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LISBON HEARINGS

Società della Conoscenza, sviluppo locale e prestazioni produttive

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I Quaderni della Fondazione Adriano Olivetti

Collana Intangibili 1

La cultura, nel suo autentico significato di ricerca disinteressata, di verità e di bellezza,
sarà l'elemento caratteristico della nuova società e a tal fine le istituzioni
sanzioneranno concretamente l'esigenza culturale

Adriano Olivetti, *L'ordine politico delle comunità*

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18 giugno 2008
Roma, Fondazione Adriano Olivetti

Nota Introduttiva

Il ciclo di audizioni *Lisbon Hearings* si inserisce nel quadro di iniziative promosse dalla Fondazione Adriano Olivetti in occasione del Centenario della fabbrica Olivetti (1908/2008), che hanno l'obiettivo di analizzare e promuovere le culture e le pratiche d'impresa lette secondo l'ottica dell'Economia della Conoscenza.

Un tema chiave, per la Fondazione Adriano Olivetti e per gli scenari dell'Economia della Conoscenza, è: "La creazione di valore nelle comunità e nelle imprese". Per sviluppare questo tema, l'area di analisi su cui ci si concentra è quella del "Ruolo del Capitale Intellettuale nella creazione di valore"

Per definire tale ruolo occorre avere un quadro di riferimento: abbiamo scelto quello indicato dall'Agenda di Lisbona. Quest'ultima (anche nota come Strategia o Processo di Lisbona) è un piano di sviluppo dell'Unione Europea, lanciato a Lisbona nel Marzo del 2000, in risposta alla stagnazione della crescita economica dei Paesi Membri. L'obiettivo è di "rendere entro il 2010 l'economia europea, basata sulla

Conoscenza, la più competitiva e dinamica nel mondo".

Rispetto a questa strategia la maggior parte dei paesi ha fatto progressi nel perseguimento degli obiettivi fissati. L'Italia, dal 2000 al 2007, ha perso posizioni "con continuità".

La "creazione di valore" nelle imprese e nelle comunità italiane è dunque inadeguata e non pertinente per l'economia della conoscenza?

Le "audizioni" intendono innanzitutto portare testimonianze consapevoli sui temi chiave della crescita, ponendoli in relazione con gli indicatori che determinano i quadri di valutazione dell'Agenda, in particolare nei rating proposti dall'*Enterprise Innovation Scoreboard* (vedi Appendice) e nelle molteplici analisi che in questi anni accompagnano i risultati raggiunti dai Paesi europei in termini di competitività. Di tali *rating* e analisi diamo i dettagli e i contenuti più significativi in appendice a questo Quaderno.

I concetti definiti in modo "raccordato" nella prima delle tre audizioni e riportati nelle "testimonianze" che questo quaderno trascrive, sono:

1) economia della conoscenza: la prospettiva europea;

2) le basi delle "performance" produttive nella società della conoscenza "italiana" e in quella europea;

3) lo sviluppo locale e delle comunità nell'economia della cono scienza: verso il distretto dell'intangibile.

Nella seconda audizione si focalizza il "patrimonio dell'intangibile" e i principi e le regole che ne guidano e misurano, al giorno d'oggi (2008), lo sviluppo nelle imprese e nelle comunità. Pertanto si esaminano gli stimoli dati dalle autorità regolatorie per la corretta valorizzazione delle attività immateriali nei bilanci, le necessità di trasparenza e credibilità per far emergere le capacità delle imprese, le modalità che si adottano per rendere visibile, quantificati e attrattivi i valori competitivi delle imprese.

La terza audizione vuole capire le pratiche del passato e del presente usate nei sistemi economici del Nord Ovest d'Italia, ricchi di grandi imprese o dei loro lasciti, per continuare a sviluppare gli attivi intangibili di questi sistemi. Tale audizione ha un particolare rilievo, nell'anno del Centenario Olivetti, poiché, in particolare, si vuole capire come il capitale intellettuale, che ha "fondato" un'impresa, possa rimanere in altre imprese, anche dopo la sparizione dell'azienda che nel tempo l'ha fatto vivere.

Abbiamo ritenuto necessario, pubblicare gli atti delle audizioni e renderle disponibili gratuitamente sul sito della Fondazione (www.fondazioneadrianolivetti.it) con licenza *Creative Commons Attribuzione-Non commerciale-Non opere derivate 2.5 Italia****** convinti che alla base della "creazione di valore" ci sia una libera circolazione di idee e una ampia condivisione di "conoscenza".

***** Le licenze *Creative Common*s offrono sei diverse articolazioni dei diritti d'autore per artisti, giornalisti, docenti, istituzioni e, in genere, creatori che desiderino condividere in maniera ampia le proprie opere secondo il modello "alcuni diritti riservati". Il detentore dei diritti puo' non autorizzare a priori usi prevalentemente commerciali dell'opera (opzione Non commerciale, acronimo inglese: NC) o la creazione di opere derivate (Non opere derivate, acronimo: ND); e se sono possibili opere derivate, puo' imporre l'obbligo di rilasciarle con la stessa licenza dell'opera originaria (Condividi allo stesso modo, acronimo: SA, da "Share-Alike"). Le combinazioni di queste scelte generano le sei licenze CC. Le *Creative Commons Public Licenses* sono state create negli Stati Uniti dall'associazione no-profit *Creative Commons*. Sono state quindi tradotte in italiano e adattate al nostro sistema giuridico da un gruppo di lavoro coordinato dal professor Marco Ricolfi del Dipartimento di Scienze Giuridiche dell'Università di Torino. Dal gennaio 2005 il referente per *Creative Commons Italia* è il professor Juan Carlos De Martin del Dipartimento di Automatica e Informatica del Politecnico di Torino, coadiuvato per le questioni di natura legale dal gruppo di giuristi che ha effettuato l'adattamento originario delle licenze.

Laura Olivetti

Buongiorno e benvenuti a voi tutti. Introduco brevemente questa audizione il cui carattere, come vi abbiamo già accennato quando siete stati invitati a partecipare, è seminariale. Una scelta, quella di non organizzare un dibattito pubblico bensì un incontro a "porte chiuse", perchè è un modo che noi abbiamo già sperimentato e che ci sembra più utile per tutti in quanto rende possibile dibattere circa ciò che si ritiene di volere o dover dire rispetto all'argomento trattato senza i vincoli e le formalità di una "dichiarazione" pubblica. Speriamo pertanto che in questo modo il dibattito possa "gemmare" anche in altre direzioni. Per questo motivo abbiamo pensato di riprendere in video l'intero incontro sia per mantenere una memoria in archivio sia per pubblicare gli atti o estratti dei vostri interventi sul nostro sito o sulla pagina web della Fondazione sul social network *You Tube*, per una democratica condivisione dei pensieri che non si esaurisca in questa giornata. Questa è un po' la nostra idea e spero che voi possiate condividerla. Passo ora la parola a Massimo Mucchetti che abbiamo designato come *Chairman* di questa prima audizione

Massimo Mucchetti

Grazie. In prima battuta mi limiterò a fare il *Chairman* in senso classico del termine e poi invece mi piacerebbe interloquire portando la mia esperienza di giornalista che si è occupato di queste cose, dalle relazio-

ni che i relatori invitati esporranno su questi concetti. In premessa vorrei indicare un timore nel fare questo lavoro e cioè, il concetto di intangibile per come l'ho approcciato nella mia esperienza che non è l'esperienza né di un politico né di un revisore dei conti, neanche di un imprenditore ma quello di un cronista, è un concetto che per un verso è affascinante perché concettualizza delle prassi che inconsapevolmente molto spesso vengono attuate per esempio dal nostro sistema di piccola e media impresa che fa ricerca e sviluppo ma non la classifica nei bilanci perché non ha tempo, non ha voglia, non ha la struttura ma lo fa perché altrimenti non si spiegherebbe come mai è riuscito a resistere alla sfida della globalizzazione. Questo è il dato di partenza. Tuttavia lo sforzo di concettualizzazione è uno sforzo utile soprattutto per i policy makers. Dall'altra parte temo che il concetto di intangibile possa, se troppo stressato, diventare un ombrello che tiene sotto troppe cose e che quindi rischia di perdere i significati propri. Per come la capisco io, mi correggerete, il concetto di intangibile, l'intangibile è un qualcosa che si crea lavorando, che si crea studiando, che si crea depositando i risultati di questi sforzi in un'attività di impresa ma è tale e può essere registrato anche in un bilancio se è in qualche modo legato ad una produzione reale e vendibile di beni e servizi. Nella nostra esperienza è accaduto che le imprese, specialmente le grandi, hanno utilizzato la possibilità di capitalizzare questo tipo di cose per nascondere delle perdite. Quindi anziché essere una cosa positiva la concettualizzazione che poi ti consente di metterla in bilancio e capitalizzarla è diventato un trucco e quindi paradossalmente si sono rivelate più virtuose quelle piccole imprese ignoranti che facendolo senza saperlo non lo mettevano a bilancio, ma quello sforzo "inconsapevole" se lo pagavano con i proventi reali dell'anno. Secondo me è come tra Scilla e Cariddi… Però l'intangibile è una base, e qui poi ascolteremo Emma Bonino, ed è uno degli architravi concettuali dell'agenda di Lisbona, e dell'economia della conoscenza. Mi taccio subito e sono particolarmente curioso di sentire l'opinione di Emma perché a noi cos'è che ci sta arrivando? che l'Agenda di Lisbona sostanzialmente non ha funzio-

Il concetto di Intangibile

L'Intangibile si crea "facendo"

Intamgibile e bilanci truccati

Intangibile: architrave concettuale dell'Economia della Conoscenza

nato e quindi che quello sforzo illuminista che aveva variamente affascinato molte persone in Europa non sta raggiungendo i propri obiettivi anche se in questo momento sta dando dei segni di vitalità nella nostra economia o meglio in quella di coloro che fino a ieri sembravano essere le locomotive. Ma ora occorre capire esattamente gli svolgimenti della crisi americana, forse solo così potremmo rivedere anche tutti i ragionamenti sull'Europa.

Emma Bonino

Io, con l'aiuto dei miei collaboratori, proprio pensando ieri che poco avrei partecipato a questo seminario che invece mi sarebbe interessato molto seguire di più ma è una giornata d'aula al Senato, che non approfondisco in questa sede, ma insomma di una certa rilevanza e di una totale anomalia, io non ho mai visto bloccare i processi per decreto e anche trovo inusuali lettere del Presidente del Consiglio mandate al Senato in cui ci si informa che i suoi legali lo hanno informato. E quindi ho una gestione d'aula piuttosto complicata questa mattina e quindi ringrazio Carmela (*Decaro, n.d.r.*) ma con un po' di collaboratori abbiamo messo insieme delle note scritte da lasciarvi (*vedi Appendice n.d.r.*) proprio perchè…

Posto che siamo in una versione seminariale non devo… Io penso che per quanto riguarda Lisbona, diciamo l'Agenda di Lisbona… poi il Trattato è morto, punto. Poi gesticoleremo, faremo, ratificheremo. Il Trattato di Lisbona è morto. Il piano A non ha funzionato, il piano B non ha funzionato altrettanto. Sul futuro dell'Europa forse in un'altra sede in cui magari discuteremo però indubbiamente oggi ci troviamo in un *impasse* istituzionale, spero che non ci si precipiti ad un piano C di ulteriore riflessione per altri tre anni così mentre noi pensiamo come dire gli altri corrono e forse bisogna arrendersi al fatto che basta con i trattati e se guardiamo agli ultimi anni cose rilevanti dell'Europa sono avvenute per accordi intergovernativi quando c'è stata una visione comune, penso all'euro penso a Schengen. Probabilmente bisogna… Manca un anno da qui all'elezione europea forse si può usare per capi-

Trattato di Lisbona: morto

Però i trattati intergovernativi...

re se c'è una visione comune per fare delle cose che possono anche essere fatte per via intergovernativa, ma insomma tutto tranne che l'ennesima pausa di riflessione o la siesta perenne… ma questa è la vicenda trattati, vedremo anche il vertice europeo… Sull'agenda, posto che qui siamo in questo formato seminariale, io credo che per tutti gli obiettivi che ci siamo dati per quanto riguarda 2010, Lisbona 3, il rilancio che è stato fatto nel marzo 2008, io penso che non ne raggiungeremo nessuno. E penso anche che ci sia stato un vizio di fondo, come sapete l'agenda di Lisbona ha una struttura volontaristica, cioè non ha sanzioni, non ha penalizzazioni. Il risultato è che chi li aveva già raggiunti per i fatti suoi, tipo tutti i paesi nordici che in ricerca, innovazione e sviluppo il 3% l'hanno già raggiunto e non avevano avuto bisogno di Lisbona hanno continuato le scelte politiche nazionali fatte, cercando sì di contaminare gli altri, in tutte le riunioni devo dire che i nostri colleghi nordici cercavano davvero di contaminare gli altri. Però… Chi non aveva fatto questa riflessione e queste scelte di priorità nazionale il metodo volontaristico non ha funzionato, l'assenza di sanzioni non ha spinto nessuno, e non ha "costretto" nessuno, non ci sono i vincoli diciamo del deficit dele infrazioni e quant'altro. Questa era un… appunto un'idea che la ragione potesse convincere quindi poi vincere quindi poi realizzarsi. Io penso che abbia certamente convinto a livello intellettuale molti leader nazionali, ma che poi si sono scontrati su priorità nazionali elettoralmente ben più significative o comunque ben più determinate. Faccio un esempio degli investimenti nella ricerca. E' chiaro che questa è un…. E prendo ovviamente la situazione italiana con la sua situazione di bilancio etc. etc.. Questo 3% noi siamo lontani le mille miglia, anzi devo dire pure nella nostra amministrazione piuttosto sono diminuiti che aumentati, ed è chiaro perché la ricerca non ha effetti immediati, non ha risultati immediati, non ha neanche risultati certi per la verità però nella scala mondiale si verifica in modo abbastanza evidente che alla quantità di investimenti normalmente corrisponde anche una quantità più alta di riuscita, la quantità conta, non è che è solo un problema di qualità, se la quantità è zero tu

L'Agenda di Lisbona: obiettivi irragiungibili nel 2010

Struttura volontaristica, strategie virtuose di alcuni (nordici) senza contaminazione degli altri

La ragione che poteva convincere e poi vincere...

In Italia conta il breve termine e non si cura la quantità di investimenti, di risultati

hai voglia a discutere di qualità dello zero, è un po' difficile. Ora ci troviamo in una situazione, se guardo l'Europa… noi abbiamo la Cina che ha investito nel 2006 136 miliardi di dollari, ho recuperato i dati, e quindi è diventata in ricerca il secondo investitore mondiale, che vuol dire che anche lo stereotipo della Cina delle magliette, delle *t-shirt* di questo e di quell'altro, quello *ya fué*, perché se voi guardate non solo è il secondo investitore mondiale in termini di ricerca ma è stato anche nell'anno scorso il paese che ha depositato più brevetti. Quindi abbiamo una Cina dove semmai le *t-shirt* le fanno ormai in Vietnam, Bangladesh, Cambogia, ma la Cina ha copiato per lungo tempo e brevettato ormai comincia con… Gli Stati Uniti hanno investito 220 miliardi, Giappone 130 e vi faccio solo notare la differenza tra Cina e Giappone e siamo 136 a 130 o anche Stati Uniti e Giappone 220 130 e a ritmo attuale la Cina potrebbe superare già nel 2010 lo sforzo consolidato europeo 230 miliardi. Ora è chiaro che a noi tutti, lo dico nella mia amministrazione governativa nelle discussioni fatte, era assolutamente evidente cosa si dovesse fare, attrarre cervelli, investire in ricerca, voglio dire tutto questo non è che mancassero idee anche innovative, dal punto di vista dell'investimento pubblico perché poi vengo solo brevissimanente sulle PMI altra realtà che ho avuto occasione di incontrare. Il problema è che non si è mai trovata la priorità, la forza di fare di questo la priorità politica. Perché appunto i ritorni, e lo dico dal punto di vista politico non perché lo condivida, ma perché così è andata la vicenda, la politica ha bisogno nella politica tradizionale almeno quella italiana di ritorni molto più immediati sostanzialmente l'intangibile, la ricerca è una cosa perlomeno a medio termine, e quindi, eppure ce ne sarebbero tutte le condizioni e le necessità, solamente che almeno all'interno del Consiglio dei Ministri aver ragione non basta, bisogna trovare anche i numeri e la forza della ragione. Aver ragione non basta molto. Noi ci troviamo oggi per esempio ad una svolta molto importante nel nostro paese, non sull'intangibile ma su tutto quello che questo comporta, se voi prendete da una parte le potenzialità di innovazione tecnologica che potrebbero anche essere

Cina: dalla copia al brevetto

Usa e Giapone vs
Cina e UE

Mancanza di priorità politica

Il “passatismo” italiano

spinte dalla questione energetica dai limiti ambientali e invece ci troviamo di fronte temo ad una scelta nel mio paese che io ritengo passatista, non ideologicamente, ma ritengo passatista e cioè l'investimento su una tecnologia in particolare quella nucleare degli EPR che secondo me è semplicemente, e non lo dico dal punto di vista ideologico non mi importa niente poi lo faremo in altra sede, ma certamente le risorse essendo quelle che sono o uno le mette là o uno le mette sulle ricerche del futuro. Quindi non è solo una scelta di produzione energetica ma è una scelta proprio di dove si orienta questo paese. Infine avevamo come corollario di tutto questo la contaminazione di cervelli, quindi non è solo un problema di fermare la fuga di cervelli ma è un problema di attrarli…E noi non riusciamo a fare, molti paesi devo dire…

Attrarre cervelli

mi ha sempre stupito pensare che la piccola Irlanda ha 6 mila studenti cinesi, e che la tradizione che poi è sempre stata quella della fidelizzazione anche l'attesa americana, che insomma chi studia da loro e poi torna nel proprio paese ha come punto di riferimento sia esso economico, politico, culturale, complessivamente il paese dove ha studiato. Questo lo fa il Canada in modo molto pervasivo. Una delle banche che va di più in Canada e che ha avuto i maggiori proventi e quella che ha usato come addetti agli sportelli e non solo, gli immigrati, moltissimi immigrati ma che conoscessero lingue specifiche per esempio che conoscessero lo Swahili, piuttosto che l'Indu perché questo permetteva una comunicazione diretta, prendendo conto della loro popolazione di immigrati, con banche investitori e investimenti di paesi di origine e di provenienza con una capacità di comunicazione non solo tramite l'inglese o tramite il francese ma con una capacità di penetrazione e di conoscenza linguistica molto… per cui… questa banca usa 10 dialetti, di cui 8 sono dialetti, due sono lingue ponte e che sono l'inglese il francese e l'arabo gli altri sono "grandi dialetti" di grandissime zone. Anche questo è un dato di conoscenza, provate ad immaginare il divario, tra una realtà di questo tipo e la nostra in cui siamo riusciti neanche… cioè siamo riusciti dopo tante difficoltà ad avere i permessi come ricorderete solo per poco tempo, per tre mesi per studenti,

Lingue e “dialetti”; dove sta l’Italiano?

operatori, imprenditori perché erano proprio gli imprenditori che ci avevano raccontato di questa tragedia di riuscire a venire in Italia, che non si riesce mai a venire…

Carmela Decaro
Anche i professori…

Emma Bonino
I professori etc.… ma noi usavamo uno Schengen plus quindi era un dato... L'ultima questione che vi voglio far presente come difficoltà che sembra piccola ma che invece vi dimostra quanto sia poi difficile anche in Europa è la questione del brevetto europeo. Sulla questione del brevetto europeo siamo lontani le mille miglia non siamo riusciti ad arrivare al brevetto europeo e quindi il brevetto ognuno lo fa nella sua lingua, poi lo traduce, poi lo presenta, i ricorsi sono anche lì ognuno nella propria lingua.. insomma e siamo credo, a meno che Carmela (*Decaro n.d.r.*) non abbia nuovi aggiornamenti, persino il dossier del brevetto europeo un dossier che si è arenato dove non si riesce ad andare avanti per una questione di predominanza linguistica. Io capisco la delicatezza per esempio di andare in corte con una lingua ponte , la capisco perfettamente, però se la perfezione non è di questo mondo, bisogna pure accettare che spesso il meglio è nemico del bene. Perché se continuiamo a voler pretendere che ognuno va in corte in polacco, in lituano in bulgaro e che questo brevetto va tradotto, insomma non andiamo secondo me da nessuna parte. Quindi non è perché questa mattina sono particolarmente depressa, normalmente sono piuttosto vitale, ma lo dico perché c'è veramente questo divario secondo me molto grande, tra una percezione intellettuale che è più che una percezione è una consapevolezza di larghissimi strati politici, imprenditoriali della conoscenza, della ricerca, dell'intangibile di tutte queste necessità e poi l'impossibilità, finora, o incapacità dal punto di vista politico, almeno nel nostro paese, di dare risposte adeguate in termini di priorità. Non siamo diversi, ci accompagnano in questa nostra difficoltà quasi tutti i

Il brevetto europeo: traguardo non raggiunto

La necessità della "lingua ponte"

Conoscenza, ricerca, Intangibili: senza priorità politiche in Italia, ma anche in Spagna...

paesi mediterranei, europei mediterranei. Guardate ad esempio l'intoppo che avrà di fronte adesso Zapatero, di un'economia che si è basata sul turismo, sul mattone, che ovviamente ha una fase ciclica, e che però non ha investito in altro, oggi Zapatero si troverà a gestire un momento molto difficile in cui quei due settori ovviamente declinano per ragioni che sono anche evidenti ma che contestualmente, perchè è stato tutto investito lì, contestualmente non ha seminato nuovi terreni. Due parole: una su PMI. Io devo dire che tu (*riferendosi a Massimo Mucchetti n.d.r.*) hai perfettamente ragione nel senso che le nostre PMI sono non solo sopravvissute, ma che dopo un grado di rilancio assolutamente inaspettato, anche quelle manifatturiere date per morte decotte etc. proprio per un'inconsapevole, persino inconsapevole passione di innovazione e passione che poi non mettono a bilancio tanto è insito e congenito, devo dire che ho visto meno questo tipo di adesione immediata nelle grandi imprese. E quindi mentre le piccole imprese poi non hanno i fondi effettivamente per raggiungere come dire delle economie di scala che possano… Le grandi imprese, anche quelle manifatturiere, io le ho viste, in proporzione evidentemente, non mi si dica che la Fiat non fa ricerca, ci mancherebbe pure ma dico in proporzione… l'ho viste meno… poi lo mettono a bilancio loro questo sì, però dal punto di vista quantitativo con un'adesione meno immediata e totale. Se voi guardate il tessile ad esempio, e lì non è solo una questione di design, è stata una questione fondamentale di lavorazione della materia prima. Poi c'è anche il design il taglio, ma la lavorazione strepitosa, cioè una seta lavorata in Italia non è una seta lavorata da un'altra parte e in particolare l'utilizzo di materiale completamente fantasioso, ma lavorato in modo tale che ne fa un'altra cosa.

