

Technopolis and Spatial Development

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Prologue

The European countries are gradually moving towards a *network* economy in which metropolitan areas will play a central role in an international competitive system. It is evident that a prerequisite for becoming a 'winner' in this competitive game is to build up a flexible and innovative high-technology economy. Recent experiences show that there are various alternative development options in the field of technological restructuring and innovations. They range from large-scale top down driven initiatives (e.g. the Airbus consortium) to small-scale local initiatives (e.g. regional information systems).

Despite the diversity in these initiatives, there is one lesson which has become a common belief among both private and public decision-makers: technological innovation is not 'manna from heaven', but it can be stimulated and induced. The provision of incentives and the creation of favourable conditions can generate creative and innovative behaviour of entrepreneurs. One of such stimuli is offered by the science park concept. This concept is based on a synergetic view on scientific research and technological progress: innovations can be stimulated by locating new entrepreneurial activities in a so called 3C-region (a region characterized by creativity, communication and competence). Such a 3C-region is a typical product of a competitive network economy. The success of a 3C-area depends, in particular on:

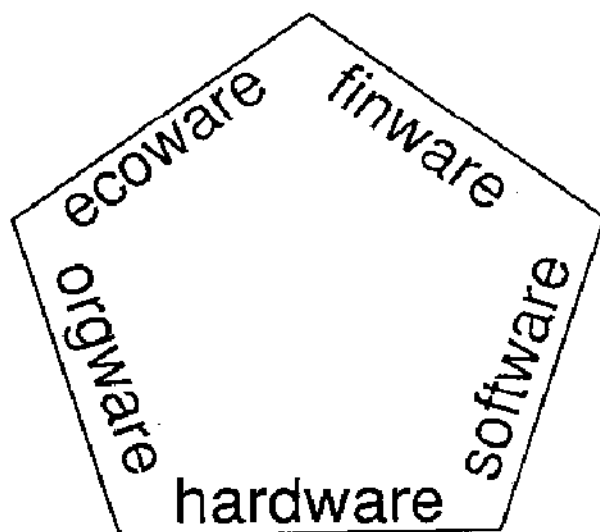
- 1) the availability of technological hardware, such as the existence of a good transport and communications system and the availability of land;
- 2) the existence and use of advanced software, such as the availability of a skilled and dedicated labour force, a

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- population that is receptive to technical progress, and access to research institutes, end users and supply markets;
- 3) the implementation of appropriate orgware, e.g. the presence of supporting services and government policies favouring entrepreneurship;
 - 4) the presence of favourable ecoware, e.g., in terms of residential and cultural amenities;
 - 5) the availability of finware, such as the availability of seed and venture capital.

The previous elements can be incorporated in a so called pentagon model representing the decisive factors for successful 3C-regions (see Figure 1).

Figure 1: The pentagon model



It is interesting to observe that the long history of Europe clearly demonstrates that the rise and fall of 3C-regions depend to a large extent on the factors mentioned in Figure 1. The places favoured in the Hanseatic period, the Industrial Revolution, and the current Information Age were able to generate new activities as a result of favourable incubator conditions embedded in the above five pentagon factors.

Seen from the above angles, it is evident that university towns, which are often fairly centrally located industrial and commercial centres with a diverse labour market and a creative climate, are to be regarded as obvious candidates for membership of the 3C-regions family. In this context, the phenomenon of a technopolis has to be understood which has become a popular policy tool in many countries.

2. The Concept of technopolis and Science Park

Many government agencies aim to build up a flexible and innovative high-technology economy by means of various incentives. The science park concept is one such incentive. It should be noted however, that nowadays various terms, such as science park, business park or incubator are being used to describe broadly the same phenomenon. We will start with some definitional and terminological remarks.

According to the widely used definition of the United Kingdom Science Park Association (UKSPA), a science park is:

"A property based initiative which:

- has formal operational links with a university, other higher educational institution, or *major centre of research* (hereafter HEIs)
- is designed to encourage the formation and growth of *knowledge-based businesses* and other organizations normally resident on site
- has a *management* function which is actively engaged in the transfer of technology and business skills to the organizations on site"

We use the term 'science park' for every such property based initiative, but it can be useful to differentiate between four different types of science parks.

