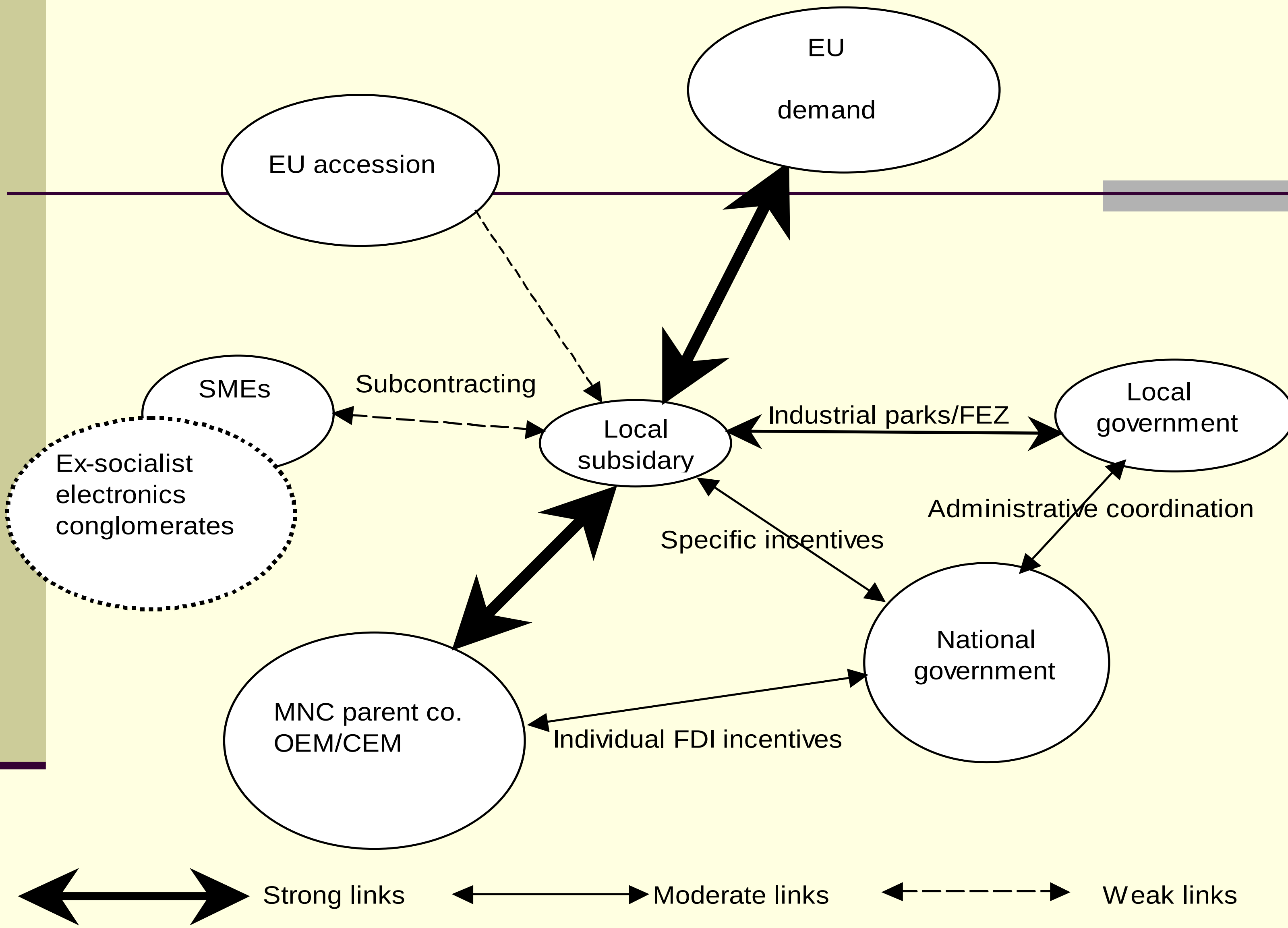


Figure 4: Stylized relationship and strenght of network alignment elements in Central European electronics

The weakest node for further industry upgrading are national networks

- National networks: Large and small local firms, their mutual links and their links to infrastructure organizations (university, services)
- Local firms are the weakest as potential network organizers
- Emergence of few domestic firms that operate as network organizers > seed of potentially different pattern of industry upgrading
- Local champions of opening > firms that grow based on networking with foreign firms

EU demand operates as a strong ‘focal point’ (attractor) to the emergence of new industry networks

- EU demand generates necessary ‘coherence’ for initial and still rudimentary local clustering organized by MNCs
- However, accession to EU seem to play secondary role

Policy implications I: assist building up of missing elements

- Policy should aim to identify relevant complementarities between firm and region specific advantages and disadvantages.
- Alignment of different networks cannot be enhanced by centralized and coordinated change. The real policy challenge is to know what are the ***triggering or missing elements*** that might generate complementarities between national and global production and technology networks.
- Rather than trying to be generally attractive to foreign investors policy should aim to develop those parts of its infrastructure and national innovation system that ***complement*** the business strategies of companies that are moving towards knowledge based activities.

Policy II: Support the weakest link!

- Given that domestic large and small firm are the weakest links in network alignment there is a strong need to enhance NSI of the CEECs within the wide EU system of innovation (cf. support local and international networking and diffusion activities)
- Danger of FDI as the only industrial policy

Window of opportunity: strategic FDI policies

- 1st generation policies: liberalization of FDI flows
- 2nd generation: marketing of countries as locations and setting of national investment agencies
- 3rd generation: targeting of foreign investors at the levels of industries and clusters
- CEECs should learn fast to implement 2nd and 3rd generation polices (cf. CzechInvest as role model)
- Strategic FDI policy as the second best policy option

Policy proposal: EU wide FDI contests

- Even after the EU accession CEs have remained heavily dependent on FDI for industry upgrading
- Instead of trying to limit competition for FDI between EU regions EU should use contests for FDI between regions as a mechanism to improve business environment in the weakest regions
- Purposes:
  - An incentive device
  - Coordination device
  - Mechanism to share policy knowledge
- Key policy challenge: how to couple policy towards value chains and NSI