PMI

Grandi Imprese

Il caso del tessile

Massimo Mucchetti
Quindi l'innovazione non è sempre ricerca …

Innovazione non è solo ricerca

Emma Bonino
No, no.

Massimo Mucchetti
Può essere tranquillamente un'altra cosa…

Emma Bonino
Assolutamente. E devo dire che ho fatto questo esempio perché è il settore che era dato più per decotto e che invece ha saputo trovarsi una nicchia, ma chiamala nicchia, diciamo un'esplosione particolare. Detto questo in questa sede, io credo che come sempre succede ci sono dei gruppi che magari appunto fanno vita grama per un certo periodo ma che coltivano delle idee che poi vengono a maturazione e quindi io penso che dobbiamo continuare intanto a dirci delle verità: Lisbona sarà un grande fallimento, io non credo che arriviamo almeno noi come italiani, ma devo dire quasi tutti i paesi mediterranei, a raggiungere nessuno degli obiettivi e quindi ce lo dobbiamo dire ma non perché sia sbagliata ma perché le democrazie poi hanno anche dei limiti cioè quello di.. che non basta essere illuminati, bisogna anche in qualche modo trovare il modo per far capire a tutti quanti che investire a medio termine è utile. È come la prevenzione, tutti dicono è meglio prevenire che curare avessimo mai prevenuto niente di niente però la domenica ce lo diciamo sempre, dal lunedì al venerdì facciamo altro però i convegni della domenica sono questo…
Io vi lascio quindi queste poche note di riflessione che ho fatto nella speranza che aiutino e spero che mi vogliate coinvolgere nel prosieguo di queste vostre riflessioni…

Lisbona: fallimento per i paesi mediterranei

Laura Olivetti
Se lei è disponibile con gioia

Emma Bonino
Volentieri. Nel frattempo vado a fare qualche altra cosa in Senato...

Laura Olivetti
Ci chiedevamo se Carmela Decaro potesse riprendere il discorso

Massimo Mucchetti
Certo certo.

Carmela Decaro
Una breve presentazione: nella scorsa legislatura il Ministro Bonino mi ha dato l'incarico di Capo Dipartimento delle politiche comunitarie. Le mie esperienze professionali sono partite dall'università ,alla quale sto tornando, con tre privilegiati passaggi attraverso le istituzioni, come funzionario della Camera dei deputati, come Consigliere parlamentare del Presidente del Consiglio Ciampi nel 1993/94, come Vice Segretario Generale del Presidente della Repubblica Ciampi. In ognuna di queste esperienze l'attenzione allo straordinario laboratorio costituzionale europeo è stata centrale.

Storia recente del Dipartimento Italiano delle Politiche Europee

Nel maggio 2006 il Ministro Bonino ha dato al suo staff e al Dipartimento un obiettivo preciso: riacquistare credibilità in Europa, visto che l'Italia si trovava, nelle varie pagelle europee, fra gli ultimi.

Priorità 2006: ritornare a essere credibili in Europa

Alcuni dati "tangibili" che fanno da contesto al tema in discussione degli "intangibili" e della competitività nella strategia di Lisbona.
Parto dalle procedure di infrazione. Erano circa 276 nel maggio 2006: a conclusione della legislatura sono scese a 180 e ora a quasi 150 grazie ad un decreto legge Prodi, concordato con l'allora opposizione, poi convertito dal parlamento della XVI legislatura. Tutti voi sapete qual è il costo delle procedure di infrazione: l'esempio dell'IVA sulle auto ci fa ricordare l'onere, a carico del bilancio dello Stato, della sanzione finanziaria che deriva dalla condanna. Evitare le condanne garantisce di poter investire in innovazione e ricerca.
Ancora nel maggio 2006, eravamo a -3,8% rispetto alla media europea dell'1,2%, lo *scoreboard* che registra il deficit di recepimento delle direttive comunitarie, con particolare riferimento a quelle relative al mercato interno. Lo *scoreboard* è stato istituito nel 1998 in vista del completamento e della strategia del mercato interno del XXI secolo, il cuore della strategia di Lisbona. Sottolineo che il Consiglio Europeo ha deciso che per l'anno prossimo il target generale deve essere dell'1%. Dal

-3,8% siamo scesi al -1,3%: il 14 febbraio scorso il Commissario McCreevy, commissario del mercato interno, ha segnalato il successo dell'Italia. Quindi ci siamo avvicinati alla media europea e abbiamo recuperato poi un metodo. I risultati sono stati ottenuti grazie, di assistenza e dunque autorevole. Un'autorevolezza che tutte le amministrazioni ci hanno riconosciuto.

Il recupero della credibilità

Massimo Mucchetti
Questo ruolo di coordinamento è stato esercitato da…

Carmela Decaro
Dal Ministro Bonino e dalla sua squadra. Infine: le frodi comunitarie. E' stato il terzo fronte di attività: perché l'Italia è sottoposta a procedura di infrazione per violazione della normativa comunitaria, per mancato recepimento, e per eccesso di zelo (o trasmissione burocratica abbandonata a se stessa) come dimostra l'esempio delle frodi comunitarie. Abbiamo scoperto una interessante realtà: mentre l'Italia, appena c'è una denuncia, procede con grande solerzia alla relativa comunicazione alla Commissione, gli altri paesi non lo fanno perché aspettano che la denuncia abbia un grado di accertamento tale che possa considerarsi reale la frode. Da questo modo di procedere derivava il danno e la beffa. Eravamo agli indici massimi di frodi denunciate ma non essendo in grado di recuperare le somme dovute dovevamo contribuire, per il 50% con la commissione, alle sanzioni derivanti dal mancato recupero. Nel 1992 era stato istituito un Comitato della Presidenza del Consiglio, presieduto dal Ministro pro-tempore alle politiche europee che non si è quasi mai riunito. Abbiamo rivitalizzato questo comitato, abbiamo impegnato il nucleo della Guardia di Finanza presso il dipartimento, abbiamo impostato un metodo, preparato una circolare, firmata dal ministro, che ha ridefinito la procedura delle comunicazioni. I risultati: rispetto a 2000 procedimenti aperti presso la Commissione, sezione frodi, 600 procedure sono state chiuse perché abbiamo dimostrato che erano inesistenti, siamo in attesa della chiusura di altre 200

Il caso delle frodi comunitarie

Italia: voler apparire solerti

e la commissione considera una buona pratica il nostro lavoro.
In questo contesto di credibilità arrivo a Lisbona. Su Lisbona è vero che la strategia lanciata nel 2000 è stata una strategia inapplicata. Ma il consiglio Europeo dell'epoca ha avuto lo sguardo lungo: Lisbona è legata all'oltre dell'Unione Europea, mi spiego meglio. Tutti i passi storici dell'Unione Europea, Trattato di Roma, Trattato di Amsterdam, Accordo di Schengen, Trattato di Nizza, Trattato di Amsterdam, sono stati sottoscritti in città che appartengono al corridoio geografico centrale dell'Europa. Lisbona è sull'Atlantico. È il primo momento di consapevolezza espressa dell'Unione Europea di presentarsi come soggetto unitario, come area regionale che aspira a divenire l'area più competitiva rispetto alle altre aree del mondo. Certo, dire l'area più competitiva nel 2000 significava guardarsi indietro e non prevedere che le aree più competitive del mondo sarebbero sbocciate di lì a qualche mese o a qualche anno. E infatti nel rilancio della strategia 2005, e partirei da quella data, quel "più" è discretamente scomparso. E la questione del rilancio si è giocata su metodi rinnovati, responsabilità condivise e finanziamenti. Di questo non si parla mai, quasi in modo forse troppo sbrigativo si denuncia che Lisbona è un fallimento perché non è vincolante. Ma Lisbona non può essere vincolante sin dal suo avvio. Lisbona è una opportunità nell'impostazione del 2005 che procedimentalizza il primo ciclo di Lisbona 2005/2008 su tre piani:

Agenda di Lisbona: l'Europa guarda sistematicamente oltre l'Atlantico a partire dal 2000

Lisbona 2005: opportunità "non vincolante" ma con finanzaimenti 2007/2013

1) La strategia definisce un quadro di contesto e programmatorio: nel 2005 si è chiesto agli Stati membri un piano nazionale di riforma per gli obiettivi macroeconomici di risanamento, per le politiche settoriali per la competitività, prime fra tutte investimenti per innovazione e ricerca ma anche infrastrutture, energia, ambiente,per l' occupazione e la coesione sociale. In modo immaginifico, il Ministro per le politiche comunitarie del tempo, Giorgio La Malfa, e il Capo Dipartimento il Professor Savona, hanno chiamato il piano italiano PICO, Piano per l'Innovazione, la Crescita e l'Occupazione. In realtà, a conclusione della legislatura, il piano ha potuto delineare il quadro

macro economico ma non la parte relativa alle politiche settoriali di innovazione e ricerca e la parte relativa all'occupazione e alla coesione sociale. Ricordo che l'obiettivo previsto dalla strategia per gli investimenti in innovazione e ricerca è del 3% sul PIL nazionale: in realtà ogni paese ha definito con la Commissione il proprio e l'Italia ha definito quello del 2,5% entro il 2010. Gli obiettivi per l'occupazione sono stati definiti al 70% per l'occupazione maschile e al 60% per l' occupazione femminile entro il 2010. Il piano non esauriva l'impegno richiesto agli stati dalla rinnovata strategia: nell'ottobre di ogni anno del triennio 2006/2007/2008 era richiesto un rapporto sull'attuazione degli obiettivi di Lisbona, da sottoporre alla valutazione della Commissione, poi al parere dell'Ecofin, infine al giudizio del Consiglio di primavera dell'anno successivo. Nell'ottobre 2006 l'allora Ministro Bonino, nella sua qualità di *Madame Lisbona*, ha presentato il rapporto: la Commissione ha dato una valutazione di *good progress*; nel Consiglio di primavera ci sono state le raccomandazioni e i *points to watch*. La stessa procedura è stata seguita nel 2007,con una novità: il Ministro Bonino ha allegato al rapporto una "Nota aggiuntiva su donne, crescita, occupazione, competitività" per affrontare lo scandalo del dato dell'occupazione femminile in Italia: rispetto all'obiettivo del 60% entro il 2010 e alla media europea del 58,3, in Italia siamo al 46,3%, dato del 2006. È il dramma delle due Italie: se al nord la media è circa il 57% quindi quasi media europea, al sud la media è del 31%. Peraltro la provocazione che il Ministro voleva lanciare,usando il termine "aggiuntivo", che richiamava la nota aggiuntiva sulla politica dei redditi di Ugo La Malfa, non è stata colta da nessun giornale, neanche dal suo (*riferendosi a Mucchetti n.d.r.*). E tuttavia ,a livello europeo questa consapevolezza è stata apprezzata anche per gli impegni assunti, con l'elenco delle cose da fare. Ferrera ha scritto un delizioso libro su "Fattore Donna" e devo dire che personalmente ho scoperto con Lisbona e con questa nota una dimensione di estremo interesse, che passa sotto un colpevole silenzio, per la competitività. Perchè tutti i paesi OCSE, a PIL più alto, hanno l'occupazione femminile più alta, i servizi sociali più avan-

Traguardi di Lisbona e la diversità dell'Italia: l'occupazione femminile

Il silenzio dei media sul "fattore donna"

zati e, sottolineo, l'indice di natalità più elevato: sono paesi che pensano al futuro anche con riguardo all'onere pensionistico. Bisogna riconsiderare questa dimensione,e mi auguro che anche il nuovo governo continui in questo impegno.

La cultura di "Lisbona": monitoraggio e valutazione delle politiche

2) La strategia definisce il metodo richiesto per la preparazione dei rapporti sull'attuazione: monitoraggio e valutazione. Metodo pressocchè sconosciuto dalla cultura corrente della PA che deve invece essere applicato negli allegati al rapporto. Nel rapporto infatti si presentano le politiche macro, micro e gli interventi per l'occupazione e la coesione sociale; negli allegati le leggi di riferimento sono inserite in una griglia con indicatori definiti dalla Commissione europea, per la valutazione concreta di questi interventi.

Strategia di Lisbona, fondi strutturali e per la ricerca

3) La strategia rappresenta un quadro di riferimento innovativo per i finanziamenti. Perché è questa la novità da sottolineare: la strategia di Lisbona riprende e riqualifica, nel contesto del nuovo secolo, gli obiettivi comunitari che si sono stratificati negli ultimi cinquant'anni nel bilancio europeo: le politiche di convergenza e coesione che rappresentano il cuore forte dei finanziamenti europei con i fondi strutturali, il programma quadro per la ricerca,il programma per la competitività, nelle programmazioni 2007-2013, garantiscono finanziamenti europei per gli obiettivi di Lisbona. Si potrebbe condizionare l'erogazione dei finanziamenti collegati all'uso dei fondi strutturali ad una sorta di bollinatura Lisbona, finalizzandoli e monitorandone l'uso anche nel quadro dell'attuazione degli obiettivi di Lisbona.
Il consiglio europeo di primavera 2008 ha lanciato il secondo ciclo della strategia di Lisbona: nel prossimo ottobre gli stati membri dovranno presentare il terzo rapporto di attuazione degli obiettivi, chiudendo il primo ciclo 2005/2008 e presentare il piano 2008/2010, non generico, ma collegato alle criticità sottolineate nelle raccomandazioni e *points to watch* contenuti nei giudizi dei consigli di primavera.
A proposito del nuovo piano italiano e dell'obiettivo del 2,5% rispetto

al PIL delle spese di investimento per la ricerca e l'innovazione sarebbe opportuno impostare una ricognizione di queste spese, riverificando la contabilizzazione esistente. Lei ha giustamente (*si riferisce a Mucchetti ndr*) detto innovazione sul tessile non è ricerca ma è anche innovazione, si dovrebbe verificare se queste spese sono rilevate: ad esempio le spese di questo tipo per le piccole e medie imprese fino a 10 dipendenti che l'ISTAT non rileva, ma che attraverso il credito d'imposta previsto in questi due ultimi anni può emergere; ancora, la spesa per i ricercatori del CNR e degli altri enti di ricerca rappresentano spese di investimento quindi fanno parte di quell'1,16% che è così lontano da quel 2,5%; ma i ricercatori di tutte le università d'Italia fanno parte delle spese correnti... Infine, il ministro Gelmini ha ricordato, ieri (*16 giugno 2008 n.d.r.*) in commissione cultura della Camera, che deve essere preparato il piano nazionale per la ricerca: i distretti tecnologici, apprezzati anche dalla Commissione europea che li ha riproposti, dagli originari dieci sono aumentati a 25/30 (Torino Wireless è uno dei più prestigiosi). Sarebbe interessante una mappatura di questi 25 distretti per verificare le percentuali di spesa di investimento da rilevare. Grazie.

Innovazione e ricerca secondo Lisbona: il caso PMI

I distretti tecnologici e la ricerca pubblica

Massimo Mucchetti

Grazie. Se posso subito esternare un paio di osservazioni a quanto ci ha detto Emma Bonino ed a quanto ci ha detto Carmela Decaro. Mi vengono queste due prime cose: data la struttura della nostra economia e le nostre carenze storiche di capacità di contabilizzare quello che facciamo, in parte per ragioni obiettive perché la PMI non lo farà mai e sarebbe male che lo facesse perché perderebbe tempo, invece la PA e l'università quello è un altro film. Quindi abbiamo sia problemi strutturali da questo punto di vista sia malfunzionamento. Probabilmente a rifare bene i conti scopriremo che il nostro 0,8/0,9 magari non è 0,8/0,9 ma è 0,5 cioè che siamo un pò meno sporchi, brutti e cattivi di quanto le statistiche ufficiali che sono state pensate a sistemi prevalentemente diversi dal nostro lasciano intendere. Questo se posso fare

Le valutazioni: come si contabilizza la ricerca

Le peculiarità italiana: PMI e spesa pubblica per ricerca, come siamo diversi.

una piccola chiosa, è un tema che a me appassiona molto anche parlando di PIL. Perchè ad esempio il PIL degli Stati Uniti che è sempre stato indicato come un PIL in grande progresso etc. ci sono delle curiosità perché i dati sul PIL sono sempre dati provvisori poi parecchio tempo dopo arrivano i dati quelli veri. Se voi andate a vedere il *Bureau of Commerce* quello che fa la spaccatura del PIL, quello vero, a un anno di distanza, scoprite che l'ago è sempre circa di mezzo punto, 0,8 meno di quello che si dice. Non so come mai ma a me viene sempre il dubbio che siccome il peccato è costante nel tempo ci sia del dolo, perché questo serve a tenere su l'economia. Siccome l'economia vive di aspettative se noi diciamo che andiamo molto bene, la gente ha fiducia spende fa e briga, se diciamo che andiamo bene, fa un po' meno, se diciamo che va male non fa più niente. L'esperienza mi porta a pensare questa cosa qui… la seconda cosa, e che bisognerebbe vedere sempre il pro capite, e negli Stati Uniti la spinta, parlo degli Stati Uniti perché sono il nostro più o meno ricorrente modello di riferimento, la spinta demografica aiuta molto lo sviluppo quantitativo del PIL, il pro capite poi è un po' meno importante del… gli aumenti percentuali sono circa la metà di quelli del PIL in cifra assoluta. L'italia non va tanto bene lo stesso non è che questo ci consoli ma ci porta a dire che altri modelli, per esempio quelli scandinavi, quelli dell'Europa renana sono molto meno scadenti da questo punto di vista di quello che ci è sempre stato fatto credere. Purtroppo queste notizie, che io ho appreso leggendole sul *Financial Times* non su pubblicazioni no global, comunque anche lì…

Il calcolo del PIL: dati sempre provvisori e imprecisi

Sviluppo quantitativo del PIL: demografia, modelli virtuosi scandinavi e renani

Carmela Decaro
Passano sotto silenzio…

Massimo Mucchetti
Non fanno cultura. Quello però che, l'altro punto che mi viene un po' da buttare è un po' questo: io trovo veramente entusiasmante il suo (*riferendosi a Emma Bonino n.d.r.*) intento di portare dentro il concetto di

innovazione. Perché nel mondo non è che tutti dobbiamo fare gli stessi mestieri. Un grande pittore non ha inventato i colori, non ha fatto la ricerca pura, ma usando i colori che ha fatto la BASF fa una cosa molto più bella e molto più importante che è un bel quadro. E quindi io sinceramente trovo più emozionante studiare Raffaello o Carrà e molto meno sapere chi era quello che ha inventato il rosso, studiando tutta una vita per l'amor di dio, chiuso in un ufficio a Ludwigshafen. Questo per dire che noi dobbiamo anche un po' come italiani saperci vendere, perché i nostri piccoli imprenditori, piccoli o medi, poi queste cose le sanno fare e tutto il mondo della cultura, tutto quello che gli sta dietro… Dove invece io vedo una grande difficoltà e quindi tutto anche il concetto degli intangibili etc. potrebbe tornare estremamente utile, nel mondo dei servizi e nel mondo della pubblica amministrazione. Anche perché diversamente dal mondo della manifattura, quando noi pensiamo all'economia ci scatta un *relais* che pensiamo sempre alle fabbriche ma le fabbriche pesano per il 20/25 % del PIL il resto è tutt'altra cosa. Lì la grande dimensione ci può essere perché ci sono dei mercati grandi che vengono naturalmente serviti dalla grande dimensione, penso alla telecomunicazione, alle società autostradali, quelle sono tutte società la cui stazza dipende dalla grandezza su cui il mercato nazionale insiste. Poi c'è il fenomeno dell'andata all'estero di queste imprese etc. etc. e qui si aprirebbero molti discorsi…primo fra tutti, lo dico tanto siamo in una forma seminariale, c'è un problema su come sono trattate fiscalmente le cose in Europa sul quale secondo me l'Italia il più delle volte fa la parte del fesso. Adesso ci stanno facendo una guerra, provocata da noi, sul sistema cooperativo italiano. Io sono indignato perché mi vien voglia di dire se l'Europa serve per mettere in croce le casse rurali italiane o le cooperative di consumo, che per l'amor di dio, sono delle ciofeghe, hanno un sacco di difetti, però producono. Servono, non vanno all'estero, perché non possono etc.. Hanno un sacco di belle cose etc. E non dicono niente ai nostri amici spagnoli che fanno un enorme danno fiscale, per cui loro degli avviamenti etc. etc. Allora io non capisco l'Europa… cioè alla fine se la

Innovare secondo Lisbona è anche dipingere un bel quadro

I piccoli imprenditori e il mondo della cultura: gli intangibili nell'innovazione italiana

Forme d'impresa italiana da sostenere, consumo e credito cooperativo

Rispetto per chi produce!