(1) *Incubators* are 'breeding grounds' for young scientists who want to commercialize their own research. An incubator centre is small, provides financial, managerial and technical assistance to the new entrepreneurs and is usually created by an HEI.

(2) *Science parks* are set up to promote the cooperation between HEIs and innovative enterprises. In order to improve the chances of a fruitful cross-fertilization of the ideas of entrepreneurs and scientists, most science parks are set up in the neighbourhood of HEIs. Although a science park often has an incubator on its site, its efforts are aimed at attracting existing enterprises.

(3) A *technopolis* encompasses the concept of a science park. Apart from promoting the commercialization of science, it tries to create a general 'receptiveness' to a society based on technology. A true technopolis has a scientific, an economical as well as a social dimension. At this moment, the only cities that qualify as a technopolis are Tsukuba in Japan and Sophia Antipolis in France. All other configurations are of a much smaller scale.

(4) A *business park* tries to promote the establishment of knowledge-based firms, but has no formal operational links with HEIs. It is therefore by definition not a science park. Foreign experience showed that science parks of this type have a much higher failure rate than incubators and 'real' science parks.

The first science parks emerged in the United States during the 1950s. Europe followed in the 1970s but science parks only started to grow rapidly in the past decade. Nowadays we find science parks - with different sizes and different degrees of specialization - in many countries: France, Great Britain, Germany, the United States, Canada, Sweden, Japan and The Netherlands.

In Greece, four science parks are currently being developed. The initiators are: the University of Patras, the Research Centre of Crete (Iraklion), the University of Thessaloniki and the National Centre for Scientific Research "Demokritos" (Athens). Table 1 gives some general information about these parks.

TABLE 1: Information on science parks in Greece

	D	PT	IR	TH
Construction Cost (mln drs)	70	1325	NA	700
First year of construction	19	1991	1989	NA
First year of operation	19	1993	1992	NA
Built space (m ²)	20	4000	NA	NA
Tenants (no)*	24	21	5-10	NA

(*) expected number in first year operation

PT = Patras

IR = Iraklion

DE = Demokritos TH = Thessaloniki

NA: not available

In the planning stages, the initiators of these parks have tried to take advantage of foreign experience. The main characteristics of successful parks abroad are: (1) strong links with HEIs, (2) a prestigious outlook, secured by strict entrance conditions, (3) strong involvement of the public sector, (4) maturity is reached after 10 to 15 years, (5) focus on small new technology based firms, (6) commitment of all parties involved, (7) a reasonable degree of specialisation in different activities, and (8) a flexible and strategic marketing policy.

The four Greek parks are all government-sponsored, related to an HEI, and aim at the promotion of small new technology based firms. With the exception of the University of Patras, which wants to establish a science park, all other initiators are for the time being creating an incubator facility. None of these parks has yet started to operate. The scale of operation of these science parks is relatively modest. They certainly do not qualify as a 'real' technopolis, but of course in due course they might develop into a technopolis, or - alternatively - a new more concentrated effort at a large-scale basis might be created.

3. Problems of small new technology based firms

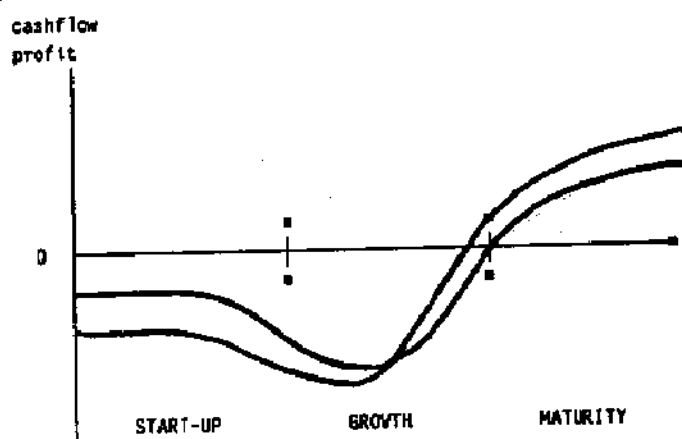
The Greek science parks are relatively small scale initiatives. Their aim is to encourage the growth and formation of small new technology based firms (SNTBFs). It may therefore be useful to explore various problems inherent in innovative small and medium sized activities. Their problems centre mainly on information, management, property and financing. By creating links with HEIs, science parks try to address information requirements, but if a park is to perform its function optimally, it should also provide suitable premises (property), business advice (management), but first and foremost it must understand the financial problems that SNTBFs typically have to face. SNTBFs are usually confronted with different problems in different stages of their development: start-up, growth and maturity.

