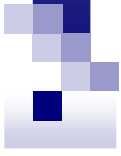


**TOWARDS THE FRAMING OF VENTURE
CAPITAL (VC) POLICIES:
A SYSTEMS EVOLUTIONARY (S/E) PERSPECTIVE
WITH REFERENCE TO UK/SCOTLAND AND
ISRAELI EXPERIENCES***

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**Based on a VC Policy Memorandum, Venture Fun Project,
Prime FP6**



Acronyms

- VC** - *Venture Capital in general or Venture Capital organization or 'Lerner' definition of venture capital*
- SU** - *high tech start up/high tech start up company*
- VC*** - *Strict definition of venture capital*
- ILC** - *Industry Life Cycle*
- ICT** – *Information & Communication Technology*
- EHTC** - *Entrepreneurial ICT High Tech Cluster*
- LS** - *Life Sciences*
- STE** - *Science, Technology and Higher & Innovation*
- ITP** - *Innovation and Technology Policy*



A: MOTIVATIONS AND

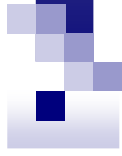
BACKGROUND

- ***Lisbon Agenda and EU objectives*** high R&D/GNP objectives & linking to the ICT/LS may require developing a vibrant and dynamic VC industry oriented to high tech/life sciences (VC* will be defined as VC oriented to early phase finance and support of high tech SUs)
- ***The Relatively Weak impact of VC Policies in Europe*** - at least till and including the 1990s - and in comparison with the Israeli experience which suggests that 'emergence' of a domestic VC* industry and market could be a benchmark to policy success (still VC* policies had some degree of success in Ireland, Finland, & Scotland)



A-1


- Example of “weak-impact” VC policies: Germany’s efforts during the 1980-90s & England’s Regional VC Funds
- Part of the problem may be the perception of VC as pools of money; but not as a new industry/market.
- Also neglected lack of technological entrepreneurship: DEMAND
 - Does supply of VC always stimulate demand?
- VC policy in Europe does not undergoing significant re-formulation
 - Despite past experience there seems to be too few attempts to re-formulate the approach & design of VC policies although there is significantly enhanced *awareness of the need for VC*
 - In the literature, theoretical perspective strongly influenced by works such as Gilson (2003) and Da Rin et al (2004) yet to confront what are, from a S/E perspective, the central issues.



B: Two Approaches to the Analysis of VC and VC policy

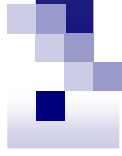
***B1. A Finance (or Finance plus)
Perspective***

***B2. A Systems Evolutionary (S/E)
Perspective***



B1 A Finance (or Finance plus) Perspective -1

- Focuses on a VC as a “pool of money” concept and/or in the ‘operation’ of existing VC organizations (Gompers and Lerner 1999, 2001, and 2004)
- Policy implication: focus on “equity gaps” caused by “market failures” – i.e. high information asymmetries and high transaction costs
- Takes demand for given, or assumes that VC injection will inevitably stimulate demand (Gilson 2003)
- *Ceteris Paribus*, US model of VC-sector potentially replicable elsewhere (objective of innovation policy), “one-fits-all” solution
- Central to policy are monetary incentives to capital and to investment & also regulatory changes (OECD 2003)



OECD (2003): VC Policy Recommendations

- Quantitative restrictions on institutional investors should be eased to broaden the sources of VC in many OECD countries
- Lower capital gains tax rates will stimulate entrepreneurs and investors, while avoiding the need for special VC tax incentives
- Government equity programs can stimulate private venture financing but should be phased out when private markets mature
- Governments should link angel networks to public programs, such as technology incubators




B2 A Systems Evolutionary (S/E) Perspective-1

- Focuses on alternative view of VC: non-monetary added-value & “technological gate-keepers” that steer companies towards those regions with the ideal mix of factors to promote innovation (Florida & Kenney 1988)
- VC dynamics linked to cluster dynamics, at least in ICT and LS
 - Central aspect, VC-SUs co-evolution
- Focus on the dynamic emergence of new organisational forms, either a market or an industry
 - “extended” life cycle
 - nature and existence of the pre-emergence conditions
- Institutional & Organisational Variety
 - Nature of the institutional setting
 - Sectoral Differences & Patterns of Technological Convergence
 - Cluster dynamics