Cooperative e Esselunga: in Italia e in Europa

gente vota "no"… non è che la gente dell'Irlanda che ha votato "no" le sa tutte queste cose qui però filtrano giù, come l'acqua che arriva giù in fondo alle falde. Io non capisco, se siamo tutti figli della stessa mamma, il peccato è grave se viene commesso all'interno del singolo paese, per cui le cooperative hanno un regime fiscale diverso dall'Esselunga e non diventa grave se nell'ambito del mercato comune viene commesso da uno stato perché fino a quel punto lì non siamo ancora arrivati ma rendiamoci conto che qui rischia di partire un gigantesco echissenefrega…clamoroso.

Carmela Decaro

Però questo qui è il complesso di Calimero, come dice Peressich in quella interessante storia non ufficiale dell'Unione Europea. Ci dobbiamo far valere noi.

Massimo Mucchetti

Commissione Europea: luogo per difendere gli interessi legittimi di un paese

Io sono d'accordo su questo. Allora l'Italia dovrebbe imparare ad essere un po' meno europeista a parole e sapersi difendere con le unghie e con i denti perché Bruxelles non è un luogo di gentiluomini ma è un luogo dove la gente va con il coltello sotto il tavolo a farsi valere. E' un centro di incontro di quelle lobby. Noi dobbiamo far valere le nostre… nel confronto democratico di queste cose poi verrà fuori una sintesi che ci sarà utile. L'ultima osservazione che volevo fare riguardo a quello che ha detto Emma Bonino, è che io ho la sensazione, sempre per indurre dei comportamenti… che da qualche parte bisogna cominciare. E con gli appelli investiti in ricerca, abbiamo già visto che poi dopo non succede, un po' possiamo fare ma… Io mi sto domandando, è un tema che butto lì, ma in fondo, l'economia è cresciuta perché nell'800 abbiamo fatto le ferrovie, negli anni Cinquanta le autostrade, cioè abbiamo creato delle infrastrutture che in origine, la rete telefonica classica, che in origine non erano comprese dalla grande maggioranza di quelli che le dovevano utilizzare, quindi non avevano mercato, alcuni poi non l'hanno mai avuto tipo le ferrovie. Negli anni Trenta

Esortazioni e investimenti: ricerca e infrastrutture

Vittorio Valletta riteneva i telefoni pochi interessanti: un affare per ricchi. Valletta non era... era uno bravo, nel suo mestiere, vuol dire che fuori dal suo mestiere non capiva niente, ma questo capita a tutti. Ecco io mi domando perché l'Italia sta tanto indietro e ha tanti problemi a fare quello che sta facendo il Giappone, il Giappone è un paese relativamente piccolo che spende molto cioè la spesa pro capite del Giappone è altissima, per mettere giù l'infrastruttura intelligente per eccellenza che è la *next generation network* e siccome la Telecom non hai soldi per farlo, ma più che non ha i soldi non ha l'interesse per farlo, si crei un contesto per cui qualcuno le fa anche, e dico quella che europeisticamente parlando è l'eresia, con un sussidio pubblico, perché torno a dire non capisco Gian Maria (*Gros-Pietro n.d.r.*) perché il sussidio pubblico sia dato indiscutibilmente e giustamente per fare la pedemontana lombarda per cui il 30% è a fondo perduto e susciti scandalo se per mettere giù una rete di nuova generazione ti do uno 0, in conto interessi. Quindi secondo me c'è anche un ruolo delle politiche pubbliche, delle priorità di bilancio di saper decidere che cos'è, e questa forse si crea quell'infrastruttura per cui i ragazzi giovani arrivano loro a capire quali devono essere i servizi, le nuove imprese, il settore terziario in italia. Ma qui Carlo Ronca ci deve dare il lascito olivettiano.

Il Giappone e le infrastrutture

Politiche pubbliche per le infrastrutture

Carlo Ronca

Io penso che sia opportuno che si approfondiscano i temi per cui qui sono presenti il Professor Gros-Pietro e il Professor Trigilia. Prima di far ciò voglio inquadrare questa discussione nelle attività che la Fondazione Adriano Olivetti sta conducendo in questo momento e quindi spiegare perchè abbiamo fatto questo incontro e ne faremo altri di questo tipo. Gli obiettivi della Fondazione Adriano Olivetti sono in questo momento determinati dal fatto che quest'anno, il 2008, si celebra il centenario della fondazione della cosiddetta fabbrica di mattoni rossi, la fabbrica di macchine per scrivere di Camillo. Credo fosse il 29 ottobre 1908 la data in cui dal notaio fu firmata la costituzione della società. In questo quadro la Fondazione ha deciso di concentrare una

Perchè abbiamo parlato finora di Agenda di Lisbona e Società della conoscenza

Conoscenza come creazione di valore nelle imprese e nelle comunità: il caso Olivetti

La Fondazione Adriano Olivetti vuole capire se e come una cultura d'impresa basata sul capitale intellettuale sopravvive alla "chiusura" materiale dell'impresa: da Camillo Olivetti al domani dei territori di sviluppo dell'azienda

Perchè dal "pilastro" dell'azienda Olivetti ai "pilastri" dell'Agenda di Lisona e viceversa

parte della sua attenzione su un tema fondamentale, che rientra nella sua missione, nella sua cultura, nella sua tradizione, soprattutto nelle sue linee di sviluppo, che è quello di creare una riflessione sulla creazione di un valore nelle comunità e nelle imprese, ritenendo che senza creazione di valore sia la comunità sia le imprese si fermano, vanno in recessione, declinano, spariscono. Ne vediamo tante di queste cose. L'azienda stessa, la Olivetti, qualche anno fa è sparita, sparita di fatto almeno come attività produttiva, secondo quelle linee che per decenni erano state le linee della sua presenza nel mondo. E' sparita come nome, quando da Olivetti diventò Telecom Italia nel 2003. E' dunque la scatola di Telecom Italia che è ancora esattamente quella di Olivetti spa. Non si ritiene per questo che la sparizione della Olivetti, come sommatoria di fabbriche, come sommatoria di reti commerciali, come sommatoria di grandi attività di sviluppo, di messa a frutto di capitali intellettuali con radici molto lontane nel tempo, non abbia lasciato un'eredità. Questa, anzi e anche attraverso questa audizione, è la cosa che si vuol capire, far emergere e quindi rendere visibile, poiché nel tempo la Olivetti è stata una di quelle imprese che senza capitale intellettuale non sarebbe nata cresciuta e vissuta. Camillo era capitale intellettuale, i suoi operai addestrati prima che la fabbrica aprisse erano capitale intellettuale dell'azienda. Questi valori hanno sempre, pensiamo, ispirato l'impresa Olivetti, nei lunghissimi anni della sua storia, anche con cambiamenti di management e proprietà. Per la forte cultura di quell'impresa, occorre vedere, a fronte della chiusura materiale dell'azienda, qual è il lascito che essa ha dato al territorio in cui era, all'Italia nel suo complesso e ad ambiti ancora più vasti. Di questo ne parleremo ovviamente. Ma per capire e valutare queste cose, abbiamo pensato che, poiché poi alla fine il tema è "il ruolo del capitale intellettuale nella creazione di valore", si possa assumere come cornice e quadro di riferimento quella che è stato definito nel 2000 come agenda o strategia di Lisbona. Ci è sembrato infatti che, essendosi accumulato, con l'agenda di Lisbona, uno sforzo di pensiero e di definizione molto importante e molto vasto, arrivando a tassonomie che non possiamo

non condividere, (e poi perchè inventarne di nuove?) lo scenario, definito dagli indicatori della strategia di Lisbona, fosse lo scenario rispetto a cui poi andare a capire e valutare puntualmente fatti, cose, realtà esistenti, ambizioni e prospettive esistenti, per esempio sul territorio eporediese, in quanto luogo principe del lascito di capitale intellettuale Olivetti. E quindi questa è la ragione per la quale ci troviamo qui. Abbiamo scelto di formulare il quadro della società della conoscenza. Per questo Emma Bonino è stata chiamata e credo che abbia ben risposto. La Professoressa Decaro ha illuminato alcune aree specifiche della strategia di Lisbona e ci ha detto di come questa può essere e deve essere letta in maniera più specifica non solo secondo la prospettiva italiana, ma anche nell'ambito della prospettiva europea. Abbiamo anche pensato che, ascoltando delle testimonianze, che siano delle testimonianze "consapevoli", si possano mettere a fuoco alcuni punti di fondo generali della strategia di Lisbona, oggi particolarmente importanti. Sostanzialmente ci sono due parole chiave nella strategia di Lisbona, *Growth* e *Job*. Poi sono stati aggiunti tanti pilastri… tante altre cose che la rendono omnicomprensiva…

Lisbona: crescita, lavoro e...

Carmela Decaro
E competitività…

... competitività

Carlo Ronca
E competitività esatto. Il titolo che fu scritto per la prima volta. La competitività si gioca, nella economia della conoscenza, sul discorso dell'innovazione L'abbiamo sentito dire qui da tutti. Noi abbiamo dato all'innovazione un senso molto ampio. L'innovazione non è solo il risultato della ricerca scientifica che apporta delle cose nuove nell'ambito delle tecnologie, dei prodotti o dei processi industriali o nella realizzazione dei servizi, ma è a 360°. E' tutto ciò che impatta con le modalità del fare, con le relazioni inter-personali, cioè è un fatto di cultura, e quindi rientra ovviamente nelle cose che una Fondazione, soprattutto la Fondazione Adriano Olivetti ha il dovere di attivare. In

Economia della conoscenza e competitività si basano sull'innovazione

L'innovazione deve diventare cultura: per questo se ne occupa la Fondazione Adriano Olivetti

Un "censimento" del capitale intellettuale nei territori e paesaggi Olivetti

Esiste il capitale, è un "lascito Olivetti", risiede in un "distretto" dale caratteristiche particolari?

"Distretto" e sviluppo locale verso il futuro

questo quadro e in questa audizione sono contento che stiano emergendo elementi che ci aiutano a capire meglio il contesto della società della conoscenza. Capire meglio la Società della Conoscenza è la seconda ragione per questa audizione Infatti noi stiamo facendo dei lavori sul territorio natale della Olivetti. Fra l'altro la Fondazione, , ha aperto una sede nella villa di Adriano Olivetti a Ivrea, una sede molto evocativa per chi ha lavorato alla Olivetti , perché lì c'è la visibilità di tutti i luoghi, dei paesaggi di quell'impresa a Ivrea. In quella sede e per questo ambito di approfondimento si è costituito un gruppo di lavoro che sta facendo il "censimento" del capitale intellettuale , contattando dei testimoni "privilegiati", andando a intervistare le imprese del territorio. Obiettivo del gruppo di lavoro è di proporre un primo quadro conoscitivo sulla consistenza del capitale intellettuale nel contesto eporediese. Diciamo eporediese, perché il Canavese, che è la regione geografica che comprende la zona di Ivrea, ha delle aree che sono differenziate anche in molte altre direzioni, non così significative per l'economia della conoscenza o collegabili al "lascito" Olivetti. In questo quadro il censimento vuole essere un'analisi conoscitiva per andare a determinare, se prima di tutto esistono delle capacità da economia della conoscenza, secondo gli scenari di Lisbona, se alcune di queste capacità sono in qualche modo legate al lascito Olivetti, se ce ne sono altre, perché ci sono e come sono nate. Con tutto ciò si vuole rendere visibile, comunicare, rendere attrattiva l'area attorno a Ivrea. Questa, per varie ragioni, non è mai stata denominata "distretto", pur essendo stata interessata dai distretti tecnologici, forse in maniera solo opportunistica. Occorre forse una lettura bottom-up , partendo dalle imprese e dagli altri attori del territorio eporediese. Sarà interessante sentire il professor Trigilia, in relazione al discorso sullo sviluppo locale, se può avvenire attraverso una ri-connessione dal basso tra imprese e politiche di sviluppo, per andare a ri-comporre un quadro da "economia della conoscenza". In questo mese abbiamo intervistato i fondatori, i manager di riferimento di 7 imprese dell'eporediese, per un totale di 3000 occupati, che è tanto, tutte imprese nell'area dell'*high tech*,

informatica e meccanica. Abbiamo scoperto delle realtà e delle propensioni verso il futuro che sono straordinarie, ma credo che quelli che stanno a Torino e in provincia di Torino non lo sanno. Sarà per questo interessante poi andare a vedere meglio, allargare l'area dell'analisi conoscitiva… Queste imprese sono debolmente legate alle associazioni di categoria… Mentre, ritornando ai discorsi che i nostri testimoni fanno, crediamo che abbiano problemi di produttività, abbiano un problema di capacità tecniche del personale che sentono in maniera gravissima. Tutti ci dicono: "in questo momento se non avessimo altri che ci aiutano a far delle cose, delle filiere esistenti, non riusciremmo a realizzare i prodotti". Queste imprese intervistate, se non avessero un'antica tradizione, per cui quasi tutti san parlare inglese e vanno all'estero, non andrebbero all'estero. I brevetti li fanno, perché sanno come si fa. Per questo ci sembra che, per capire i problemi esistenti, sia molto importante avere un quadro di riferimento omogeneo, che è quello definito dalla strategia di Lisbona, senza andare a inventare altre cose. Sarà difficile poi "mettere i numeri"? Sara difficile correlare tutto ciò al discorso "economico" che prima faceva Massimo Mucchetti, cioè il discorso relativo agli intangibili rappresentabili nei bilanci? Io sono convinto che gli intangibili, che, con i nuovi principi Contabili Ias/Ifrs, sono obbligatoriamente da inserire nei reporting di bilancio delle società quotate e che saranno presto obbligatori per le società di capitali non quotate(perché l'Italia delle regole per certe cose va avanti anche abbastanza in fretta), daranno una mano a consolidare i valori della Società della Conoscenza. Ma la cultura del management deve essere adeguata, il vero problema è quello. Certe cose si possono anche raggiungere in fretta: basta saperle fare. Il problema è quello certamente degli ordini professionali italiani, passaggio obbligato, che spesso non sono all'altezza di queste cose. Noi pensiamo che sia possibile fare il collegamento tra la rappresentazione del capitale intellettuale disponibile nell'impresa e il suo valore. Il capitale intellettuale non si consuma se non lo si usa; purtroppo se non lo si usa per troppo tempo può non essere più adatto ad essere interessante per qualcuno, e quindi

Primi segnali di imprese che crescono perchè da molti anni si è seminata conoscenza, competenza, saper fare

La misura degli intangibili che il management può porre nei bilanci

Innovazione, intangibili, management, ordini professionali, bilanci: può esistere un circolo virtuoso?

perde valore anche lui, il suo fair value diventa sempre più basso. Sarebbe possibile anche rappresentare e coordinare fra di loro le tassonomie della contabilità degli intangibili con la contabilità della visione e della capacità dell'impresa di poter generare valore nel presente e nel futuro, perché ha il *know-how* per farlo. In questo quadro quindi sono ansioso di sentire le altre testimonianze, perché in questo quadro penso che riusciremo a capire meglio le cose che stiamo facendo.

Massimo Mucchetti
Professor Trigilia

Sviluppo locale rispetto a innovazione: quest'ultima è la cosa più importante

Carlo Trigilia
Innanzitutto ringrazio per avermi invitato a questo seminario che mi sembra sia già partito in maniera molto interessante. Credo sia anche utile il fatto di discutere di queste cose in una sede un po' riparata e non necessariamente di grandi numeri, almeno in questa fase. Quello che a me è stato chiesto che io potrei cercare di fare, è di legare il tema dell'innovazione al tema dello sviluppo locale. Naturalmente lo sviluppo locale non è tutto per l'innovazione ma cercherò di dimostrare che oggi è una cosa più importante per l'innovazione e di cui non si tiene adeguatamente conto nelle politiche che restano un po' tributarie di un vecchio modo di concepire l'innovazione legata ad una organizzazione produttiva del passato.

Economia contemporanea: dimensione aziendale meno importante di dimensione sociale e relazionale

Nelle considerazioni seguenti cercherò di mostrare che nelle condizioni di funzionamento dell'economia contemporanea la dimensione sociale e relazionale dell'innovazione tende a diventare più importante rispetto a quella strettamente aziendale, e con essa aumenta anche il radicamento locale dei processi innovativi.
L'innovazione non riguarda solo la soluzione più efficace di un problema ma la scoperta di nuovi problemi. Non si tratta di trovare il modo più efficiente di percorrere una strada, ma di scoprire nuove strade. In questo senso l'innovazione ha una fondamentale componente inter-

pretativa e dialogica, riguarda interazioni efficaci, o "conversazioni" - come le hanno chiamate di recente Lester e Piore (*rispettivamente economista e sociologo del M.I.T., n.d.r.*), nel loro libro "Innovation" - tra più soggetti con esperienze diverse che potenziano l'apprendimento e la scoperta. Ma per funzionare le conversazioni richiedono una componente informale e di interazione diretta che chiama in causa la vicinanza territoriale.

Il secolo trascorso è stato segnato dalla grande impresa fordista, che ha dominato la scena fino agli anni '70. Nelle grandi imprese verticalmente integrate - come aveva notato Schumpeter - 'imprenditorialità si spersonalizzava e la promozione dell'innovazione si istituzionalizzava nei grandi dipartimenti di Ricerca e Sviluppo - celebri, per esempio, quelli della Bell o dell'IBM negli Stati Uniti, ma anche noi abbiamo avuto i laboratori della Olivetti e della Montecatini negli anni '50 e '60. Queste erano isole relativamente riparate dalle esigenze di profitto immediato delle imprese, in cui potevano svilupparsi conversazioni interne e con soggetti esterni, e maturava una specifica conoscenza tacita legata al particolare contesto aziendale. Una conoscenza non facilmente codificabile e quindi catturabile, da cui nasceva uno specifico vantaggio competitivo. C'era dunque una costruzione sociale dell'innovazione, ma essa era legata più al mondo delle grande aziende che dei territori, proprio perché l'impresa fordista era per sua natura più autonoma dal contesto ambientale. Dominava l'ambiente più che esserne tributaria.