In the *start-up phase*, the enterprise develops the prototype of its first product or production process. Private funding is the most important source of financing: with own funds, and sometimes with the financial support of relatives, the first investments are made. If the firm starts to grow, private funding soon becomes insufficient. The logical step is to apply for a bank loan. Banks, however, are reluctant to finance small NTBFs in the start-up phase, because of the (1) high risk, (2) unusual cash flow patterns, and (3) limited financing requirements of these firms.

The risk to invest in any new firm is high. A new firm has no track record (it has never proven its ability to pay back a loan), its future prospects depend very often on a limited number of products or services for which there is no demonstrated market need and its success depends often on the capacities of one or two key-persons. An investment in an NTBF is even riskier, because (1) the bank loan will be used to finance intangible assets, which are very difficult to sell in case of default and therefore cannot serve as collateral, and (2) the NTBF is expected to operate in a very dynamic environment; the market for its product might disappear suddenly.

Secondly, banks often lack the financial instruments adopted to the special needs of NTBFs. Figure 2 shows the cashflow and profit patterns of a successful NTBF. In the start-up phase, both cashflow and profits are well below zero. As the firm starts to grow, cashflow becomes positive and shortly thereafter the first profits can be reported. When maturity is reached, both cashflow and profits are at a healthy level, and retained earnings are a structural source of financing. These patterns differ markedly from the patterns of a non-NTBF, be it small, medium-sized or big. In the start-up phase, NTBFs have to invest heavily in research and development and after that in the manufactur-

Figure 2: Cash flow and profit patterns of SNTBFs



ing and marketing of their new products. These investments pay off much later than the sums invested by non-NTBFs.

Finally, the transaction costs of granting a loan to an NTBF are higher than the costs of loans used for more traditional purposes. At the same time, the financing requirements of an NTBF at the beginning of its life are modest at best. For banks, it is therefore not very profitable to grant a loan to the firm at hand.

For the reasons stated above, some banks do not grant loans to NTBFs. Others finance them on very strict conditions, which entrepreneurs often are unable to accept. Until recently, government support was hardly available for NTBFs in the start-up phase. This situation is changing, though. For venture capitalists, the initial investment amount is also considered too small or the venture is too risky. A related problem is the unwillingness of the owner to lose control. For some promising ventures, seed capital might be available.

In summary, private funding and, in some instances, bank loans seem to be the only financing options in this phase of development.

Because the initial investment to start an NTBFs is significantly higher than start-up capital needed for a firm in the service or traditional manufacturing sector, the growth in entrepreneurial activity in the service sector is in most countries not accompanied by a similar growth in technological entrepreneurship.

The *growth* phase is the critical phase in the life of an NTBF. The firm has proven that it can develop a new product or production process. Now it has to prove that it can produce and sell it, too. In this phase, the company must invest heavily in production facilities and marketing. In addition to private funding and some bank loans, government grants and venture capital are financing options in this stage.

Governments in many countries offer an array of incentives for the development and growth of new productive units. Businesses involved in the manufacturing of goods or in the supply of services of exceptionally advanced technology are often entitled to substantial grants amounting sometimes to 40% or 50% of the value of new investments. But in reality, entrepreneurs find it extremely difficult to obtain the grants they may be entitled to. The application process is sometimes so complicated and time-consuming that most firms do not even apply for government grants.

A precise definition of venture capital is not available. We mention here its main characteristics. Venture capital companies are focused on

early stage financing; they assist in the development of a marketable product. Venture capitalists emphasize equity financing, but apart from financing, they provide management assistance. The venture capitalist is expected to be sufficiently flexible in order to be able to adjust his response to the particular needs of a given project. For a growing SNTBF, private funding and bank loans remain important. Venture capital and government grants can be additional sources. Retained earnings and equity financing through the primary or secondary market are often still not available.

Firms that are unwilling or unable to enter this next financing stage, can license the production or can allow themselves to be taken over by a large company, which has the financial muscle to finance the growth stage.