B2(2): “Normative” Implications

- VC policies being part of a broader set of ITPs
 - Distinction between direct and indirect policies
- Heterogeneity
- Possibility of (policy) targeting VC (industry and/or market) emergence, possibly together with EHTC emergence
- Considers both monetary incentives to capital and instruments/actions directed to:
 - the development of capabilities,
 - identification of New Intermediation Forms (at different moments in time)
 - triggering cumulative processes
- “Timing” is critical



C: VC-directed policies

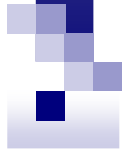
Three broad directions (OECD reports):

- **Direct Government supply of funds to firm**
 - typically, Government VC company;
 - lately, through Fund of Fund mechanisms, some of these following Israel's Yozma Program;
 - Co-investment funds in places such as Scotland
- **Financial incentives to VC or VC investments**
- **Change of institutional settings:**
 - broadening of investment rules of organisations such as Pension Funds or
 - the Creation of VC-Trusts in the UK & introduction of Ltd Partnership (US, UK and Israel)



C1: VC-related policies

- Development of active second tier capital markets
- Taxation and R&D Credits
- Reduction of red tape on new ventures
- Promoting business angel networks
- Funding of pre-finance appraisals and evaluations
- Stimulating dynamic entrepreneurship
- Reforms of labour legislation to reduce risk-profile of potential investees



C2: Israel's Yozma Program (1993-98) - Context

Favorable pre-emergence conditions

- Around 300 SU by 1992, a few with IPOs in Nasdaq;
- Links with US capital & product markets & with US firms and managers;
- Identification of New Intermediation Form: Ltd Partnership;
- Widespread ICT innovation capabilities from prior direct support to business sector R&D & Defense;
- Liberalization of capital markets;
- A cultural shift favoring high tech entrepreneurship;

→ *Also "timing of implementation" exploited and coincided with favorable external and domestic conditions*



C2(1): Design

- A 100 M\$ government VC contribution, 80 M\$ of which seeding 10 privately owned & managed hybrid funds
 - ‘Yozma Funds’ - most of them 20M\$ funds with a 8M\$ Government share
- Selection of Ltd Partnership VC management teams
- Conditions:
 - Highly capable General Partners in most cases with experience of investment in High-Tech
 - Raising the remaining 12M\$
 - High profile Ltd Partners including at least one reputable foreign financial institution
 - at least one reputable domestic partner



C2(2)

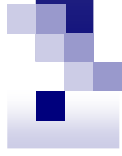
- **Linking with High Profile Foreign Partners**

This was a central component of the design; it led to 'learning from others', reputation and critical foreign contacts/networks

- **Coordination & Critical Mass of Resources (Money and Capabilities)**

The 100 M\$ together with the complementary 150M\$ were invested in 200 SU approximately during 1993-6/7.

This triggered a cumulative process of emergence during 1993-7/8, by which time it could be said that a VC industry/market had been created



C1 (3) Impacts of VC/High Tech policy in Israel: The Entrepreneurial High Tech Cluster of the late 1990s

- Numbers of SU created: 2,500
- Accumulated VC funds raised: 8,500 M\$
- VC Investments in Israeli SU: 6,650 M\$
- Accumulated No. of IPOs: 126
- Accumulated VC-backed IPOs: 72
- Accumulated No. of significant M&A by MNE: 75
- Number of VC companies: 100
- Share of ICT exports in manufactured exports (end of decade): 54%
- Civilian R&D as a share of GDP: >4%



D: Critique of EHTC Policies in the Literature

EHTC policies have not been linked in the literature (Bresnahan & Gambardella 2001) to VC and VC policy.

- VC seems to be another (non-traded?) input which the cluster will begin producing once demand reaches a certain level.

This contrasts with Israel's experience (A&T 2006) which suggests VC emergence (and VC-SU co-evolution) were key vectors in the cumulative process of Emergence of that country's EHTC

- Also in contrast with Scottish experience, where angels + public schemes (mostly co-investment funds) are contributing to generate a market for VC
- This needs not to emerge as an industry; in fact, in the cases of Scotland and Beer-Sheva this seems unlikely to happen

Other criticisms of high tech cluster dynamics & policy in the literature

- Ignoring the role of a pre-emergence phase and underestimating the role of cumulative processes ('dynamic economies of scale')
- Concerning the possibility of policy targeting for cluster emergence: focus should be on cases with favorable "pre-emergence conditions" and not simply when favorable 'background conditions' exist
 - Excess of liquidity, favourable macro-economic circumstances