L'imprenditore innovatore nella grande impresa attraverso la R&S: Olivetti, Montecatini...

Le cose sono cambiate, come sappiamo, negli ultimi decenni del 900. L'innovazione fordista aveva tempo, poteva permettersi ritmi lenti di introduzione e diffusione. Il mondo post-fordista è diverso. L'innovazione diventa la risorsa chiave per le imprese dei paesi più avanzati, che non possono competere più sui costi del lavoro con quelli meno sviluppati. Ma i tempi dell'innovazione si fanno più brevi in relazione agli sviluppi più rapidi delle tecnologie, e i suoi costi e i suoi rischi crescono quanto più le traiettorie tecnologiche sono aperte e i mercati sono incerti e variabili. Le imprese che perseguono la strada dell'innovazione non possono assumersi da sole questi costi e rischi

Lontananza dal profitto immediato, conoscenza tacita e contesto ambientale

Capitale Intellettuale attraverso la conoscenza tacita: innovazione com costruzione sociale

Innovazione oggi: molteplici traiettorie e rischi crescenti

crescenti. Devono condividerli con altre imprese specializzate, devono aprirsi di più alle collaborazioni esterne.

Apprendimento per l'innovazione attraverso reti di relazioni

Le architetture possono essere diverse: le grandi o medie imprese organizzate a rete con collaboratori esterni, o le reti di piccole imprese e i distretti. In ogni caso, l'economia che punta sull'innovazione si fa più relazionale. L'apprendimento e la scoperta di nuove strade si basa cioè su reti di relazioni formali e informali tra soggetti operanti in imprese radicate in determinato territorio.

Sistemi locali di innovazione: poli i ncui collocare antenne

Si formano così dei sistemi locali dell'innovazione in cui si concentrano piccole medie imprese che collaborano tra di loro, ma anche grandi aziende che operano in settori oligopolistici, con volumi di produzione più ampi e economie di scala, tendono a collocare le loro antenne dell'innovazione in questi poli.

Silicon Valley, M.I.T., Stanford

Basti pensare agli esempi più noti come la Silicon Valley a ridosso dell' Università di Stanford o al polo delle biotecnologie intorno ad Harvard e al MIT a Boston. Ma le attività innovative in genere tendono ad un forte radicamento territoriale.

Che ruolo gioca in questi processi la globalizzazione? Si è spesso sostenuto, negli ultimi anni, che le tendenze ad una maggiore apertura e internazionalizzazione delle economie dei vari paesi comportino un progressivo sradicamento territoriale delle attività produttive: si dice che le economie diventano sempre più "senza patria". Questa visione si basa sull' effettiva crescita dei processi di delocalizzazione, e sulle conseguenze che essi comportano per molti sistemi produttivi locali. Tipico è il caso di numerosi distretti italiani, che ha suscitato comprensibili preoccupazioni. Tuttavia, a ben vedere, questi fenomeni non si accompagnano ad una complessiva riduzione della concentrazione territoriale delle attività produttive. Accade invece il contrario. Le attività manifatturiere si ridimensionano dal punto di vista occupazionale. Ma è significativo che le fasi più strategiche legate all'innovazione tendano ancor di più a territorializzarsi, cioè a concentrarsi in specifici sistemi locali specializzati.

Territorializzazione vs delocalizzazione dell'innovazione

Per chiarire meglio questo aspetto, si tenga presente che le spinte alla globalizzazione hanno conseguenze contraddittorie sui processi pro-

duttivi. Da un lato, esse comportano una maggiore facilità di accesso alla conoscenza codificata, cioè a quella conoscenza che può essere incorporata nelle macchine, appresa nelle scuole, o raccolta e trasmessa con i mezzi di comunicazione, attraverso le pubblicazioni o anche con mezzi a rapida diffusione come Internet. Ciò porta ad accrescere la concorrenza su produzioni che incorporano un'elevata quantità di conoscenze standardizzate, facilmente riproducibili ed esposte ad una competizione di costo. Dall'altro lato, si amplia però lo spazio per innovazioni capaci di valorizzare una conoscenza non codificata o tacita, che non è facile riprodurre.

Globalizzazione e conoscenza codificata

Questa conoscenza è specifica di un certo contesto: un'organizzazione o un determinato territorio. Gli attori coinvolti in tali ambienti condividono, attraverso la loro interazione diretta, particolari codici e sviluppano routines e convenzioni che li aiutano ad assorbire e a trasformare la conoscenza standardizzabile in nuova conoscenza per l'innovazione. Si può così costruire un vantaggio competitivo per un determinato territorio, e si affermano dei sistemi locali innovativi che vanno dalla specializzazione nei settori ad alta tecnologia - come l'informatica, le biotecnologie, la produzione dei media - ad altri considerati più tradizionali - come quelli tipici del Made in Italy - dove la ricerca di qualità si lega sempre più all'innovazione. Distretti tradizionali che innovano e distretti high tech tendono dunque ad avvicinarsi e presentano dei tratti simili che mi propongo ora di esaminare più in dettaglio.

Conoscenza non codificata o tacita: specificità di un territorio

Per i sistemi locali innovativi diventano più importanti le economie esterne e i beni collettivi che le alimentano. Innanzitutto occorre considerare un primo tipo di economie esterne: l'accesso alla ricerca e le possibilità di collegamento con strutture scientifiche e universitarie. Questa sembra essere una risorsa - un bene collettivo - fondamentale sia per il continuo aggiornamento tecnologico, sia per la disponibilità nei sistemi locali innovativi di personale altamente qualificato che alimenta un mercato del lavoro locale, con frequenti passaggi tra attività scientifiche e formative e impegni nel settore delle imprese. Tre tipi di istituzioni, variamente presenti, consentono in genere di soddisfare

Beni esterni di un territorio: accessi alla ricerca

Mercati del lavoro “locali”

queste condizioni: università, centri di ricerca indipendenti pubblici e privati, strutture di R&D legate a grandi imprese.

Per quel che riguarda l'aggiornamento tecnologico, sono particolarmente importanti i rapporti formalizzati (contratti, *joint ventures*) tra le imprese, o gruppi di imprese, e le istituzioni di ricerca. L'intensità di tali rapporti può variare a seconda del grado di dipendenza del settore dal progresso scientifico. Per esempio, sappiamo che è particolarmente alta nel campo delle biotecnologie. Ma ancora più importanti, come mostrano le ricerche, sono le relazioni di tipo più informale: la crescita di reti personali che collegano il mondo delle imprese e quello dei centri di ricerca. In tal modo si formano infatti nel territorio delle "comunità professionali", che sono particolarmente rilevanti per la circolazione delle informazioni, lo sviluppo di modalità di conoscenza tacita e di fiducia locale, il reclutamento di personale qualificato. Si tratta di una forma di capitale sociale locale.

Le "Comunità" professionali: basi del capitale sociale di un territorio

Un secondo tipo di economie esterne riguarda la disponibilità di fornitori specializzati di beni e servizi per le imprese. Un insieme di risorse dedicate tende a crescere intorno alle strutture scientifiche e formative. Si tratta, in questo caso, di economie esterne che si formano come effetti emergenti di processi inintenzionali, legati alla localizzazione originaria di alcune strutture formative e di ricerca e di alcune imprese, che alimentano successivamente la formazione di risorse imprenditoriali e lavorative qualificate. Anche in questo caso si tratta di una dimensione variabile. In alcuni settori è più pronunciata, come per esempio nella produzione dei media, che è spesso organizzata attraverso team di operatori specializzati in varie fasi del processo produttivo che si formano e scompongono per la realizzazione di specifici prodotti. Ma fenomeni simili di collaborazione sono presenti anche nella produzione di software. In altre specializzazioni, come nelle biotecnologie, la collaborazione tra imprese diverse sembra meno sviluppata, rispetto ai contatti con le strutture di ricerca o con imprese esterne.

Beni esterni: disponibilità di fornitori specializzati di beni e servizi

In generale, comunque, non si devono immaginare dei network autarchici, chiusi nella realtà locale. La collaborazione con imprese esterne

Beni esterni: le reti "lunghe"

- spesso di grandi dimensioni - è molto presente, così come la costruzione di reti "lunghe", extra-territoriali. Tuttavia, la disponibilità di partner locali, legati da rapporti formali e informali, è una condizione di funzionamento importante per le singole imprese, e influenza il dinamismo complessivo del sistema.

I servizi specializzati dalla formazione alla finanza

Particolarmente rilevante per i nostri sistemi locali è poi la presenza di operatori specializzati nel settore dei servizi. Oltre ai servizi legati alla ricerca e alla formazione, che abbiamo prima ricordato, un ruolo di notevole rilievo hanno i servizi finanziari, quelli di assistenza agli start-up, e quelli legati al marketing. Com'è noto, la finanza specializzata, specie nella forma del venture capital, è cruciale per lo sviluppo di attività high tech, dal momento che gli investimenti in questi settori tendono ad essere più incerti e rischiosi (tipico il caso delle biotecnologie). Il radicamento di istituzioni finanziarie dedicate nel contesto locale, spesso attraverso passaggi dal mondo delle imprese a quello della finanza, è essenziale perché permette di valutare in modo più efficiente le proposte di investimento. Solo chi viene dal mondo delle imprese e conosce le problematiche specifiche di un certo settore è in grado di valutare efficacemente l'interesse di determinate proposte di finanziamento.

I beni collettivi locali: la qualità del contesto

Un terzo tipo di beni collettivi locali, che produce importanti esternalità positive, è legato alla qualità del contesto. Questa modalità chiama maggiormente in causa la capacità dei soggetti istituzionali locali di produrre intenzionalmente beni collettivi attraverso processi di cooperazione efficace, buoni progetti di sviluppo locale. Naturalmente, la disponibilità di aree adeguatamente attrezzate o di parchi tecnologici, è importante per le imprese. Non meno importante è la disponibilità di adeguate infrastrutture di comunicazione, che devono consentire facili collegamenti con altri centri nazionali e internazionali. Ma mentre queste condizioni valgono in generale per i sistemi produttivi locali, sembra esservi una specificità di quelli *high tech* e dei distretti innovativi. In questi casi la qualità socio-culturale e ambientale è particolarmente rilevante. Tale fattore incide infatti sulla capacità di attrarre - e di trattenere - specialisti altamente istruiti e qualificati, con le loro

Qualità socio-culturale e ambientale

famiglie; e anche studenti stranieri che, come mostrano le ricerche, alimentano spesso la formazione di imprese innovative. La qualità dell'ambiente quindi condiziona le possibilità che si formino comunità professionali innovative. Ciò può aiutare anche a spiegare perché la localizzazione in città di medie dimensioni, con ricche istituzioni formative, scientifiche e culturali, e con un buona qualità ambientale e sociale, è spesso un'alternativa per i sistemi locali dell'innovazione, rispetto a quella nelle grandi aree metropolitane (si pensi a Oxford, a Cambridge, a Basilea, a Colonia o a Grenoble).

L'importanza delle economie esterne nella generazione di nuovi prodotti

Tirando le fila da queste osservazioni, possiamo dire che nei sistemi locali dell'innovazione sono più importanti le economie esterne che interessano la generazione di nuovi prodotti piuttosto che la loro riproduzione manifatturiera (nel senso di produzione su scala più ampia per il mercato). Quest'ultima è un'attività ad elevato consumo di tempo e di lavoro (ma anche di spazio) per i distretti industriali tradizionali, come per l'industria manifatturiera in genere. Nei settori high tech che stiamo considerando, invece, la produzione per il mercato di un nuovo bene è relativamente facile, e molto meno costosa in termini di tempo, di lavoro impegnato e di spazio. Una volta scoperto un nuovo prodotto che "funziona" - un software o un farmaco o un filmato -, lo si può riprodurre a costi molti bassi. Il problema cruciale è la generazione di questi nuovi prodotti in settori in cui tale processo è più direttamente e fortemente influenzato dal progresso scientifico.

Come si formano i sistemi locali innovativi?

Infine ci possiamo chiedere: se i sistemi locali innovativi sono così importanti non solo per i territori interessati, ma in generale per i paesi più avanzati, da che cosa dipende la loro formazione?

Naturalmente le politiche nazionali contano. Mi riferisco in particolare a quegli interventi che sostengono lo sviluppo delle istituzioni scientifiche e di ricerca e che in genere presuppongono scelte di livello nazionale, ma che hanno delle conseguenze territoriali. In questo quadro, particolarmente importante è il sostegno selettivo, basato su rigorosi criteri di merito, alle iniziative di ricerca, così come la localizzazione oculata e ben ponderata - non affidata quindi a relazioni particola-

ristiche o clientelari - di strutture scientifiche qualificate. Non meno importante è la regolazione del sistema finanziario, con le relative ricadute su meccanismi di finanziamento adeguato per imprese innovative specie attraverso il ruolo cruciale del *venture capital* (un settore da noi ancora molto carente). E ancora, la regolamentazione dei benefici delle scoperte scientifiche nelle università e nelle strutture di ricerca pubbliche.

Questi aspetti aiutano a spiegare perché alcuni paesi siano più avanti di altri nella frontiera dell'innovazione. Non solo gli Stati Uniti, ma in Europa la Gran Bretagna o i paesi scandinavi. Tuttavia, quando si vuole invece spiegare la concentrazione territoriale delle imprese innovative, indipendentemente dal peso complessivo che esse hanno all'interno di un singolo paese, occorre fare riferimento ai suggerimenti offerti dalla letteratura sui "sistemi locali e regionali di innovazione". La presenza di una base scientifica e formativa di elevato livello è un pre-requisito cruciale - lo abbiamo visto - per la formazione di distretti high tech. Tuttavia, si potrebbe dire che questa è una condizione assolutamente necessaria ma non sufficiente per spiegare lo sviluppo di tali sistemi produttivi. Sono molto più frequenti i casi in cui una base scientifica e formativa di livello esiste, ma non ci sono conseguenze significative dal punto di vista produttivo (ciò sembra valere, in particolare, per la situazione italiana). In alcuni casi, specie negli Stati Uniti e in Gran Bretagna, il primo passo che innesca il processo sembra in genere costituito dalla decisione di soggetti operanti nelle strutture scientifiche e di ricerca di fondare delle imprese (o di partecipare più o meno attivamente alla loro fondazione), per sfruttare determinate conoscenze maturate nel contesto locale. Un'altra variante può essere data dalla chiusura o dallo spostamento dei centri di ricerca di una o più grandi imprese, presenti nell'area per collaborare con l'università. Anche in questo caso ciò può portare alla formazione di piccole imprese locali (è successo per esempio anche a Pisa o a Ivrea). In altri casi, che interessano i nostri distretti che imboccano la strada dell'innovazione, possono essere le imprese leader del distretto promuovere delle forme di cooperazione con strutture universitarie e di ricerca qualificate.

Lo sviluppo dei sistemi locali e regionali d'innovazione

La creazione d'impresa

Dallo spostamento di grandi centri di ricerca la formazione di piccole imprese locali: Ivrea, Pisa...

Tuttavia, questi primi passi possono non essere sufficienti. Le storie dei casi di successo suggeriscono che un contributo importante per lo sviluppo del sistema locale, e soprattutto per il suo consolidamento, si determina quando nel mondo dell'università e della ricerca, e in quello delle attività imprenditoriali, matura la spinta a costruire specifiche *organizzazioni di intermediazione* tra i due ambienti. Spesso queste iniziative vedono come promotori- ma non come partecipanti diretti - i governi locali e regionali, ma in qualche caso anche i governi nazionali. L'origine dei sistemi locali innovativi sembra dunque dovuta in parte a processi spontanei e incrementali, in presenza di determinati pre-requisiti in termini di risorse locali, ma appare poi più legata a processi consapevoli di costruzione politica; nel senso che dipende maggiormente da scelte volte a predisporre adeguati strumenti di cooperazione tra mondo della ricerca e della formazione e mondo delle attività produttive.

Intermediazione tra impresa e ricerca: il ruolo delle politiche

Ma perché organizzazioni intermediarie possono essere importanti? Il problema cruciale è costituito dalla capacità di far comunicare efficacemente il mondo dell'università e della ricerca, quello delle attività produttive, e quello della finanza, e di mobilitare così il potenziale scientifico verso possibili applicazioni produttive di carattere innovativo. Gli incentivi di mercato non sono sufficienti a questi fini: progetti e investimenti sono rischiosi e presentano ritorni incerti. Ma anche le politiche pubbliche non possono svolgere direttamente un ruolo di questo tipo: gli attori pubblici non sono in grado, da soli, di selezionare efficacemente quali attività privilegiare e sostenere. E' dunque necessaria la collaborazione di soggetti specializzati che hanno le informazioni e le competenze per favorire un' allocazione efficiente delle risorse. Da qui il ruolo svolto dalle istituzioni intermediarie nel facilitare la nascita (*l'incubazione*), di nuove imprese (*spin-off* universitari e *start-up*), ma anche nel sostenere e finanziare, direttamente o indirettamente, importanti progetti innovativi con promettenti ricadute commerciali. Come si può intuire, non è un compito facile. Il rischio di allocazione inefficiente delle risorse, o peggio di coalizioni collusive, è sempre in agguato.

Le istituzioni intermediarie: incubazione, *spin-off*, *start-up*

Non sembra esistere una ricetta unica per far fronte a questi rischi. Né basta costituire un'istituzione di intermediazione perché il successo sia assicurato: i fallimenti sono frequenti. Cruciale per il successo è la capacità di coordinamento tra i diversi attori e la loro professionalità e il loro impegno a sostegno dello sviluppo locale. Le storie locali mostrano in genere come questi reti debbano molto all'azione di imprenditori istituzionali locali lungimiranti, capaci di costruire stabili relazioni.

Il ruolo degli imprenditori locali lungimiranti

Abbiamo visto dunque come la via dell'innovazione è una strada obbligata per i paesi avanzati, se vogliono difendere e migliorare il loro benessere e la loro qualità sociale. Ho cercato di mostrare che ancor più che nel passato questa strada passa oggi non solo dal sostegno alle singole imprese, ma dalla costruzione di ambienti sociali che ne facilitino la cooperazione e l'apprendimento. La formazione di sistemi locali innovativi è certo influenzata dalla storia e dalla geografia, ma può essere promossa da interventi intenzionali intelligenti e da buone politiche. Questo richiede però che la politica nazionale ed europea non guardi solo alle liberalizzazioni dei mercati. Se l'innovazione è una costruzione sociale, accanto alle necessarie politiche per slegare le imprese da lacci e laccioli, occorre pensare anche a politiche per connettere, per promuovere la mobilitazione e la cooperazione efficace tra i soggetti locali: la formazione di buone reti per l'innovazione.

Ambienti sociali per la cooperazione e l'apprendimento

Le politiche per "slegare" e le politiche per "connettere"

Per concludere, se i sistemi locali innovativi sono così importanti non solo per i territori ma a questo punto per i paesi e se ci mettiamo nell'ottica di Lisbona per l'Europa, allora uno dovrebbe chiedersi, non genericamente come faccio io, in che modo si promuove l'innovazione nell'ambito di una singola azienda. *Posso cercare di alimentare questo sistema con dell'acqua, come se questo fosse un particolare giardino nel quale queste cose (l'innovazione in azienda, ndr) crescono meglio!*

E qui già vedete la distanza che c'è rispetto al dibattito corrente. Perché il dibattito corrente è tutto incentrato in una dimensione aziendale. Il problema è, come ha detto bene Bonino, che la politica e le stesse organizzazioni imprenditoriali sono tutte condizionate dal tempo breve.