SNTBFs that are able to produce and market their products successfully, will eventually become well-established companies with a good track record. Companies that find themselves in the *maturity* phase have easy access to the most important sources of financing: bank loans, equity capital, government grants and above all retained earnings. In this stage, financial problems are relatively unimportant. Table 2 summarizes the sources of financing in the successive phases of development of the SNTBF.

TABLE 2: Financing sources in various stages of SNTBFs

	Start up	Growth	Maturity
Private fundings	V	V	X
Bank loans	X	?	V
Venture capital	X	?	X
Equity capital	X	?	V
Retained Earnings	X	?	V
Government Grands	X	V	V
Seed capital	?	X	X

V Financing available

? Financing possibly available

X Financing not available

4. Technology policy in Greece

Before entering the European Community, Greece paid hardly any attention to technology policy. This was mainly caused by a tradition of protectionist policies; until 1981 the manufacturing sector was not forced to improve its products, for the simple reason that it did not face any significant competition from abroad. And if advanced production technologies were needed, it was more cost-effective for manufacturers to import them than to undertake in-house research. Furthermore, for a relatively long time Greek policy makers have been focused on agriculture and tourism.

The Greek manufacturing industry is still concentrated in sectors of low-tech production (textiles, basic materials, foodstuffs, etc). This has not only been caused by a lack of government interest, but also by a financial system, that is not adopted to the specific needs of new technology based enterprises, and by the Greek business mentality. Greek entrepreneurs are generally risk-averse, short-term oriented and mainly interested in the national market. The development of an innovative product or production process is however, a risky business and requires a relatively large investment that (hopefully) pays off in the long term. Moreover, the national market is probably too small to make the product profitable, so that it has to be sold abroad.

Whatever the reasons, this focus on traditional production methods has had a number of negative consequences for the Greek economy.

(1) The share of low-tech industrial production in relation to total industrial production is worldwide declining; stated otherwise: the Greek manufacturing sector is selling its products in markets with a growth rate below world average.

(2) Low-tech production is characterized by price competition. The competitive advantage of the Greek industry has been low wage. For two reasons, Greece is losing this advantage. Firstly, new industrial countries with lower wage rates have emerged. Secondly, since 1972 the monetary authorities have periodically devaluated the Drachma to improve the terms of trade, but EC regulations have restricted this policy option since June 30 1991.

(3) Profit margins of low-tech production sectors are generally low.

The future prospects of the Greek manufacturing sector, which already has quite some difficulties, are therefore not very favourable. The recently formulated technology policy aims at a diversification of the Greek economy, to avoid dependence on one or two economic

sectors. At the same time, it promotes modernization of the manufacturing sector in order to overcome the problems associated with low-tech production.

5. Restructuring the Greek economy

At first sight, it seems that the above mentioned two goals can be simultaneously achieved by the creation of science parks. A science park creates a high-technology oriented mentality within the manufacturing sector; it enables the manufacturing sector to benefit from the research undertaken by universities, higher institutions and major research institutes; it enables Greece to exploit its new competitive advantage: *cheap brain-power*; and it can provide services that help to overcome SNTBFs' management, property, information and financial problems. In other words, they seem to be the ideal 'agents' of technological development.

It must be stressed, however, that the mere creation of a science park is not enough to ensure the a successful development of new technology based firms. A park does not operate in isolation; its development depends to a large extent on its external environment. A new technology based firm can not operate without a skilled and dedicated labour force; it can not sell its products in the absence of an advanced infrastructure; it can not be financed in an overtly conservative financial system, etc. Returning to our Pentagon model, a science park can only function in an economy which is sufficiently endowed with hardware, orgware, software, ecoware and finware.

If Greece would aim to create another 'Silicon Valley' without paying attention to such Pentagon factors as basic infrastructure, telecommunication facilities, venture capital, higher education etc, the chances of success will not be high. We come to the conclusion that the Greek government would do wise by first of all upgrading the quality and quantity of these basic factors and then implementing (partly in parallel) the science park concept. In summary, science parks certainly can contribute to the modernization and diversification of the Greek economy, but only after 'getting the basics right'.