E: A Systems-Evolutionary Perspective to both ITP & VC/VC Policies - 1

General Principles

1. Policy Objective: Emergence of Multi-Agent Structures (e.g. Market, Industry, Cluster)
 - a “MARKET” or a “CLUSTER” can exploit connections to an “EMERGED INDUSTRY”
2. Evolutionary Targeting: operational measures and short-term objectives may change over time
 - according to the different phases of the ILC
3. VC evolves in conjunction with other components of the national or regional innovation system
 - Co-evolution is context (e.g. characteristics of the regional or national financial structure) and sector-dependent (e.g. ICT vis-à-vis LS)

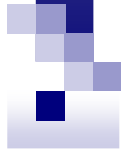
E-2

4. If and only if Possible, Identification of a context/sector specific Intermediation Form (s) (for VC*/VC)
 - To be promoted or targeted during a certain phase (e.g. pre-emergence); needs not to become “dominant” at emergence or maturity
 - Especially (but not only) during pre-emergence: in the UK & US key role played by Angels; nevertheless unlikely to become “dominant” form
5. Heterogeneity of Policies
 - (a) VC-directed / (b) non VC-directed
 - (a)/(b) targeted/non-targeted
 - (a) Focus: monetary incentives, institutional change, capability enhancement
 - (b) cluster, STI *latu sensu*, etc

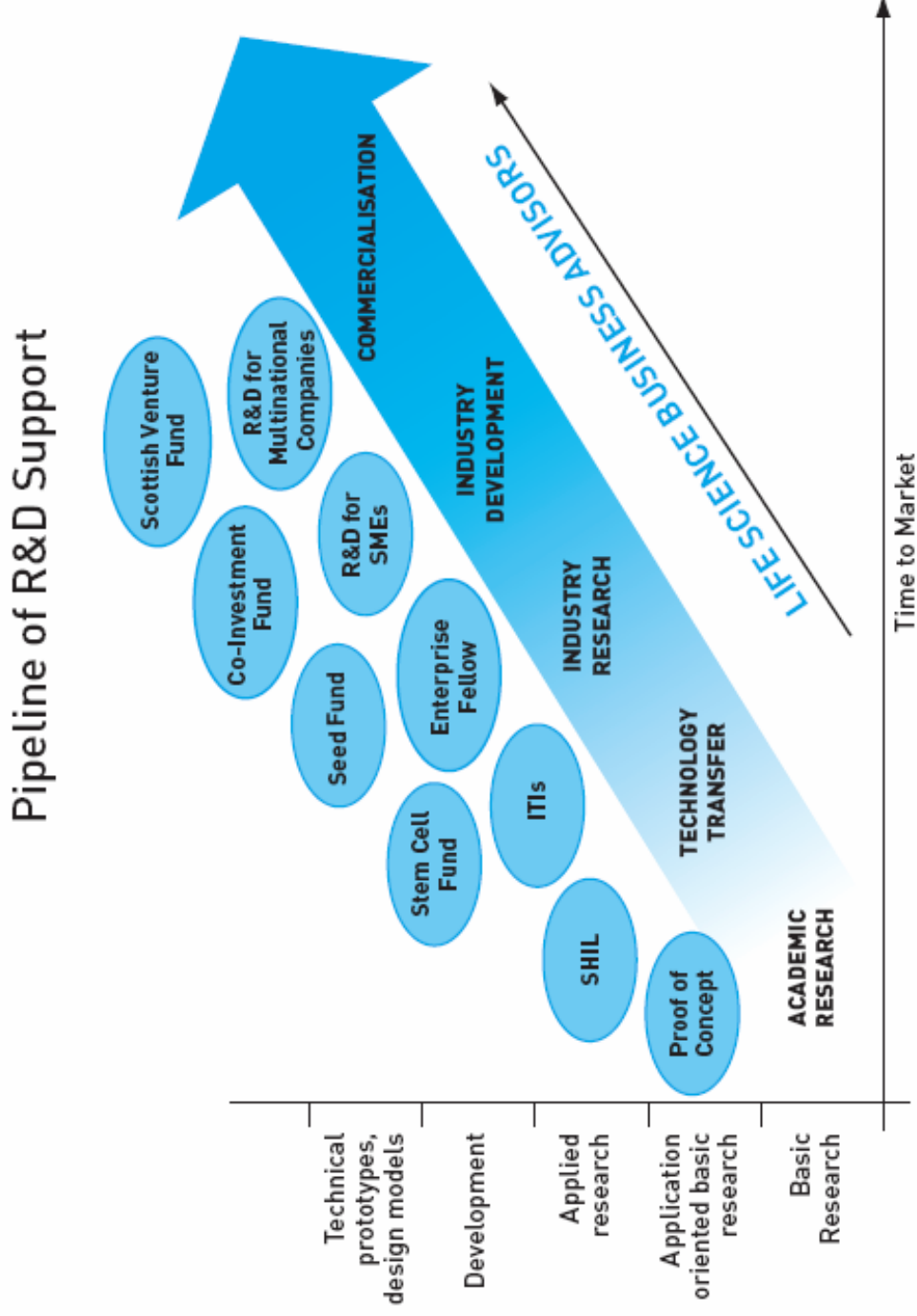
6. A Strategic Level of Policy: emergence can be planned!