Sistemi locali con "giardini" per coltivare l'innovazione nelle aziende

Che cosa fanno? Propongono la Visco Sud, il credito d'imposta, gli

incentivi, gli sgravi, giocati quasi sempre a livello di azienda, sui tempi rapidi. Gli studi su queste cose, che ci sono, ma che sono poco conosciuti, vi dimostra no che, nella grande maggioranza di questi casi, questi incentivi, questo tipo di politica dell'innovazione sono un fallimento dello stato, nel senso che si danno i soldi a imprese che comunque avrebbero fatto determinate cose, o che magari non le avrebbero fatte ma che hanno dei vantaggi in termini di budget. Pur con tutto ciò, non si spostano le imprese in termini di strategia dell' innovazione. Quindi quando si toccano queste cose bisognerebbe innanzitutto capire meglio come funzionano oggi, in che senso quindi l'innovazione è una costruzione sociale, che va vista in habitat particolari, quindi in una logica di sistemi locali. Naturalmente tutto questo è difficile, perché lo strumento dell'incentivo, del credito d'imposta è la cosa più semplice che viene da pensare. Invece dovrei, nei sistemi locali, coltivare i giardini che posseggono. La cosa è più complessa.

Gian Maria Gros-Pietro

Spunti per lo sviluppo locale partendo dalla singola "fabbrica"

Sono completamente d'accordo con quanto ha detto Carlo Trigilia. Non soltanto sulle singole affermazioni, ma soprattutto sullo schema concettuale che le sostiene. Pertanto vorrei prendere lo spunto dal suo intervento per approfondire un aspetto che mi sembra importante, quando si parla del dominio dell'intangibile: la fabbrica. Parlando dell'esperienza olivettiana, fabbrica vuole dire il luogo materiale dove si produce, lo *shop-floor* nel quale gli operai accumulano il loro saper fare e lo mescolano con la conoscenza, codificata o meno, tacita o esplicita, che viene dalla Direzione. Perciò la fabbrica è, nell'industria metalmeccanica della prima metà del '900, il luogo per eccellenza in cui si costruisce una parte rilevante dei valori intangibili. Soprattutto se si pensa che di questi fanno parte anche il senso dell'organizzazione, il senso di appartenenza, la solidarietà di squadra e l'orgoglio professionale, che sono parti importanti dei valori intangibili e al tempo stesso che nell'esperienza Olivetti vennero sviluppati in modo esemplare proprio a livello di fabbrica. Oggi tuttavia il concetto di fabbrica si deve

intendere in senso lato: va esteso a tutti luoghi e a tutte le combinazioni produttive nelle quali si "fabbricano" prodotti, materiali o immateriali che siano. Non a caso, nell'industria finanziaria mondiale contemporanea in ogni grande Gruppo bancario esiste una unità denominata "fabbrica". Essa ha il compito di mettere a punto prodotti, assolutamente immateriali - essenzialmente tipologie di contratti - affinandone di continuo l'efficacia, migliorandone la redditività, irrobustendone la resistenza ai rischi. Prodotti che poi il Gruppo vende, oltre che ai clienti, anche ai propri concorrenti. I reparti di ricerca e sviluppo delle aziende di software sono altrettante fabbriche di prodotti puramente immateriali. In altre industrie ad alta intensità di conoscenza, come l'aerospaziale o la farmaceutica, la produzione di conoscenza immateriale prende poi forme materiali. Inoltre la conoscenza pura, di base, relativa ai principi teorici che sovrintendono il nuovo prodotto, e quella applicativa, che concerne il disegno del prodotto e il suo funzionamento, non assumono valore di mercato se non incorporano anche un terzo tipo di conoscenza: la conoscenza di processo. Il valore d'uso dell'innovazione non può esistere se non si mette a punto anche il processo capace di riprodurre, a costi accettabili e con qualità esattamente ripetibile, il farmaco, il componente, l'oggetto nuovo che la ricerca ha reso possibili. In tutte queste produzioni, sia materiali che immateriali, è dunque sempre presente l'interazione stretta e necessaria tra la produzione di conoscenza di base e applicativa e la conoscenza di processo: interazione che si realizza nella fabbrica. Interazione che si basa a sua volta sull'intangibile organizzativo, che permette di fare confluire in quella interazione anche gli stimoli che provengono dal mercato - le esigenze dei clienti, canalizzate dall'ingegneria di vendita - costruendo valore d'uso proprio dalla fusione di competenze aventi origini tanto distanti.

Anche sotto questo profilo l'esperienza Olivetti è stata d'avanguardia. Non sarebbe stato possibile mantenere tanto a lungo il primato nelle macchine da ufficio, prima meccaniche e poi elettroniche, avendo sede lontano dai centri mondiali del lavoro di ufficio, se non fosse stata

disponibile una eccezionale capacità di "fabbricare" quelle conoscenze grazie al modo con cui venivano fatte interagire le conoscenze d'origine. Questo intangibile organizzativo, gestito per decenni, ha prodotto una cultura che a mio avviso è ancora presente nell'eporediese e che anzi è stata beneficamente irradiata in tutta l'industria italiana.

Il caso dell'Ingegner Carbonato: capo degli imprenditori torinesi, con una "fabbrica" partita da lontano, dalla Olivetti Controllo Numerico

Mi si permetta di citare il nome di una persona per la quale nutro grandissima stima, l'attuale presidente dell'Unione Industriale di Torino, Gianfranco Carbonato. Lo cito innanzitutto perché la sua carica attuale ne fa indubbiamente un esponente significativo del sistema industriale locale. Ma anche perché la sua posizione imprenditoriale, Presidente, Amministratore Delegato e azionista di Prima Industrie, leader mondiale nella robotica laser, è uno dei frutti di un paradigma industriale che affonda le sue radici ancora in una cultura che all'Olivetti deve moltissimo. E che, attraverso l'opera di altri grandi innovatori, come Franco Sartorio, risale a una pietra miliare dell'industria italiana dell'alta tecnologia: l'Olivetti Controllo Numerico.

Carlo Ronca

Posso aggiungere, Carbonato l'anno scorso ha comperato l'ultimo pezzettino che c'era della Olivetti Controllo numerico che era la OSAI, quindi la OSAI fa parte di Prima Industria

Gian Maria Gros-Pietro

Olivetti Controllo Numerico è stato un fiore all'occhiello dell'industria italiana, in qualità di produttore di macchine a controllo numerico e di controlli numerici da montare su macchine prodotte da terzi. Ha contribuito con i suoi prodotti al fiorire delle imprese meccaniche italiane utilizzatrici, ma soprattutto ha trascinato, per imitazione, lo sviluppo dell'industria italiana delle macchine utensili a controllo numerico, un successo mondiale che dura ancora oggi.

Una prima domanda può essere: perché la Controllo Numerico nasce proprio in Olivetti? La risposta sta esattamente in quella convergenza di competenze, combinate dall'intangibile organizzativo, di cui ho par-

lato prima. Olivetti era un'impresa che produceva macchine per ufficio meccaniche, composte di un'infinità di rotelle, ingranaggi, levette. Rispetto a un'altra grande impresa meccanica conterranea, la Fiat, aveva esigenze produttive assai differenti: minor volume di produzione, molta più precisione, grandissima varietà di pezzi. Per lei non erano adatte le macchine da produzione tipiche dell'industria automobilistica, come i torni automatici plurimandrino, capaci di produrre rapidamente grandi lotti di pezzi tutti uguali, senza errori, ma con una precisione limitata e sempre dello stesso livello. Occorrevano macchine capaci di produrre anche piccoli lotti, ognuno diverso dall'altro, con livelli di precisione elevati ma non sempre identici, in modo totalmente automatico, così da evitare errori. Il problema si poteva risolvere solo con macchine estremamente versatili nella loro struttura meccanica, cioè capaci di svolgere cicli di lavorazione assai differenti, governate da un controllo elettronico numerico. Una soluzione a prima vista del tutto inefficiente: per il costo allora elevatissimo del controllo, per la complessità della sua programmazione, per l'estrema difficoltà di accoppiare logiche elettroniche con attuatori meccanici, per l'intrinseca ridondanza, quindi inefficienza economica, delle macchine versatili, capaci di n diverse prestazioni, delle quali una sola per volta utilizzata, restandone sempre n-1 inattive. Quindi una soluzione che non sarebbe stata perseguita in una "fabbrica" che non fosse stata pervasa dalla cultura di cui parlavo prima. Solo la convergenza delle esigenze della progettazione, dei problemi della produzione, delle competenze della ricerca avanzata permisero di battere questo sentiero.

La “fabbrica” che sta nel giardino: il giardino Olivetti dell’automazione

Ciò accade a Ivrea mentre i giapponesi stanno facendo più o meno la stessa cosa, ma con molte più risorse. La cultura aziendale, ancora l'intangibile, permette a Olivetti di competere. E di indicare la strada al resto dell'industria italiana, in quegli anni spaventata dall'ingresso in forze dei giapponesi e dal timore, sviluppando macchine di quel tipo, di dover poi dipendere dai giapponesi per un componente essenziale, il controllo numerico. Olivetti Controllo Numerico è un pioniere, un fornitore strategico, ma soprattutto una filiera di competenze fertilis-

sima, dalla quale nasceranno iniziative che le sopravviveranno, come Prima Industrie. Il tutto originato da un Gruppo, l'Olivetti, che allora ha ancora al suo interno integrate la maggior parte delle competenze necessarie a quegli sviluppi, per i quali l'apporto dell'Università è soltanto sussidiario.

La Olivetti non c'è più. Perchè è deragliata dal binario su cui stava: perchè?

Una seconda domanda può essere: perché Olivetti, quella Olivetti, quella che ha prodotto l'Elea, il primo calcolatore elettronico europeo, perché non c'è più? Perché quelle capacità di eccellenza, le cui tracce sono ancora così vive nel tessuto industriale attuale, non sono state in grado di garantire la sopravvivenza dell'azienda?

La risposta sarebbe complessa e coinvolgerebbe l'evoluzione dell'intero sistema economico e sociale italiano; esso stava viaggiando su un binario di sviluppo intenso e virtuoso, e ad un certo punto, per un complesso di cause, deragliò. Non fu quindi un processo tipico dell'azienda Olivetti. Ma per rimanere nel tema, bisogna chiedersi perché l'Italia in generale, e l'Olivetti in particolare, affacciatesi all'arena della competizione basata sulla conoscenza non hanno saputo cogliervi lo stesso successo che aveva arriso alle produzioni di massa negli anni del miracolo economico. Tanto che per molti degli anni a seguire i successi dell'industria italiana si concentrarono sulle famose quattro A: alimentare, abbigliamento, arredamento, automazione. Dove l'alta tecnologia è presente con una certa intensità solo nella quarta, grazie anche all'eredità Olivetti.

In estrema sintesi, il mio pensiero è il seguente. L'Italia del miracolo economico e quella dei primati industriali - non ci fu solo l'Elea di Olivetti, ma il polipropilene di Montecatini, il primato a livello europeo delle auto Fiat e degli elettrodomestici bianchi, la seconda potenza elettronucleare installata nel mondo dopo gli Stati Uniti, le acciaierie a ciclo integrale sul mare e le autostrade - si era fondata prima sul lavoro a basso costo e successivamente, quando il divario salariale non era più così rilevante, sulle economie di scala conseguite da industrie di massa di recente sviluppo, e quindi tecnicamente aggiornate. Ma il successo di questo modello conteneva il germe della propria decadenza,

ossia la scomparsa dei bassi salari. Era giunto il momento di passare a un "nuovo modello di sviluppo", come si diceva a quei tempi. L'errore che commise la classe dirigente dell'epoca fu di scegliere il binario sbagliato, quello dello sviluppo basato sull'espansione dei consumi interni, anziché quello dello sviluppo basato sul miglioramento tecnologico. Un errore non innocente, intriso di facile populismo e di ignoranza (voluta?) del fatto che un paese piccolo come l'Italia, promuovendo i consumi interni senza badare alla competitività, non avrebbe fatto altro che spingere le importazioni, i disavanzi commerciali e l'inflazione: che puntualmente arrivò e venne curata (di nuovo in modo populistico e non innocente) con svalutazioni competitive.

Le svalutazioni competitive sono l'esatto opposto di ciò che può spingere le imprese a investimenti in tecnologia, che hanno un ritorno non immediato e richiedono pianificazione. Al contrario, in un ambiente caratterizzato da alta inflazione e quindi da alti interessi è difficile investire a lungo termine; per contro l'aspettativa di variazioni dei tassi di cambio rilevanti e imprevedibili induce a comportamenti opportunistici che privilegiano la liquidità e la speculazione. I due modelli paradigmatici di politiche economiche opposte in materia furono rappresentati, nell'ultimo quarto dello scorso secolo, da Germania e Italia. La virtuosa politica economica tedesca provocò continui apprezzamenti del marco; le imprese tedesche sapevano che per sopravvivere erano costrette ogni anno ad aumentare la produttività e a superare in qualità i prodotti della concorrenza. La dissennata politica economica italiana creava nelle imprese l'aspettativa di svalutazioni che avrebbero compensato ogni divario di produttività e competitività; l'importante era che il governo distribuisse potere d'acquisto sufficiente a gonfiare i consumi, espandendo la spesa pubblica a carico di un indebitamento pubblico mostruoso.

Una conseguenza di questa distorsione culturale fu la convinzione, tipica del periodo, che ogni crisi aziendale o di settore andasse curata con investimenti, cioè con l'immissione di valore generato altrove. Questo tabù pseudoeconomico ricompare anche in tempi più recenti,

quando ci si comincia ad accorgere che è necessario, indispensabile aumentare il contenuto tecnologico delle nostre produzioni. E immediatamente parte il mantra della percentuale del Pil da investire nella ricerca, naturalmente alimentato dagli addetti all'attività di ricerca, i quali sono ben documentati sui livelli di spesa dei paesi più avanzati.

Il triangolo virtuoso: ricerca che produce conoscenza nell'impresa, impresa che genera valore di mercato dalla conoscenza, finanza specializzata che rialloca il valore

Per un economista la ricerca e l'innovazione tecnologica sono una produzione come un'altra; più precisamente, una produzione di valore basata sulla conoscenza. Naturalmente la conoscenza bisogna prima generarla e ciò richiede una anticipazione di capitale. Se però ci si ferma alla percentuale di investimento sul Pil si compie solo una parte del circuito virtuoso sul quale si basa la strategia di Lisbona. Occorre che la conoscenza generata si riconverta in valore, possibilmente generando più valore di quello che era stato necessario per produrla. Solo così si costruisce una società sostenibile basata sulla conoscenza. Investire tanto nella ricerca non garantisce affatto che si ottenga valore basato sulla conoscenza, se vengono a mancare le altre due componenti del sistema: imprese capaci di trasformare la conoscenza in valore d'uso, e quindi di mercato, e istituzioni finanziarie capaci di valutare, selezionare e sostenere investimenti immateriali in attività a ritorno futuro.

La finanza specializzata contribuisce ad evitare il "deragliamento"

Con questo non voglio sostenere che la ricerca debba essere completamente finanziata dal mercato e che, di conseguenza, laddove il mercato non è disposto ad investire la ricerca non si debba fare. Le insufficienze del mercato sono note e certo non sono minori nel campo della conoscenza; perché una parte della conoscenza, appena prodotta, diviene un bene pubblico, cioè liberamente fruibile da tutti e in tal caso nessun privato è disposto a spendere per produrla. E' compito dello Stato contribuire al progresso della conoscenza di base, quella che diviene bene pubblico. Ma anche in tal caso lo Stato non dovrebbe mai dimenticare che spende denaro dei cittadini e dovrebbe quindi orientare i suoi investimenti conoscitivi in direzioni suscettibili di dare un ritorno sociale. Il che avviene più facilmente quando la conoscenza di base può dare origine a conoscenze più applicate, più vicine al mercato e più in generale agli usi dotati di valore (non tutti i valori

Il mercato che corregge gli errori e il "deminurgo" che in questi insiste

socialmente apprezzabili sono tali anche per il mercato). Più ci si avvicina al mercato, tuttavia, meno lo Stato dovrebbe intervenire. Perché lo Stato, come tutti, può sbagliare nei suoi interventi; ma a differenza del mercato, che è rapidissimo a cancellare chi sbaglia e i suoi errori, premiando chi trova soluzioni migliori, l'intervento pubblico non ha questa capacità. Le politiche scientifiche e industriali che non raggiungono gli obiettivi prefissati non vengono modificate tanto in fretta: spesso, più i risultati sono inferiori agli obiettivi, più insistenti sono le richieste perché si aumentino le risorse investite. Appare allora chiaro che l'aumento dell'investimento complessivo in ricerca è solo una componente di un'economia basata sulla conoscenza. Affinché produca risultati positvi è necessario che siano attentamente governati i processi che determinano la suddivisione tra investimenti pubblici e privati e occorre che l'interazione tra produzione di conoscenza, produzione di beni e servizi basati sulla conoscenza, allocazione finanziaria delle risorse sui progetti funzioni alla perfezione, in modo da assicurare che dall'investimento in ricerca derivi, nel tempo, un ritorno anche economico di valore maggiore. Altrimenti la strategia di Lisbona risulterebbe non sostenibile e utopica.

I Paesi che hanno prima di noi imboccato la strada dello sviluppo basato sulla conoscenza hanno messo a punto l'intero circuito. E stanno guidando l'evoluzione dei modelli di produzione e di consumo. Siamo passati da un mondo completamente manifatturiero, nel quale il benessere era sinonimo del possesso di una grande quantità di oggetti, dal cui uso si traeva utilità, a un mondo essenzialmente di servizi, nel quale il benessere viene direttamente prodotto servendosi il meno possibile di oggetti. L'esempio estremo è il web, che può fornire conoscenza anche in assenza di libri o intrattenimento in quasi totale assenza di supporti materiali. Un aspetto non indifferente della dematerializzazione della produzione di valore è il disaccoppiamento che essa permette tra crescita del benessere e aumento del consumo di risorse del pianeta, il che ci fa capire come nel lungo termine essa rappresenti una via praticamente obbligata. Oggi la maggior parte della produzione di

L'Officina fabbrica la conoscenza. La conoscenza prodotta e venduta: il nostro futuro

La "riproduzione" della conoscenza: sistema economico mondiale con divisione del lavoro

Tutti fanno parte della divisione del lavoro: gara fra territori

La conoscenza si produce nei "giardini"

valore fornisce ancora i prodotti della conoscenza incorporati in qualche oggetto materiale "frutto della tecnologia avanzata". Non mancano però produzioni completamente dematerializzate, come la produzione di software, o la stessa produzione, selezione, elaborazione, trasmissione delle informazioni, che secondo alcuni produrrebbe già la metà del prodotto lordo americano. La divisione internazionale del lavoro in materia di conoscenza è asimmetrica e privilegia i Paesi ad alto reddito e alto investimento educativo. Sono essi a produrre i beni materiali che incorporano le conoscenze di maggior valore, quelli a tecnologia avanzata; o i beni che incorporano tecnologia completamente immateriale, come i motori di ricerca, gli algoritmi di rete. La cerchia più ristretta è quella dei Paesi che riescono a vendere la conoscenza allo stato puro, non ancora incorporata in nessun prodotto. Istituzioni come il MIT o il Politecnico di Torino "vendono" conoscenza pura, sotto forma di convenzioni, progetti di ricerca o, al massimo della materializzazione, brevetti e prototipi.

La divisione del lavoro non è mai stata neutrale nella storia dell'umanità. Lavorando in gruppo e dividendosi i compiti si produce di più per tutti, ma nella divisione del prodotto qualcuno guadagna più di altri. Più è sofisticata la divisione, più aumentano i margini per l'asimmetria delle retribuzioni. Un semplice sguardo alla dislocazione globale delle funzioni produttive di una multinazionale lo rende evidente. Nei mercati di sbocco stanno funzioni relativamente poco retribuite: vendite e distribuzione. La produzione materiale è ancora meno retribuita perché può essere concentrata in Paesi a basso salario. Ma le funzioni centrali sono quasi senza eccezione collocate in Paesi ad alto reddito o, simmetricamente, i territori che riescono ad aggiudicarsi tali funzioni diventano in breve tempo ad alto reddito: il Giappone degli anni '80, alcune province cinesi oggi. Vi è dunque una competizione mondiale fra territori per aggiudicarsi tali funzioni. Una competizione in cui il territorio, inteso nell'interezza delle sue caratteristiche fisiche e antropiche, diviene fondamentale. Paragonare questo concetto di territorio a un "giardino" mi sembra appropriato. Come in un giardino contano

le caratteristiche naturali, il suolo e il clima, ma anche le trasformazioni infrastrutturali introdotte, le tecniche di coltivazione, il contesto biologico originario o creato. Quando si tratta di localizzare funzioni basate sulla conoscenza queste considerazioni di contesto assumono il valore massimo. Perché la conoscenza è incorporata nelle persone e soprattutto si produce solo al loro interno; la sua accumulazione può essere accelerata solo migliorando la preparazione delle persone e rendendo più produttivi gli stimoli e le interazioni ai quali esse sono esposte.