Τεχνοπόλεις και Χωρική Ανάπτυξη

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1. Πρόλογος

Οι Ευρωπαϊκές χώρες κινούνται βαθμηδόν προς μια οικονομία δικτύου στην οποία οι μητροπολιτικές περιοχές θα παίξουν ένα κεντρικό ρόλο σε ένα διεθνώς ανταγωνιστικό σύστημα. Η προϋπόθεση για να γίνει κανείς νικητής στο ανταγωνιστικό αυτό παιχνίδι είναι να χτίσει μια ευέλικτη και καινοτόμο οικονομία υψηλής τεχνολογίας. Υπάρχουν διάφορες εναλλακτικές αναπτυξιακές επιλογές στον τομέα της τεχνολογικής αναδιάρθρωσης. Κυμαίνονται από μεγάλες άνωθεν πρωτοβουλίες (π.χ. η σύμπραξη για το Airbus) μέχρι μικρές τοπικές (π.χ. περιφερειακά συστήματα πληροφορικής).

Παρά την ποικιλομορφία αυτών των πρωτοβουλιών, υπάρχει ένα μάθημα που έγινε κοινή πεποίθηση ανάμεσα σ' αυτούς που λαμβάνουν τις αποφάσεις στον ιδιωτικό και δημόσιο τομέα: η τεχνολογική καινοτομία δεν είναι "μάννα εξ' ουρανού", αλλά μπορεί να προκληθεί και να εισαχθεί. Μια τέτοια πρόκληση προσφέρεται από την έννοια των επιστημονικών πάρκων. Συγκεντρώνοντας επιστημονική έρευνα και τεχνολογικά προηγμένες επιχειρήσεις, οι καινοτομίες μπορούν να ενθαρρύνονται σε περιοχές που είθισται να ονομάζονται 3C-περιοχές (περιοχές που χαρακτηρίζονται από δημιουργικότητα, επικοινωνία και ικανότητα). Η επιτυχία των 3C-περιοχών εξαρτάται ειδικότερα από:

- (1) τη διαθεσιμότητα τεχνικής υποδομής, όπως για παράδειγμα ένα καλό σύστημα συγκοινωνιών.
- (2) την ύπαρξη και χρησιμοποίηση προηγμένου "software", όπως για παράδειγμα εργατική δύναμη με δεξιότητες.
- (3) την εφαρμογή του κατάλληλου οργανωτικού εξοπλισμού, π.χ. κυβερνητικές πολιτικές προς όφελος της επιχειρηματικότητας.
- (4) την παρουσία ευνοϊκού περιβαλλοντικού εξοπλισμού, π.χ. περιοχές κατοικίας και πολιτισμικής δραστηριότητας.
- (5) τη διαθεσιμότητα εξοπλισμού χρηματοδοτικών υπηρεσιών, όπως το venture capital.

Οι αποφασιστικοί παράγοντες για την επιτυχία των περιοχών 3C μπορούν να ενσωματωθούν στο μοντέλο ενός πενταγώνου.

Με την παραπάνω οπτική, οι πανεπιστημιούπολεις που συχνά είναι χωροθετημένες σε κεντρικά σημεία, τα βιομηχανικά και εμπορικά κέντρα, με πολύμορφη αγορά εργασίας και δημιουργική ατμόσφαιρα, πρέπει να θεωρούνται προφανή υποψήφια μέλη της οικογένειας των περιοχών 3C. Το φαινόμενο των επιστημονικών πάρκων, που έχει πια γίνει ένα δημοφιλές όργανο πολιτικής σε πολλές χώρες, πρέπει να κατανοηθεί σ' αυτό το πλαίσιο.

2. Η έννοια των επιστημονικών πάρκων

Στις μέρες μας, διάφοροι όροι όπως ερευνητικό πάρκο, πάρκο επιχειρήσεων, ή εκκολαπτήριο, χρησιμοποιούνται για να περιγράψουν χονδρικά το ίδιο φαινόμενο. Θα ονομάσουμε όλες αυτές τις εξελίξεις "επιστημονικά πάρκα", και θα τα ορίσουμε ως "Πρωτοβουλίες βασισμένες στη γη" που:

- έχουν επίσημες λειτουργικές σχέσεις με κάποιο πανεπιστήμιο, ή άλλο θεσμό ανώτατης εκπαίδευσης, ή σημαντικό κέντρο έρευνας (εις το εξής ΑΕΙ).
- είναι σχεδιασμένα για να ενθαρρύνουν το σχηματισμό και την ανάπτυξη επιχειρήσεων βασισμένων στη γνώση, και άλλων οργανισμών, συνήθως εγκατεστημένων στον εκεί χώρο.
- έχουν λειτουργία διαχείρισης που είναι ενεργά ανανεωμένη στη μεταφορά τεχνολογίας και επιχειρηματικών δεξιοτήτων προς τις εκεί εγκατεστημένες επιχειρήσεις".