“the central function is to set strategic priorities, to identify system failures blocking their attainment by the existing system and associated policies, and, together with the operational level, to identify and design new policies whenever these are called for by the new priorities”

Conclusion: Policy Making more complex than what is commonly thought of!



Scotland's Life Science Strategy





E-3: Promoting Cumulative Processes

- This is the 'ultimate objective' of STI including VC policy. The policy portfolio should trigger and support such processes (and stitch new ones to old ones with weakened momentum)
- Cumulative processes take place through time
- What triggers/sustains the process could be very sensitive to context (Market & Systemic Failure)
- They can be sustained by the implementation of new policies that feed upon old policies and their impact. e.g. Scotland
- Virtuous co-evolutionary & cumulative processes: the intuition here is that demand (i.e. "investor-ready opportunities" - Mason and Harrison 2003) plays a key role and co-evolves (rather than being unilaterally stimulated) with VC (in its different forms)

E-4

Evolutionary Targeting involves:

- policies for the creation of pre-emergence conditions to create options for targeting;
- criteria for the selection of targets among them;
- and policies for triggering and sustaining processes of emergence

Frequently important criteria could include:

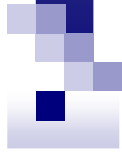
- prior existence of entrepreneurial capability (or the condition to generate it)
- the possibility of linking with high profile, foreign agents
- The possibility of attaining a significant global market share in the relevant products
- (for VC emergence) A ‘precursor’ mass of SU companies

The economy endogenously determines which industries, clusters will be ‘selected’ (alternatively we could state that ‘firm selection’ precedes ‘sector selection’) – entrepreneurial capabilities (and culture) are key to create “investor ready opportunities”



F. Central Issues when Applying the S/E Perspective to VC Policies in Europe

- 1. *Avoiding an Excessive Emphasis on Supply Factors- a major pitfall in the past was ‘closing the early funding gap’***
- 2. *Focus on Dynamics - not necessarily an ILC view***
- 3. *A Multidimensional View of Venture Capital-money, organizations and industry/market***
- 4. *Linking VC and High Tech Policies-in ICT and LS***
- 5. *A Variety of VC Policy Objectives***
- 6. *Policy Underpinnings - including institutions/capabilities, governance issues, continuity through time, budgets, data***



G: Typology of VC Policies Objectives -1

Relevant Criteria:

- Technology/Science Areas
 - e.g. ICT or Life Sciences orientation
- VC Organizational Profile, e.g. LPs, Angels, CVCs, etc
 - There may be advantages to defining some specific forms-see Intermediation Form (above) - but this need not be the case
- Focus on Developing a Local Industry, a Local Market, both and Industry and a Market

In some contexts, rather than aiming at a domestic industry the objective would be creation of a VC*/VC market.

- Whether or not part of a broader High Tech or EHTC set of policies



G-2

Which variant (if at all) is a serious matter that policy-makers must address.

- Promoting pre-emergence conditions
 - e.g. new Intermediation forms - central for Life Sciences
- Promoting VC* without Emergence in mind
- Promoting Industry Consolidation and Diversification
 - e.g. international links, traditional industries, etc
- Complementary VC-related Policies and Policy Actions can be crucial
 - e.g. STI, cluster, etc



H: VC Policy Failures (when objective is VC industry/market emergence)

- Unfavorable 'background' conditions
- Weak Demand for VC Services prior to VC Emergence
- Inadequate Intermediation Form (Scotland vis-à-vis RVCFs in the North of England)
- Insufficient Policy Experimentation, Learning and Capabilities (prior to targeting)
- Flawed program design and/or implementation
- Narrow Window of Opportunity for VC emergence/Impact (related to Timing of policy)
- Inadequate post VC emergence restructuring
 - industry not consolidated or having low impact