La conoscenza come patromonio di un'azienda si deve riprodurre

Un esempio chiarirà meglio. Se una fabbrica di componenti elettronici di ultimissima generazione viene esportata dalla California in un Paese in via di sviluppo, la sua produttività rimane inalterata per il resto della sua vita produttiva. Se si fa la stessa cosa con un ricercatore universitario di avanguardia, dopo pochi trimestri egli non sarà più all'avanguardia. Lo stesso vale per un progettista industriale o per un banchiere specializzato nel finanziamento dell'innovazione. Questo è il motivo per cui le persone dedite a tali attività avanzate cercano di collocarsi materialmente in determinati territori: esse sanno che lì il valore del loro patrimonio professionale raggiungerà il suo massimo. Così si spiegano iniziative come quella del Governo francese, che ha creato artificialmente in Provenza Sophia Antipolis, attirandovi i centri di ricerca di molte imprese private e localizzandovi diversi centri pubblici. L'idea è stata quella di contare sulla piacevolezza del territorio per attirarvi persone speciali, che hanno fatto scelte di vita particolari, che sono disposte a rinunciare a molti aspetti della metropoli pur di offrire alle proprie famiglie e a sé stessi un ambiente naturale pregiato; ma che non potrebbero fare a meno di un ambiente che offra le indispensabili interazioni scientifiche e tecnologiche.

La conoscenza come patrimonio professionale di una persona deperisce

Territori-Giardini competono con il Capitale Umano

Ci si potrebbe chiedere se tutto ciò si possa realizzare anche in Italia, o perché esperienze del genere non siano più diffuse e avanzate da noi. La mia opinione è che, sebbene svantaggiato dall'errore di strategia compiuto alcuni decenni orsono, il nostro sistema si sta attrezzando per arrivare a produrre valore partendo dalla conoscenza. Negli anni Ottanta era difficilissimo far parlare tra loro imprese e università: le

Le "officine" della conoscenza: oggi si è colmato il gap tra ricerca tecnologica e impresa

prime rimproveravano alla seconda di non avere senso pratico, di non saper tradurre la teoria in applicazioni, di non conoscere il concetto del tempo e del rispetto degli obiettivi, la seconda lamentava che alle imprese interessassero soltanto modesti aggiustamenti tecnici senza alcuna portata realmente innovativa. Oggi non è più così: le università italiane brevettano applicazioni di avanguardia, le nostre imprese hanno imparato a servirsi dei migliori laboratori del mondo. Certo la competizione nel campo della conoscenza è dura per tutti. Per le università, che con pochi mezzi debbono competere con grandi organizzazioni; per le imprese, che devono attrezzarsi al mercato globale. Ma non dobbiamo dimenticare che il nostro Paese non rappresenta che l'1% della popolazione mondiale. Per vivere bene, e assicurare un buon futuro ai nostri figli, è sufficiente che riusciamo a eccellere in un numero limitato di arene competitive, nelle quali dobbiamo metterci in grado di produrre conoscenza nuova avente valore per il mercato. Ma per riuscirci dobbiamo far lavorare insieme le persone che producono conoscenza e quelle che sanno trasformarla in valore.

La cultura europea e l'esperienza olivettiana, ancora oggi linfa di quella cultura

E quindi si ritorna al concetto della fabbrica, intendendo oggi per tale anche il luogo dove si fabbrica la conoscenza. Perché quell'interazione tra professionalità diverse, scientifiche, industriali e finanziarie, che è l'unica via possibile per fabbricare valore d'uso e di mercato partendo dalla conoscenza, riproduce in forme nuove la convergenza tra saperi progettuali, competenze organizzative dirigenziali e saper fare operaio che fu alla base dei successi industriali del ventesimo secolo. L'esperienza olivettiana ne fu uno degli esempi più fulgidi, anche grazie al respiro sociale che seppe assumere.

I "giardini" e la Fondazione Adriano Olivetti

Carmela Decaro
Il sorriso di questa comunità del giardino che poi la Fondazione Olivetti fa scoprire a tutti... è comune penso…

Carlo Ronca
Ha anche qualcosa di aristotelico, con radici lontane, i peripatetici…

Massimo Mucchetti
Direi che gli spunti sono diciamo così innumerevoli e offrono un intelaiatura anche per il lavoro della Fondazione che mi auguro abbia uno sviluppo conclusivo - per quanto queste sono ricerche che non finiscono mai - nel centenario della Olivetti. Diciamo che il concetto di *Legacy* Olivetti è abbastanza vario, ci sono tante cose, qui fuori (*nella sede della Fondazione Adriano Olivetti a Roma n.d.r.*) abbiamo visto i manifesti della campagna elettorale di Adriano, alcune cose che allora erano completamente fuori della realtà, magari erano fuori dalla realtà in Italia ma si stavano facendo in Germania, collaborazione tra capitale e lavoro, che è poi ancora uno dei nodi secondo me risolti a metà nel mondo nostro, specialmente nel mondo delle grandi imprese. Forse non è estranea la mancata soluzione di quel problema, la soluzione conflittuale che è stata adottata in Italia nella convinzione che la parte capitale fosse abbastanza forte da vincere

La *Legacy* Olivetti

Capitale e lavoro

Gian Maria Gros-Pietro
Come disse una volta Valletta, "sappiamo sbagliare da soli".

Massimo Mucchetti
Sappiamo sbagliare da soli... Poi ha portato credo è una delle componenti che ha portato al famoso deragliamento che con eleganza Gian Maria (*Gros-Pietro n.d.r.*) ha evitato di inquadrare nella grande... tutti quei brevetti allora… ricordo che la Montecatini c'è stato un anno in cui ha depositato 1600 brevetti, col tempo ha chiuso l'ufficio brevetti, cioè non c'è proprio più perché non avendo più niente da depositare...

Sbagliare da soli... e si deraglia

Gian Maria Gros-Pietro
Cose da ricchi…

Massimo Mucchetti
Nel frattempo questa funzione e questo qui però è il nostro limite, si è trasferita, senza fare molti brevetti perché noi ne facciamo pochi , si

è trasferita ai distretti industriali e poi alle medie imprese, allora mi veniva da fare un'osservazione da fare a Carlo Trigilia. Ma quando si parla di Basilea o di Oxford, che volendo usare una terminologia nostra sono dei distretti, a me viene in mente che per esserci stato l'anno scorso a vedere le sue belle gallerie d'arte, Basilea non è che nasce dal nulla, il polo delle nuove tecnologie... lì c'è la Sandoz, c'è una delle grandi case farmaceutiche, con dei centri di ricerca formalizzati come quelli di una volta, che hanno riunito tanta gente che la sera si trovava al bar ecco da cosa nasce cosa. Ecco da noi, per certi aspetti minori in Spagna, nelle società apparentemente meno importanti dal punto di vista industriale, che hanno vivacchiato con i distretti industriali, il problema non è tanto diverso perché al bar del paese gli imprenditori si trovano fra di loro, si parlano, e loro sono gli agenti dell'innovazione, essendo che non è formalizzata, ma c'è comunque perché se non l'avessero fatta sarebbero tutti falliti, quelli che non l'hanno fatta sono andati "falliti". Quindi la prova che dopo quarant'anni l'esistenza in vita c'è e continua ad essere florida vuol dire che il sistema ha funzionato, però questo sistema per come lo capisco io è un sistema che fatica ad attrarre gente da fuori che invece è la scommessa, cioè attrarre i migliori, l'esperienza che abbiamo noi è che il distretto prevalentemente fatto di presenze territoriali, radicate nel territorio, locali, magari fa in modo che in bravi locali restano li non vadano via, ma è difficile che attraggano, il distretto del cuoio di Arzignano in Veneto, che è una cosa che funziona, può attrarre dall'estero i lavoratori dequalificati per le produzioni più terribili ma è difficile che attragga… Il sistema moda, invece qualche cosa attrae ma è perchè è più sofisticato. Il discorso dei giardini in Italia, la domanda che io mi faccio, e che è affascinante è, come migliorare le specializzazione che noi abbiamo, perché pur essendo un fautore delle tre A io ho la paura che nel lungo termine e soprattutto con l'emergenza di altre culture forti come sono quella cinese e quella indiana, ora sono problemi dei quali io non mi preoccupo perché sarò già morto quando ci saranno però chi lo sa… Noi siamo bravi però Armani fa il cinese, va in Cina e torna indietro e ci fa

Il caso Basilea come "distretto"

Il sistema italiano dei distretti funziona ma... non attrae!

Il "giardino" è affascinante ma...

le giacchettine alla cinese, perché trae ispirazione e filtra, nella nostra cucina Gualtiero Marchesi anche lui va a fare il giro di là torna e ti dice… il mio dubbio è ma siccome l'abilità manifatturiera a questa gente qui non manca ce l'hanno tanto quanto ce l'abbiamo noi, la tradizione culturale che loro hanno è diversa dalla nostra ma ha già influenzato largamente, nel '700 l'europa era piena di cineserie perché avevano scoperto la Cina e… allora, un giorno secondo me questi possono, ci possono far scoprire che le nostre cose sono belle, le nostre famose tre A, ma anche le loro. E quindi mentre noi abbiamo vissuto e tuttora viviamo di una sorta di primato, perché noi quando vendiamo il nostro vino è Marchese Frescobaldi invece quello neozelandese, è un pastore neozelandese che non è che ha una grande *allure*, magari il vino è buono uguale ma fa sognare di meno, se devi portare a cena una ragazza fai più scena a offrire una bottiglia che c'è un pezzo di storia, mentre quella roba lì è… se invece è la dinastia Ming, ti frega perché ne ha ancora più di te… ecco da quel punto di vista lì io intravedo un problema che però appunto penso che sia per un'altra generazione, quindi per ora non mi preoccupa però intanto lo diciamo. Il tema della lingua è un tema radicale, è un tema della prevalenza culturale, cioè l'imperialismo culturale…

Cina e India hanno la possibilità di stare nelle nostre tre "A: automazione, abbigliamento-arredo, alimentare

Lingua e prevalenza culturale

Carmela Decaro

Scusate ma devo proprio condividere la disperazione in cui ho trovato il rettore della Luiss, Massimo Egidi, mentre leggeva le schede di valutazione dei nostri studenti. Era considerato pessimo professore, perché parlava in inglese e dava articoli in inglese dai ragazzi della sua facoltà…

Inglese e università

Gian Maria Gros-Pietro

Però ci sono anche studenti che, avendo fatto ottimi studi in Inghilterra, si lamentano perché l'inglese di qualche docente non è abbastanza raffinato.

Massimo Mucchetti
Mia figlia studia in inglese medicina, i libri sono quasi tutti in inglese…

Carmela Decaro
Mia figlia fisica dal secondo anno, cioè sin dall'inizio degli anni novanta ha studiato in inglese

Gian Maria Gros-Pietro
La questione della lingua è tutt'altro che banale. La senatrice Bonino citava i 6000 studenti cinesi in Irlanda. Certo, al sistema educativo irlandese va riconosciuto il merito di essere attraente. Ma non si può ignorare che studiando in Irlanda si impara l'inglese, la lingua del *business* in tutto il mondo. Qua imparano l'italiano e purtroppo, per gli affari fa una bella differenza…

Carmela Decaro
Ma io durante la presidenza Ciampi ho seguito questo dossier per farli venire, adesso sono 2000 in italia…

Gian Maria Gros-Pietro
Ma ci vengono meno volentieri..

Carmela Decaro
E che devono studiare l'italiano, però quant'è bella l'Italia ce lo stiamo scordando, 70 % del patrimonio artistico etc.

Gian Maria Gros-Pietro
E' vero, però quelli vogliono lavorare. Un cinese che impara l'italiano dirà: questo a me servirà moltissimo per le relazioni con l'Italia. Se invece impara l'inglese, dirà: questo mi servirà per lavorare con il mondo…

L'Inglese e il lavoro

Carmela Decaro
E allora deve imparare tutte e due. La lingua veicolare è l'inglese…

Massimo Mucchetti

Dunque io credo che qui abbiamo un handicap che non è molto risolubile e che lo vediamo anche per esempio nel libro di Carlo Ronca *Competere con gli intangibili*. Tutta filosofia. È una cosa pensata nel mondo anglosassone... gli IAS IFRS

I principi contabili e il mondo anglosassone

Gian Maria Gros-Pietro

Io non ho voluto citare…

Massimo Mucchetti

Questa cosa qui personalmente per come li ho guardati non mi sembrano la bibbia. A me non pare che per esempio, se noi andiamo a vedere come si sono mosse le banche… La cultura bilancistica, adesso è una divagazione ma fino a un certo punto, del mondo occidentale che ha portato….è una delle mamme della crisi finanziaria che c'è adesso…

Carmela Decaro

Pare che anche gli economisti stiano scoprendo la felicità…

Gian Maria Gros-Pietro

Il guaio è quando tenteranno di metterla in bilancio come *assets*…

Massimo Mucchetti

Quindi bisogna stare attenti… perché questi storpiano tutto… paradossalmente sarei del parere che il … tu individui molto bene le funzioni di ricerca, di sviluppo di innovazione etc. etc. ma dovresti fare un bilancio a parte devi continuare a spesarla nell'anno, perché sennò sono la truffa della *new economy*.

Gian Maria Gros-Pietro

Racconto un episodio della grande industria metalmeccanica degli anni Ottanta. Controllo di gestione di un reparto produttivo: non riuscivano a tenere i tempi; quindi impiegavano più ore di lavoro di quelle pre-

I principi e i "trucchi" contabili

viste a standard per quel volume di produzione. Che cosa fa il capo reparto? Prende una parte delle ore di produzione e le addebita ai prototipi, così risulta che nella produzione gli standard sono stati rispettati, mentre sul prototipo lo standard non c'è. Come conseguenza, a fine anno quelle ore di lavoro, anziché finire nei costi, finiscono nelle capitalizzazioni e gonfiano l'utile. Ma non è da escludere che, sempre a fine d'anno, il capo contabile, a fini fiscali, facesse l'esercizio opposto, spostando voci di spesa dalle capitalizzazioni ai costi di produzione, per diminuire l'imponibile. In un caso del genere, l'unica cosa certa sarebbe che si pagano persone per fare e disfare un lavoro inutile, mentre rimane incerto il valore dell'intangible, cioè dell'innovazione contenuta nel prototipo. Un'incertezza che non è risolvibile. Perché se l'innovazione viene iscritta in bilancio al costo, nulla può garantire che quel costo sia stato bene speso e che l'innovazione lo valga veramente. Ma mi sembra che peggio ancora sia valutare l'innovazione in base alle prospettive di ritorno, secondo il sistema IAS. Perché le prospettive non solo sono incerte e soggettive, ma sono mutevoli; il che conduce a registrare, ad ogni fine esercizio, componenti di reddito positive o negative che corrispondono al semplice mutare di aspettative, senza che niente sia realmente accaduto.

Massimo Mucchetti
Già in Inghilterra si domandano se tutta la questione del *goodwill* è una cosa che va bene o che va male e noi senza neanche andare in inghilterra anche in italia vediamo che cosa è il *goodwill*? La Telecom 85 miliardi di total asset, 44,5 di *goodwill*…

Carlo Ronca
Reggerà l'*impairment test*?

Massimo Mucchetti
Ha retto e come, perché un professore che ti dice… lo troverai sempre. La creazione di valore del *goodwill* è per chi firma l'*impairment test*

Carlo Ronca

Posso fare una piccola chiosa non in difesa di alcune tesi o suggestioni che forse da quel breve mio lavoro sugli intangibili si possono ricavare, che è la seguente: per quanto riguarda il discorso degli asset intangibili, abbiamo un passato e un futuro, per il futuro si sono stabiliti una serie di principi. Questi principi sono fra l'altro regolati - e questo bisognerebbe analizzarlo a fondo - da alcune regole di riferimento e che sono per esempio quella della trasparenza, e quella per cui il bilancio viene strutturato sulla organizzazione operativa dell'azienda e non a fantasia, con delle sintesi in cui uno mette tre voci e basta… quindi ci sarebbero degli elementi di guida omogenei, a fronte di una cultura di management che probabilmente non è quella della media impresa italiana quotata, ma quella di un management ben capace di non affidare al capo reparto, al direttore amministrativo il compito di mettere giù i numeri e all'imprenditore di decidere altre cose. Tutto ciò richiede anche nuove condizioni all'interno dell'impresa, per esempio un "giardino" in cui la gente cammina e si parla. Questo significa un'evoluzione dell'impresa attuale, ma un tempo questo già capitava all'Olivetti. Per esempio Berta l'ha detto nel suo libro *Nord*, che mi è piaciuto perché assolutamente vero. Ci si incontrava e si parlava un tempo ad Ivrea Ci fu infatti un ventennio, oltre a quello di cui tutti raccontano, quello della fine degli anni Cinquanta con Adriano e con i grandi intellettuali, che fu tra la fine degli anni Sessanta e gli inizi anni Ottanta, in cui Ivrea era invasa dagli stranieri, gente che veniva a lavorare. Non c'era l'università, però c'era un grande campus di impresa, il territorio e la città erano conformati per dare questa rappresentazione, sentire che quando uno era lì era in un contesto riconoscibile per le cose che stava discutendo e pensando.

Le regole degli IAS, l'organizzazione aziendale, la cultura del management

Anche per gli IAS va bene il giardino simile a quello che la Olivetti costruì ad Ivrea

Ivrea e gli stranieri

Massimo Mucchetti

Si parlava italiano o inglese?

Carlo Ronca

Si parlava anche inglese ovviamente ma anche la cultura, forse la sele-

La selezione del personale e la lingua inglese

zione era un po' diversa. Quindi si parlava inglese. Ritengo che le imprese che sono nate nel corso di questi anni, ma soprattutto le imprese nate negli anni ottanta siano ancora così. Di questo vorrei parlare, perché credo ci siano delle capacità che sono importanti e devono essere misurate secondo i parametri e gli indicatori dell'agenda di Lisbona. Nel territorio eporediese c'era e c'è un tasso di capacità di lavorare, di comunicare all'interno dell'azienda che era ed è estremamente alto. Tra le imprese che abbiamo già intervistato, quelle che sono tuttora le più interessanti sono quelle che sono state create nei momenti in cui la Olivetti ha avuto eccesso di capitale intellettuale.

Olivetti, capitale intellettuale in eccesso e creazione di impresa

Come c'è eccesso di capitale che si distribuisce agli azionisti, ci sono eccessi di capitale che si ridistribuiscono al territorio. Ci sono imprese che sono nate come centro di progettazione e poi poco alla volta hanno iniziato a fare prodotti etc. questo in tecnologie di cui sono leader nel mondo. Perché? Perché a chi interessa il *know how* sulla banda magnetica? In Olivetti, la banda magnetica c'era sin dagli anni '60, quando il Programma 101 consolidò la cosa… e questa tecnologia che pure è ancora utile, è un fatto di nicchia coltivato con grande sapienza e capacità… il vero problema, rispetto a quello che diceva Carlo Trigilia, prima, è che molte di queste conoscenze sono conoscenze tacite e rimangono tali e quindi andranno nella tomba con chi le possiede.

Dove andranno le conoscenze tacite di un territorio?

Nello schema a triangolo di Gros-Pietro cioè ricerca, impresa, finanza, l'impresa è fondamentale perchè è il luogo in cui si fa quello che, nelle nostre ricerche, noi chiamiamo metabolizzazione dell'innovazione. Se non c'è metabolizzazione dell'innovazione, l'innovazione muore, può apparire come un fuoco di paglia. E quindi ci devono essere integrazione organizzativa e metabolizzazione. Credo infatti, se si vanno ad analizzare le vicende di molte imprese, che alcune imprese sono andate per strade disastrose perché poco alla volta il concetto di apprendimento organizzativo, di metabolizzazione è stato dimenticato e quindi sono cresciute organizzazioni che non sapevano quello che facevano, in cui nessuno capiva che lo sforzo di mantenere convergente la conoscenza era la cosa fondamentale. Ritornando quindi al

Integrazione organizzativa e metabolizzazione dell'innovazione

discorso degli asset intangibili, li dobbiamo comunque inserire come un elemento fondamentale per capire la parte non attribuibile agli asset materiali. Siccome tra il valore d'impresa e il patrimonio materiale c'è differenza, riteniamo importante ogni approfondimento che si fa per capire e governare questa differenza. Questa è un po' la mia considerazione. Sul modo di diminuire l'incertezza e l'asimmetria informativa e quindi di dare consistenza al futuro.