Τα πρώτα επιστημονικά πάρκα εμφανίστηκαν στις ΗΠΑ κατά τη δεκαετία του 1950. Η Ευρώπη ακολούθησε κατά τη δεκαετία του 1970, αλλά τα επιστημονικά πάρκα άρχισαν να πληθαίνουν ταχύτατα κατά την τελευταία δεκαετία. Σήμερα, βρίσκουμε επιστημονικά πάρκα διαφόρων μεγεθών και με διάφορους βαθμούς εξειδίκευσης, σε πολλές χώρες.

Στη Ελλάδα, αναπτύσσονται αυτή τη στιγμή τέσσερα επιστημονικά πάρκα. Οι πρωτοποριακοί αυτοί χώροι είναι: Το Πανεπιστήμιο της Πάτρας, το Ερευνητικό Κέντρο Κρήτης (Ηράκλειο), το Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης και το Εθνικό Κέντρο Επιστημονικών Ερευνών "Δημόκριτος" (Αθήνα).

Στις φάσεις του σχεδιασμού, οι αρχικοί σχεδιαστές αυτών των πάρκων προσπάθησαν να αντλήσουν από τη διεθνή εμπειρία. Τα κύρια χαρακτηριστικά των επιτυχημένων πάρκων του εξωτερικού είναι:

- (1) ισχυρές συνδέσεις με τα ΑΕΙ,

- (2) εμφάνιση κύρους που εξασφαλίζεται από αυστηρούς όρους εισόδου,
- (3) ισχυρή ανάμιξη του δημόσιου τομέα,
- (4) ωριμότητα που επέρχεται μετά από 10 έως 15 χρόνια
- (5) εστίαση σε μικρές επιχειρήσεις που βασίζονται σε νέες τεχνολογίες,
- (6) δέσμευση όλων των εμπλεκομένων μερών,
- (7) αξιόλογος βαθμός εξειδίκευσης σε διαφορετικές δραστηριότητες,
- (8) ευέλικτη και στρατηγική πολιτική προώθησης.

Τα τέσσερα ελληνικά πάρκα είναι όλα χρηματοδοτούμενα από την κυβέρνηση, σχετίζονται με τα ΑΕΙ, και στοχεύουν στην προώθηση μικρών επιχειρήσεων που βασίζονται σε νέες τεχνολογίες. Κανένα από αυτά τα πάρκα δεν έχει ακόμα αρχίσει τη λειτουργία του. Η κλίμακα των δραστηριοτήτων των επιστημονικών αυτών πάρκων είναι σχετικά μέτρια, αλλά σε κάποιο χρονικό διάστημα θα μπορούσαν να εξελιχθούν σε τεχνοπόλεις, ή εναλλακτικά, θα μπορούσε να γίνει μια νέα πιο συγκεντρωμένη προσπάθεια σε μεγάλη κλίμακα.

3. Προβλήματα των μικρών επιχειρήσεων που βασίζονται στις νέες τεχνολογίες

Τα ελληνικά επιστημονικά πάρκα προσπαθούν να ενθαρρύνουν την ανάπτυξη και σχηματισμό των μικρών επιχειρήσεων που βασίζονται στις νέες τεχνολογίες. Θα ήταν λοιπόν χρήσιμο να διερευνηθούν διάφορα προβλήματα εγγενή στις καινοτομικές μικρές και μεσαίες δραστηριότητες. Τα προβλήματα επικεντρώνονται περισσότερο σε ζητήματα πληροφόρησης διαχείρισης, εγγείου ιδιοκτησίας και χρηματοδότησης. Δημιουργώντας συνδέσεις με τα ΑΕΙ, τα επιστημονικά πάρκα προσπαθούν να απαντήσουν σε απαιτήσεις πληροφόρησης, αλλά εάν ένα πάρκο πρόκειται να λειτουργήσει με τον καλύτερο τρόπο, θα πρέπει επίσης να παρέχει κατάλληλες εγκαταστάσεις, συμβουλές προς επιχειρήσεις, (διαχείριση), αλλά πρωτίστως θα πρέπει να κατανοεί τα οικονομικά προβλήματα που τυπικά αντιμετωπίζουν οι μικρές επιχειρήσεις νέων τεχνολογιών.

4. Τα επιστημονικά πάρκα ως μέσο για την αναδιάρθρωση της ελληνικής βιομηχανίας.

Η νεοσχηματοθείσα ελληνική τεχνολογική πολιτική, στοχεύει στη διαφοροποίηση της οικονομίας, για να αποφευχθεί η εξάρτηση από έναν ή δύο τομείς της οικονομίας. Την ίδια στιγμή, προωθεί τον εκσυγχρονισμό

του τομέα της μεταποίησης.

Με μια πρώτη ματιά, φαίνεται ότι οι δύο προαναφερθέντες στόχοι μπορούν να επιτευχθούν ταυτόχρονα, μέσω της δημιουργίας των επιστημονικών πάρκων. Πρέπει όμως να τονιστεί, ότι απλώς η δημιουργία ενός επιστημονικού πάρκου δεν είναι αρκετή για να εξασφαλίσει την επιτυχημένη ανάπτυξη ενός τεχνολογικά αναπτυγμένου μεταποιητικού τομέα. Τα πάρκα δεν λειτουργούν απομονωμένα. Η ανάπτυξή τους σε μεγάλο βαθμό εξαρτάται από το εξωτερικό τους περιβάλλον. Γυρνώντας στο μοντέλο του πενταγώνου, ένα επιστημονικό πάρκο μπορεί μόνο να λειτουργήσει σε μια οικονομία ικανοποιητικά προικισμένη με εξοπλισμό υποδομής, οργάνωσης, περιβάλλοντος, χρηματοδότησης και ανθρώπινου δυναμικού. Εάν η Ελλάδα στοχεύει στη δημιουργία μιας νέας "Silicon Valley" χωρίς να προσέχει παράγοντες, όπως τη βασική υποδομή, τις τηλεπικοινωνίες, την ανώτατη εκπαίδευση, κλπ, οι πιθανότητες επιτυχίας θα είναι ισχνές. Η ελληνική κυβέρνηση θα έπραττε σοφά, εάν πρώτα απ'όλα αναβάθμιζε την ποιότητα και ποσότητα των τριών αυτών βασικών παραγόντων και μετά εάν υλοποιούσε (μερικώς ή παράλληλα) την έννοια των επιστημονικών πάρκων. Εν περιλήψει, τα επιστημονικά πάρκα μπορούν σίγουρα να συνεισφέρουν στον εκσυγχρονισμό και διαφοροποίηση της ελληνικής οικονομίας, αλλά μόνο όταν τεθούν στη σωστή βάση.

Η τεχνολογική ανάπτυξη και η οικονομική μεγέθυνση αλληλοσυνδέονται όλο και περισσότερο. Οι λαμβάνοντες τις αποφάσεις στους ιδιωτικούς και δημόσιους θεσμούς, γνωρίζουν πια τη σημαντική αυτή σχέση και αισθάνονται, ότι η τεχνολογική ανάπτυξη μπορεί και πρέπει να ενθαρρυνθεί. Μια από αυτές τις ενθαρρύνσεις προσφέρεται από τα επιστημονικά πάρκα.

Το άρθρο αυτό εξετάζει την έννοια αυτή σε μεγαλύτερο βάθος. Συζητά επίσης την έννοια των επιστημονικών πάρκων ως μέσο αναδιάρθρωσης της ελληνικής οικονομίας. Συμπερασματικά, τα επιστημονικά πάρκα μπορούν σίγουρα να συνεισφέρουν στον εκσυγχρονισμό και τη διαφοροποίηση της ελληνικής οικονομίας, αλλά μόνον όταν η ποιότητα και ποσότητα των βασικών παραγόντων έχει αναβαθμιστεί.