Massimo Mucchetti
E' una pacchia. Se posso portare invece un senso per dire il mondo come è vario. Oggi la società più potente del mondo è la Saudi Aramco la quale non fa il bilancio… Lei ce l'ha ma se lo dice il Re Saud con suo nipote, il primo che parla gli tagliano la testa con la scimitarra. La Exxon al confronto, se tu guardi il valore - cercherò poi di fare un lavoretto in materia - il valore delle società petrolifere in ragione delle loro riserve che è il criterio di base, Gazprom dovrebbe valere quattro/cinque volte la Exxon a regime, devono arrivare lì, Saudi Aramco tre volte la Gazprom e questi si chiamano fuori da questo circuito. C'è un pezzo di mondo che sta ragionando in una politica di potenza fuori dal nostro circuito…

Ma il mondo è vario. I bilanci di molte società ono segreti: Saudi Aramco

Gian Maria Gros-Pietro
Una potenza anche che si basa sull'autorità degli Stati. Abbiamo autorità antitrust che sono in grado di far piegare la testa a General Electric e Microsoft, laddove presumano un comportamento anticoncorrenziale, ma che non possono nulla di fronte al più evidente e dichiarato cartello del mondo, l'OPEC, perché esso è composto da Stati….

Massimo Mucchetti
Puoi fare la guerra….

Carmela Decaro
Loro la stanno facendo in un altro modo

Massimo Mucchetti

A proposito di competitività dei territori, a me ha telefonato l'altro giorno uno di Campobasso che ha 600 milioni di euro da spendere dallo Sceicco del Qatar perché deve fare un area con incentivi regali vari per fare un giardino nel deserto del Qatar. Una cifra grossa, che a me ha impressionato, con cui sta facendo questa roba qui. Perché stanno reimpiegando i proventi non più come negli anni 70 per comprarsi le scarpe con la pelle di leopardo, ma nel centro finanziario che sta costruendo a Dubai, e tutti gli altri stanno portando lì anche esattamente le attività più pregiate…

Riusciamo a catturare le opportunità che vengono dai fondi sovrani?

Carlo Trigilia

Sarebbe interessante, una novità. Questi del petrolio hanno una maledizione perché quanto più hanno quanto più non riescono a innescare dei processi…

Massimo Mucchetti

A me ha fatto impressione il fatto che stanno chiamando eccellenze, programmi di ricerca finanziati. Cioè tutte quelle cose che noi stiamo diventando matti per fare, loro con i dollaroni…

Gian Maria Gros-Pietro

Stanno creando il "giardino artificiale della ricerca" … Prima hanno creato nel deserto i giardini reali, vegetali, con l'aria condizionata.all'aperto Ora stanno costruendo il "giardino" virtuale della ricerca e dell'innovazione. In particolare a Dubai stanno cercando di costruire un luogo dove si ritrovano alcuni degli ingredieti essenziali dei "giardini virtuali" spontanei. Per esempio, esponenti della ricerca, della finanza, dello spettacolo, dello sport. L'obiettivo è offrire una qualità della vita e delle relazioni interpersonali non troppo dissimile da quella dei "giardini" spontanei. Come hanno fatto per i giardini vegetali nel deserto, trasportando la terra e l'acqua e trapiantando le rose, qui regalano case ad alcune celebrità ed elargiscono pingui con-

Gli sceicchi e il “giardino” con l’aria condizionata

tratti a professionalità di primo piano; attirano aziende con gli investimenti; attivano transazioni con i capitali di cui dispongono. E il "giardino" comincia a naturalizzarsi. Il Wall Street Journal negli ultimi mesi ha riferito di almeno quattro o cinque top manager delle maggiori banche d'affari anglosassoni che sono stati trasferiti da Londra, da San Francisco o da New York a Dubai

Londra/Dubai, San Francisco/Dubai

Carlo Trigilia
Comunque è un tentativo interessante perché è la prima volta che si muovono in una logica non di investimento puramente finanziario e cercano di…

La maledizione dell'economia del petrolio può finire?

Gian Maria Gros-Pietro
Nel contempo stanno attuando una politica spregiudicata ma per ora efficace di gestione delle loro non illimitate riserve di idrocarburi. L'aumento spropositato dei prezzi riduce un po' la domanda, ma questo significa soltanto che dureranno di più le loro riserve, delle quali nel frattempo si è decuplicato il valore: ciò significa che hanno a disposizione una rampa di lancio più lunga e più solida per trasferirsi ad una economia non basata sugli idrocarburi, e loro mirano a fondarla sulla conoscenza..

Laura Olivetti
Bene. Io spero che questo tipo di incontri possano continuare e che la Fondazione possa costituire un luogo di libero scambio di idee, in linea con le esigenze istituzionali, ma con l'adeguata autonomia che rende possibile le collaborazioni in modo da aiutare…

Carmela Decaro
Nel triangolo del professor Gros Pietro ricerca impresa finanza

Gian Maria Gros-Pietro
Tu cosa fai?

Il triangolo e il cerchio delle istituzioni

Carmela Decaro

Le istituzioni cosa fanno, perché poi frenano… posso osare di dire tu devi mettere il triangolo nel cerchio… perché lui ha chiesto burocrazia e servizi e qui si apre tutto un altro tavolo.

Le istituzioni definiscono il mercato

Gian Maria Gros-Pietro

Sono d'accordo, il triangolo è un simbolo perfetto che però va inscritto nel mercato: ricerca, intesa come creazione di valore conoscitivo almeno potenziale, quindi anch'essa messa a confronto con il mercato; impresa e finanza che per definizione stanno dentro il mercato. Ma il mercato funziona solo se c'è un apparato istituzionale che ne fissa i confini, definisce ciò che è lecito, quali requisiti debbono possedere gli operatori, ne osserva i comportamenti, reprimendo le violazioni del mercato stesso. Inoltre tocca alle istituzioni provvedere a tutto ciò che il mercato non può fornire, in primo luogo i beni pubblici, a cominciare da sicurezza e giustizia. Senza istituzioni che definiscano il quadro, ne assicurino il rispetto e producano i beni pubblici, non c'è ricchezza al mondo che possa far fiorire un "giardino della ricerca": i "fiori" si rifiuterebbero di viverci.

Le direttive “Servizi” nella U.E. dal 2009! Nuove opportunità per il mercato

Carmela Decaro

Posso continuare con questa suggestione geometrica? Nello sviluppo costituzionale le istituzioni sono multilivello: dal territorio delle autonomie locali al livello nazionale, europeo e mondiale.Le regole devono riguardare i vari livelli, coordinandosi non in cerchi concentrici costrittivi ma in modo sussidiario e secondo il modello europeo del mercato interno, garantendo concorrenza e tutela del consumatore..

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Riportiamo al principio di questa appendice il testo che l'Onorevole Emma Bonino ha preparato in occasione dell'audizione e che ha gentilmente concesso di pubblicare. Gli altri documenti consentono di cogliere gli aspetti essenziali dell'Agenda di Lisbona. In particolare identificano e quantificano le "Linee guida per la valutazione dell'innovazione", messe a punto, nell'ambito della Strategia di Lisbona, per misurare i risultati dei piani di sviluppo dell'Economia della Conoscenza negli stati membri della UE. La valutazione avviene misurando il valore di indicatori raggruppati secondo le cinque dimensioni che caratterizzano il processo innovativo, secondo i paradigmi di Lisbona:

A) In Input:

1. Innovation drivers: condizioni strutturali richieste per il potenziale d'innovazione
2. Knowledge creation: misura gli in vestimenti in attività R&S
3. Innovation & Entrepreneurship: misura gli sforzi d'innovazione al livello dell'azienda

B) In output

4. Applications: misura la "performance" espressa in termini di attività di business e di lavoro e il loro valore aggiunto nei settori innovativi
5. Intellectual Property: misura i risultati ottenuti in termini di know-how utile acquisito

I documenti allegati costituiscono dei materiali di approfondimento e possono offrire ulteriori spunti di riflessione. Essi sono:

MEMO 2007_ Stato di avanzamento dei programmi Nazionali di Riforme relativi all'implementazione delle Strategie di Lisbona *Growth and Jobs* (copia anastatica)

EIS 2007_ 1° quadro di valutazione che compara le prestazioni degli stati membri in termini di capacità innovativa secondo le linee guida dell'Agenda di Lisbona.

EGJM_ Assessment indipendente ad opera del The Lisbon Council (Think Tank di Bruxelles guidato da Michael Heise) relativo all'andamento del 2008 della Strategia di Lisbona dal titolo "European Growth and Jobs Monitor 2008"

Testo pubblicato sul blog GlobalHigherEd.wordpress.com a firma Susan Robertson (Professor Sociology of Education and Coordinator Centre for Globalisation Education and Societies – University of Bristol).

Fondazione Olivetti - Lisbon Hearings - (Roma, 18 giugno 2008)

Società della Conoscenza: la prospettiva Ue

• Ringrazio molto la Fondazione Olivetti per l'invito. Mi fa molto piacere essere tra voi per parlare di Lisbona: non del defunto Trattato...ma dell'Agenda di Lisbona!

• Ci ritroviamo qui oggi, appunto, all'indomani della bocciatura del Trattato da parte dell'Irlanda e alla vigilia del Vertice europeo di Bruxelles. Una congiuntura molto particolare, quindi. Mi auguro che domani e venerdì i Capi di Stato e di Governo non cedano allo sconforto e non soccombano all'immobilismo ma compiano il salto di qualità necessario per evitare di relegare l'Europa ai margini di un mondo globalizzato che procede con ritmi incalzanti sempre più incompatibili con i nostri riti istituzionali.

• Sì, perché la domanda è: **il progetto europeo resta pertinente rispetto all'economia globalizzata di questo inizio millennio?**

• A questo domanda si può cercare di rispondere offrendo **due tesi**: **la prima**, secondo la quale la dimensione europea si troverebbe in uno stato di sofferenza per un doppio motivo, l'accelerazione e l'effetto diluente del processo di mondializzazione da una parte, e il carattere insuperabile dello Stato-nazione, dall'altra; **la seconda**, tendente a sostenere, al contrario, che la globalizzazione non fa altro che consolidare le finalità originarie della costruzione europea che, al di là di una pace durevole, consistevano nel dotare gli Stati membri della capacità di contare sullo scacchiere mondiale, fornendo loro una massa critica ed una volontà comune per fronteggiare i giganti dell'economia mondiale.

• Che si parteggi per una tesi o per l'altra, **la risposta "ufficiale" dell'Europa alla globalizzazione è l' "Agenda di Lisbona".** Lanciata nel marzo 2000, in pieno boom d'Internet e di una performance economica americana che rischiava di oscurare quella europea, quest'iniziativa aveva l'ambizione di "rendere entro 2010 l'economia europea, basata sulla Conoscenza, la più competitiva e dinamica del mondo." Vaste programme, avrebbe detto qualcuno!

• Dare un giudizio sulle capacità dell'Europa ad affrontare la globalizzazione suppone quindi di valutare la Strategia di Lisbona in questo contesto. A me è stato chiesto di farlo dalla visuale della società della conoscenza, altri lo faranno da altre. Ma teniamo conto che, per l'attuale Commissione europea, la Strategia di Lisbona rimane un cavallo di battaglia: nel 2005 ha rilanciato i suoi obiettivi, per perseguirli entro il 2010 e oltre. Oggi, la Commissione si appoggia sui dati positivi della crescita europea nel biennio 2006-2007 e sui 6,5 milioni di posti di lavoro creati in questo periodo, ma **la realtà è meno univoca...e promettente**. L'Agenda di Lisbona mostra delle **smagliature** sulle quali tornerò in chiusura.

• Un merito però lo ha avuto e va detto sin dall'inizio: ha introdotto un coordinamento europeo in settori ancora ampiamente di competenza nazionali (istruzione superiore, ricerca, impiego, welfare...), facendo evolvere e convergere le politiche e le pratiche nazionali in un'unica direzione. Ma se i suoi obiettivi rimangono validi, essi sono ancora lontani. In questo senso, si può concedere all'Agenda di Lisbona di essere stata finora una sorta di **"portale sul mondo"**.

• In linea con **Lisbona III** (il ciclo 2008-2010 lanciato dal Consiglio europeo del marzo 2008), l'Europa della Conoscenza va "dinamizzata":

a) **dare priorità alla ricerca**: la ricerca è il grande paradosso di Lisbona. La R&S è la politica chiave di Lisbona per l'economia della conoscenza; pertanto, l'Europa su questo fronte ha regredito dal 2000, sia in termini finanziari sia in termini di risultati (~~vedere allegato~~). L'Europa sta per essere raggiunta dai paesi emergenti (o già ampiamente emersi!): **con 136 miliardi di dollari nel 2006, la Cina è diventata il secondo investitore mondiale, dopo gli Usa (220) e prima del Giappone (130); al ritmo attuale dovrebbe superare, entro il 2010, lo sforzo consolidato europeo di 230 miliardi**. Va quindi rilanciata la ricerca europea attivando una combinazione di strumenti: rafforzare il bilancio comunitario, stimolare le ricerca pubblica degli Stati membri, incentivare le ricerca privata (lo Stato può creare per il privato un contesto più favorevole, per esempio con delle agevolazioni fiscali). Dovremmo avere l'ambizione non solo di mettere **uno stop alla fuga dei cervelli, ma addirittura di attrarre i cervelli stranieri** (non Ue): dobbiamo trasformare l'Europa in un nuovo Eldorado, non solo per milioni di disperati - che pure vanno

accolti, aiutati e che sono fondamentali per la nostra economia e per la nostra società - ma anche per le élites di tutto il mondo...

L'obiettivo del 3% rimane pienamente valido e le riforme messe in atto dalla Commissione vanno nella giusta direzione: per esempio la creazione di un'agenzia indipendente, sul modello della National Science Foundation americana, incaricata di assegnare 1 dei 7 miliardi annuali del bilancio comunitario sulla base di criteri d'eccellenza scientifica.

Quello che rimane una vera chimera è invece il **brevetto europeo**: nonostante l'esistenza di un Ufficio europeo dei brevetti, ogni brevetto deve poi essere tradotto, esaminato, registrato e messo in opera in ciascun Stato membro; per questo motivo, il costo di registrazione di un brevetto in Europa è undici volte superiore agli Usa, quattordici volte più caro che in Giappone.

b) **lanciare iniziative per armonizzare le possibilità di accesso alle università europee**: nonostante il capitale umano rappresenti la risorsa primaria per un'economia della conoscenza, il sistema educativo superiore non dispone di finanziamenti adeguati. Stiamo accumulando un ritardo critico rispetto ai sistemi dei nostri principali competitor americani ed asiatici. Un soluzione parziale può essere una più massiccia presenza del privato, come per il finanziamento delle cattedre. Oppure, per tutelare gli studenti meno abbienti, lo stato portrebbe farsi garante dei prestiti in caso di mancato rimborso, come in America. Anche la BEI, la Banca europea per gli investimenti, potrebbe fare la sua parte con una politica di prestiti agevolati. E occorre puntare sulle nuove specializzazioni tecniche legate all'innovazione tecnologica.

   Lisbona deve riuscire a sintonizzare la vita degli europei, soprattutto quella delle nuove generazioni, con il "nuovo mondo". E' veramente un punto dolente, per davvero, **il ritardo accumulato in Italia rispetto ad un fattore cruciale che è la conoscenza dell'inglese** (una delle tre I tanto sbandierate da Berlusconi nel 2001, assieme a Internet e Innovazione!): come si fa a parlare di nanotecnologie se poi non riusciamo neppure a raggiungere livelli soddisfacenti su questo fronte?

c) **Scommettere sull'innovazione**: l'innovazione tecnologica è essenziale per dare risposte alle sfide globali, come il riscaldamento climatico, l'aumento dei prezzi delle materie prime e dei prodotti energetici...per questo l'Europa ha degli strumenti per incoraggiare l'innovazione: stimolare la competitività applicando le regole europee

sulla concorrenza e allargare il mercato interno verso Est, promuovere i progetti di R&S comuni, aumentare la mobilità delle risorse umane, scambiarsi le buone pratiche, ecc...

d) **Accorciare il ritardo nel settore delle tecnologie dell'informazione e della comunicazione (ITC)**: l'Europa ha in parte colmato il grande ritardo accumulato negli anni 1990 e 2000 (che ha dato il via alla Strategia di Lisbona), ma non interamente. Gli Stati membri ancora in fase di convergenza sono ancora indietro: si pensi alla messa in rete delle PMI, alla e-administration per i servizi pubblici, alle zone rurali.

• Tornando quindi agli Obiettivi di Lisbona come politica generale, c'è da domandarsi se è in grado di rispondere in maniera adeguata alle sfide della globalizzazione, per tre motivi fondamentali:

1) come motore dell'adattamento delle economie europee alla globalizzazione, gli sforzi non si sono dimostrati all'altezza delle sfide poste dall'intensificazione della competizione mondiale. Non solo non hanno colmato il fossato con gli Usa, ma ora l'Europa è anche minacciata dalle potenze asiatiche;
2) le nuove sfide - la concorrenza dei paesi-continenti emergenti, le problematiche energia/clima, la crisi alimentare mondiale, quella finanziaria, eccc... - potrebbero essere colte come opportunità se solo l'Europa dimostrasse di saper mobilitare i suoi grandi talenti e le sue grandi competenze, di promuovere l'euro come moneta di riferimento su scala internazionale, di raggiungere posizioni comuni sulle grandi crisi internazionali...Ne è capace?
3) La Strategia di Lisbona riguarda solo l'adattamento delle economie e delle società europee alla globalizzazione: l'Europa può riuscire solo grazie a questo, senza l'articolazione di una strategia economica esterna credibile ed univoca? Eppure, quando lo vogliamo, siamo capaci d'imporci, come successo nei negoziati per l'ambiente e nel commercio internazionale...

• In questi anni abbiamo registrato dei passi avanti, certo. Ma serve poco avanzare di un metro l'ora quando nella stessa ora il resto del mondo è avanzato di un chilometro. Gli europei, nei momenti di crisi, hanno sempre saputo dare prova di coraggio, ma anche di grande fantasia. Anche questa volta devono dimostrare di essere all'altezza delle possibilità - e delle sfide - che il mondo del 2008 offre.

MEMO/07/569

Brussels, 11th December 2007

Lisbon Strategy for Growth and Jobs: 2007 Strategic Report Country – Assessment of the National Reform Programmes

Main conclusions

Belgium

1. In the light of Belgium's 2007 Implementation Report and the Commission's assessment of progress made to implement key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Belgium has made good progress in implementing its National Reform Programme over the 2005-2007 period. Belgium has shown some progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows some policy response to the Council recommendations, but further reform is still necessary. There has been some response on the additional areas identified in the Council conclusions as requiring attention. The Implementation Report also specifically addresses the recommendations issued to the euro area countries.

4. Among the strengths shown by the Belgium's 2007 Implementation Report are the emission reduction policies and the promising results of the guidance and monitoring system of unemployed people.

5. The policy areas in the Belgian National Reform Programme where challenges need to be tackled with the highest priority are reducing the tax burden on labour whilst strengthening fiscal consolidation and improving labour market performance. Against this background it is recommended that Belgium:

- continues efforts to further reduce the tax burden on labour towards the average of its neighbouring countries, especially by reducing the tax wedge on low skilled workers, while strengthening fiscal consolidation;
- reinforces the policy measures to improve the performance of its labour market through a comprehensive strategy, in accordance with an integrated flexicurity approach, to enhance labour market participation, lower regional disparities, and increase participation in lifelong learning.

6. In addition, it will be important for Belgium to focus on the following challenges: to fully implement the strategy aiming to ensure the long term sustainability of public finances, including expenditure restraints, fiscal surpluses, and a persistent reduction of government debt; urgently take further measures to improve competition in gas and electricity markets, including through independent and effective regulators and additional measures concerning transmission and distribution operators; to increase substantially its commitment to stimulating R&D and innovation notably by increasing both the level and impact of public funding and developing a coordinated policy mix at all levels; continuing the implementation of the measures to increase the employment rate for older workers and vulnerable groups, monitor their impact and, if need be, take further activation measures.

Note: There is a slight rephrasing of the country specific recommendations. Th number of recommendations (2) stays the same. The number of points to watch stays the same, but last year's point to watch on identifying further emission reduction policies and measures is removed. A new point to watch on increasing R&D and innovation has been added.

Bulgaria

1. In the light of Bulgaria's 2007 Implementation Report and the Commission's assessment of its National Reform Programme and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate:

2. Overall, the National Reform Programme focuses on the right challenges, but in some areas lacks concrete and substantial measures in particular as regards strengthening administrative capacity. Furthermore the National Reform Programme lacks measures aimed at urgently and significantly reducing red tape to make the business environment more dynamic and competitive. Given the growing economic imbalances it is particularly important for Bulgaria to accelerate the implementation of its National Reform Programme in order to create the necessary conditions for sustainable growth and jobs in the medium to longer term.

3. The National Reform Programme's strengths include a clear problem analysis and right prioritisation and sequencing of reforms as well as strong political ownership. Important provisions for a tight monitoring of progress at the highest political level have been put in place, which should prove an effective tool for ensuring a rapid and effective implementation of the National Reform Programme. The National Reform Programme is furthermore underpinned by a tight fiscal policy which offers a solid basis for accelerating the needed structural reforms to ensure long-term growth.

4. The policy areas in the Bulgarian National Reform Programme where challenges need to be tackled with the highest priority and budgetary impacts of measures and details on the monitoring and evaluation procedures should be clearly spelled out are: administrative capacity; macro-economic imbalances; red tape; and the functioning of the labour market. Against this background, Bulgaria is recommended to:

- urgently strengthen administrative capacity in particular focus on key government functions, including regulatory authorities, and the judiciary.
- contain the growing current account deficit and inflationary pressures, in particular by a tight fiscal policy, improving the quality of public expenditure and promoting wage moderation in order to keep wage developments in line with productivity gains;
- take rapid measures substantially to cut red tape and shorten procedural delays in order to improve the business environment (in particular for SMEs and facilitating start-ups), which will also help in the fight against corruption;
- increase the quality of labour supply and the employment rate by improving the efficiency and effectiveness of active labour market policies and further reform the education system to raise skills to levels that better match labour market needs and reduce early school leaving.

5. In addition, it will be important for Bulgaria over the period of the National Reform Programme to focus on: taking further measures to ensure the long-term sustainability of public finances, in particular with regard to potential risks in terms of adequacy and sustainability of pensions; creating all necessary pre-conditions for strong competition in network industries; elaborating an integrated policy for R&D and innovation notably aimed at reforming the public R&D system, shifting public support to R&D- based on an overall R&D intensity target for 2010- towards more competitive funding focused on key priorities; tackling undeclared work by strengthening institutional capacity to perform inspections and ensure legal enforcement; completing the lifelong learning strategy and increasing participation.

Note: Since the Bulgarian National Reform Programme was submitted in March 2007, the Commission's assessment is mainly based on the quality of the policy response as well as on first steps taken towards its implementation.

Czech Republic

1. In the light of the 2007 Czech Republic Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. The Czech Republic has made some progress in implementing its National Reform Programme over the 2005-2007 period. The Czech Republic had made some progress on meeting the specific commitments agreed at the 2006 Spring European Council in the priority action areas.

3. The Implementation Report shows some policy response to the recommendations adopted by the Council. There has been some policy response on the additional areas requiring attention, as identified in the Council conclusions.

4. Among the strengths shown by the 2007 Czech Republic Implementation Report are the coherent strategy to improve the regulatory framework for enterprises, reforms to make work pay, of the curricula for primary and secondary education, to increase participation in tertiary education, and the adoption of the lifelong learning strategy.

5. The policy areas in the Czech Republic National Reform Programme where challenges need to be tackled with the highest priority are the long-term sustainability of public finances in the context of an ageing population, fulfilling the commitments for public R&D expenditure and further increasing its effectiveness, improving security and flexibility in the labour market, improving the efficiency and equity in education and training and increasing participation in lifelong learning. Against this background it is recommended that the Czech Republic:

- with a view to improving the long-term sustainability of public finances, implements the announced reform programme of the pension system without delay, and implements reforms announced in the healthcare system;
- meets the targets for public R&D expenditure and increases its effectiveness, notably by promoting a better collaboration between business, universities and public R&D institutions, and by providing the necessary human resources for research and development;
- within an integrated flexicurity approach, further modernises employment protection, including legislation, improves the efficiency and equity of education and training, especially its responsiveness to labour market needs, provide incentives to invest in training particularly for older workers and the low-skilled, and increases the diversification of tertiary education supply.

6. In addition, it will be important for the Czech Republic to focus over the period of the National Reform Programme on the following challenges: improving the protection of intellectual property rights; speeding up progress in the ICT area, including by implementing and monitoring a fully enabled legal environment for e-government; improving access to finance for innovative companies, in particular through further developing the venture capital market; increasing the coverage of entrepreneurship education; better integrating disadvantaged groups into the labour market; reducing regional disparities; reconciling work and family life; tackling the gender pay gap; and implementing the active ageing strategy.

Note: There is a slight rephrasing of the country specific recommendations, but the number of recommendations stays the same (3). The number of points to watch goes down to 9 (from 10) compared to last year's assessment. The point to watch on reducing the administrative burden on enterprises has been removed.

Denmark

1. In the light of the 2007 Danish Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Denmark has been making very good progress in implementing its National Reform Programme over the 2005-2007 period. Denmark has shown good progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a good policy response to the areas identified by the Council as requiring attention.

4. Among the strengths shown by the 2007 Danish Implementation Report is the comprehensive and integrated approach to reform planning and implementation, within a framework for ensuring long-term fiscal sustainability, combined with the active participation of stakeholders.

5. It will be important for Denmark over the period of the National Reform Programme to focus on the following challenges: continuing to implement measures on energy interconnection in order to improve the functioning of the electricity and gas markets; increasing labour supply and hours worked over the medium term, including further initiatives to work and additional steps to integrate older workers, immigrants and their descendants into the labour market; reinforcing, in a cost-effective manner, measures to improve primary and secondary education and the number of students finalising upper-secondary or tertiary education to reach the ambitious targets set.

Note: The number of points of watch goes down to 3 (from 5) compared to last year's assessment. The points to watch on competition law and emissions have been removed.

Germany

1. In the light of Germany's 2007 Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Germany has made good progress in implementing its National Reform Programme over 2005-2007 and good progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows that there has been some policy response to the recommendations adopted by the Council. There has been a good response in consolidating public finances, and a more limited response regarding competition in services and on tackling structural unemployment. There has been some response on the additional areas identified in the Council conclusions as requiring attention. The Implementation Report also specifically addresses the recommendations issued to the euro area countries.

4. Among the strengths shown by the 2007 German Implementation Report are: the consolidation of public finances; the strengthening of high-class research and innovation; the progress in tackling youth unemployment; and the determined approach to increasing childcare facilities.

5. The policy areas in the German National Reform Programme where challenges need to be tackled with the highest priority: are competition in services and structural unemployment. Against this background it is recommended that Germany:

- improve the framework for competition in services, notably by continuing to relax restrictive rules in regulated trades and professions, improving public procurement procedures, without exempting new telecom markets from regulation and effectively regulating wholesale bitstream access;
- tackle structural unemployment by maintaining the path of the reforms outlined in the National Reform Programme. Focus should be placed on integrating the low skilled into the labour market through a flexicurity approach combining better access to qualifications with the implementation of the announced comprehensive tax and –benefit reform and more effective employment services for unemployed recipients of basic income support.

6. In addition, it will be important for Germany over the period of the National Reform Programme to focus on the following challenges: securing the long-term sustainability of public finances by firmly locking in the achieved fiscal consolidation, including in the ongoing revision of budgetary institutions in the federal system, and by carefully monitoring the impact of the health care reform to keep expenditure growth in check and strength efficiency in the health sector; improving the framework for competition in the rail sector, and in the gas and electricity networks, where competition remains insufficient due to high concentration; continue further with the establishment of one-stop-shops and the improvement of start-up times; and in the context of the planned measures to promote lifelong learning, enhance continuing vocational training.

Note: The number of country specific recommendations has been reduced from 3 to 2 compared to last year's assessment. The country specific recommendation on sustainability of public finances has been removed (and has become a point to watch) after a good policy response. The number of points of watch stays the same (4) compared to last year's assessment but the point to watch on increasing the provision of childcare facilities has been removed.

Estonia

1. In the light of the 2007 Estonian Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Estonia has been making very good progress in implementing its National Reform Programme over the 2005-2007 period. Estonia has shown good progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation report shows some policy response to the areas identified by the Council as requiring attention. There has been some policy response on competition policy, active labour market policies and educational policy. The most substantial response has been on R&D and Innovation policy. Estonia has not moved significantly forward on the modernisation of labour law.

4. Among the strengths shown by the Estonian Implementation Report are: the establishment of an ambitious long-term and systematic new R&D and Innovation strategy; the measures to facilitate start-ups and financing of innovative SMEs; a strong increase in the employment rate and the measures for raising the quality of higher and vocational education.

5. The policy areas in the Estonian National Reform Programme where challenges need to be tackled with the highest priority are: the employment area where progress on the modernisation of labour law has been limited.

6. It will be important for Estonia over the period of the National Reform Programme to focus on the following challenges: improving macro-economic stability and containing inflation through adequate structural reforms and determined fiscal policy; reinforcing efforts to ensure that R&D results are translated into innovative services or products; encouraging closer cooperation between universities and enterprises; launching the new immunity and leniency programme and strengthening competition enforcement; reinforcing active labour market policies and increasing the supply of skilled labour by implementing a comprehensive lifelong learning strategy that responds to labour market needs; reducing labour market rigidities by urgent progress towards labour law modernisation and by promoting flexible forms of work.

Note: The number of points of watch stays the same (6) compared to last year's assessment but the point to watch on more effective use of R&D and innovation expenditure is removed and a new point to watch on improving macro-economic stability is added.

Ireland

1. In the light of the 2007 Irish Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Ireland has been making very good progress in implementing its National Reform Programme over the 2005-2007 period. Ireland has been showing good progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a good policy response to the areas identified by the Council as requiring attention. The Implementation Report does not however specifically address the recommendations issued to the euro area countries.

4. Among the strengths of the Irish National Reform Programme and its implementation is the comprehensive and coherent national strategy. The document also highlights the usefulness of the Lisbon process through its role in focussing on the prioritisation and implementation of specific actions, and emphasising its key role in addressing the challenges and opportunities associated with globalisation.

5. It will be important for Ireland over the period of the National Reform Programme to focus on the following challenges for the future: speeding up progress in formulating concrete measures to reform pension arrangements; an intermediate target for R&D investment should be set for 2010; accelerating progress in increasing labour market participation, including by establishing a comprehensive childcare infrastructure; further developing the policy framework for the labour market and social integration of migrants and placing a particular emphasis on support to older and low-skilled workers; and developments in the housing market, affecting short and medium-term growth, should be carefully monitored.

Note: There is a slight rephrasing of the points to watch. The number of points to watch (5) stays the same compared to last year's assessment.

Greece

1. In the light of the 2007 Greek Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Greece has made steady progress in implementing its National Reform Programme over the period 2005-2007. Greece has shown some progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows there has been some policy response to the recommendations adopted by the Council. There has been some response on the additional areas identified in the Council conclusions as requiring attention. The Implementation Report does not however specifically address the recommendations issued to the euro area countries.

4. Amongst the strengths shown by the 2007 Greek Implementation Report are: good progress made to consolidate public finances, promoting female employment, implementing internal market legislation, and improving the business environment. There are promising signs of progress to fix a timetable to implement pension reforms designed to improve long-term fiscal sustainability.

5. Policy areas in the Greek National Reform Programme where challenges need to be tackled with the highest priority are: long-term fiscal sustainability, implementation of the public administration reform agenda, the consolidation of active labour market policies, tackling high youth unemployment, tackling undeclared work and acceleration of education and life-long learning reforms. Against this background it is recommended that Greece:

- pursue fiscal consolidation and debt reduction, and proceeds rapidly with the implementation of the pension reform, with a view to improving long-term fiscal sustainability;
- implement the reform of its public administration, by building up effective regulatory, control and enforcement capacities, by modernising its human resources policy; and through effective use of the Structural Funds;
- within an integrated flexicurity approach, modernise employment protection including legislation, reduce the tax burden on labour, strengthen active labour market policies and transform undeclared work into formal employment;
- accelerate the implementation of reforms on education and lifelong learning, in order to improve quality and responsiveness to labour market needs, increase participation, and allow for a smooth transition into employment, particularly for the young.

6. In addition, it will be important for Greece over the period of the National Reform Programme to focus on the following challenges: contain inflationary pressures and the current account deficit; accelerate efforts to set up a research and innovation strategy and increase investment in R&D; improve further the transposition of internal market legislation; speed up progress towards meeting the SME policy targets set by the 2006 Spring European Council; strengthen competition in the area of professional services; protect the environment by prioritising effective solid and water waste management and curb greenhouse gas emissions; encourage further female participation in employment; reduce early school leaving and put in place a coherent active ageing strategy.

Note: Aside from a slight rephrasing of the country specific recommendations, the number of recommendations stays the same (4). The number of points to watch increases to 7 (from 5) compared to last year's assessment. New points to watch on containing inflationary pressures and the current account deficit and strengthening competition in professional services have been added. The country specific recommendation on the labour market has been rephrased to account for the good policy response to tackling early school leaving - which has become a point to watch.

Spain

1. In the light of Spain's 2007 Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Spain has made good progress with implementing its National Reform Programme over the 2005-2007 period. Spain has shown good progress in fulfilling the commitments agreed by the 2006 Spring European Council in three of the four priority action areas.

3. The Implementation Report shows a good policy response to the recommendations adopted by the Council. With regard to the other areas on which Spain was asked to focus, there has been a limited response in the macro-economic domain. The points to watch in the micro-economic and employment domains have been partially addressed. The Implementation Report also specifically addresses the recommendations issued to the euro area countries.

4. Among the strengths shown by Spain's 2007 Implementation Report are: a faster than targeted reduction of government debt; good progress on implementation of the R&D and innovation plan; and satisfactory progress towards the employment rate objective, in particular for female employment.

5. The policy areas in the Spanish National Reform Programme where challenges now need to be tackled with the highest priority are improving competition in electricity markets and further improvements to education and training. Against this background it is recommended that Spain:

- take further measures to increase competition in the energy sector, notably by eliminating the distorting price setting mechanisms and improving cross-border interconnection capacity to ensure security of supply;
- ensure the effective implementation of education reforms, also at regional level, to reduce early school leaving

6. In addition, it will be important for Spain over the period of the National Reform Programme to focus on the following challenges: contain the current account deficit and inflationary pressures and monitor developments in the housing market; raising competition in professional services and retail markets; improving the regulatory framework; implementing environmental measures, in particular to reduce CO2 emissions; further modernise employment protection, including legislation, in order to foster flexicurity in the labour market to counter segmentation and promote the attractiveness of part-time work; raising productivity by raising skill levels and innovation; integrating immigrants into the labour market; further increase of access to childcare; and implement pension and healthcare reforms so as to improve long term fiscal sustainability.

Note: The number of country specific recommendations goes down from 3 to 2. The country specific recommendation on modernising employment protection has been removed. The number of points of watch increases to 9 (from 7) compared to last year's assessment. A new point to watch on modernising employment protection has been added.

France

1. In the light of France's 2007 Implementation Report and the Commission's assessment of progress made in implementation of key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate:

2. France has made steady progress in implementing its National Reform Programme over the 2005-2007 period. France has shown some progress in fulfilling the commitment agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a limited policy response to the recommendations issued to France by the Council. There has been some policy response on the other areas identified in the Council conclusions as requiring attention in particular an important reform has been undertaken with regard to stimulating and supporting entrepreneurship and young businesses. The Implementation Report does not however specifically address the recommendations issued to the euro area countries.

4. Among the strengths shown by French 2007 Implementation Report are: the reform of R&D and innovation strategies, the concrete results of measures in the area of ICT, and the announced, comprehensive set of measures to improve the functioning of the labour market, including through changes in legislation.

5. The Implementation Report presents a noticeably modified strategy in which employment is to become a factor of economic policy aiming at enhanced growth. The extent to which increased competition is integrated in this new policy framework is, as yet, less clear. It is important that France strengthens its budgetary efforts in order to simultaneously implement a concerted reform strategy and further consolidates public finances. Significant or sustained further measures are needed to achieve budgetary consolidation, to increase competition in network industries and to improve labour market performance. Against this background, it is recommended that France:

- ensures the sustainability of public finances, taking into account the ageing of the population, by considerably strengthening budgetary consolidation and debt reduction, and with a view to achieving a balanced budget in 2010. The negotiation on pension systems scheduled for 2008 will have to build on the gains made following the introduction of the 2003 reform.
- improves the framework for competition in the gas, electricity and rail freight sectors.
- within an integrated flexicurity approach, improves the efficiency of lifelong learning and modernises employment protection, in order notably to combat labour market segmentation among contract types, and make it easier to switch between fixed term contracts and permanent contracts.

6. In addition, it will be important for France over the period of the National Reform Programme to focus on the following challenges: further strengthening competition in regulated trades and professions, further enhancing better regulation policies by including impact assessments; continuing to increase labour supply and making work pay.

Note: There is a slight rephrasing of the country specific recommendations. The number of recommendations (3) and points to watch (3) stays the same (3).

Italy

1. In the light of the 2007 Italian Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate:

2. Italy has made good progress in implementing its National Reform Programme over the 2005-2007 period. There has been some response in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority areas.

3. The Implementation Report shows some policy response to the recommendations adopted by the Council. Given the scale of the challenge, significant further reforms are needed. There has been some policy response on the additional areas identified in the Council conclusions as requiring attention. The Implementation Report also specifically addresses the recommendations issued to the euro area countries.

4. Among the strengths shown by the 2007 Italian Implementation Report are the initial steps to improve the business environment, measures to enhance competition in professional and financial services and retail distribution, recent improvements in its transposition deficit of EU legislation; and e-government actions to modernise the public sector.

5. The policy areas in the Italian National Reform Programme where challenges need to be tackled with the highest priority are: fiscal sustainability, where efforts need to be pursued and the pension reform process needs to be completed; enhanced competition in product and service markets and pursuing the full implementation of announced reforms; further fighting regional disparities in the employment; and improving education and lifelong learning. Against this background it is recommended that Italy:

- rigorously pursues fiscal consolidation, in particular by curbing growth in current primary expenditure, and completes the pension reform process with a view to improving the long-term sustainability of public finances;
- continues the progress made to enhance competition in product and services markets and vigorously pursues the implementation of announced reforms;
- improves the quality and labour market relevance of education, promotes lifelong learning, tackles undeclared work and ensures the efficient operation of employment services, within a flexicurity approach and with a view to reducing regional disparities.

6. In addition, it will be important for Italy to focus over the period of the National Reform Programme on the following challenges: increasing R&D investment and efficiency, where despite welcome policy developments, further efforts are needed to reach the 2010 target and to enhance the efficiency of public spending; increasing efforts to meet the CO2 emission reduction targets; improving the quality of regulation by strengthening and fully implementing the system of impact assessment, notably for SMEs; implementing plans to improve infrastructure; increasing childcare provision with a view to reconciling work and family life and fostering labour market participation of women; and putting in place a consistent active ageing strategy to increase employment of older workers, and with a view to improving pension adequacy.

Note: The number of country specific recommendations goes down from 4 to 3. The country specific recommendations on reducing regional disparities in employment and developing a comprehensive lifelong learning strategy have been merged, while the childcare element of the country specific recommendation has been added as a point to watch because of a promising policy response. The number of points of watch increases to 6 (from 5) compared to last year's assessment. The point to watch on sustainable use of resources has been removed. New points to watch on CO2 emission reduction targets and active ageing have been added.

Cyprus

1. In the light of the 2007 Implementation Report for Cyprus and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Cyprus has made good progress in the implementation of its National Reform Programme over the 2005-2007 period. Cyprus had made good progress in fulfilling the specific commitments agreed at the 2006 Spring European Council in the priority areas.

3. The Implementation Report shows a good policy response to the recommendations adopted by the Council. With a view to the long term sustainability of public finances there has been a satisfactory initial response in reforming the health care system but a limited response on pension reform, enhancing lifelong learning and reforming the vocational education and training system. There has been some policy response on the additional areas identified in the Council conclusions as requiring attention.

4. Amongst the strengths of the Implementation Report is progress in the field of fiscal consolidation, in both deficit and debt reduction; a new policy to develop a comprehensive research and innovation system; and the maintenance of a good overall employment performance supported by a broad range of active labour market measures.

5. The policy areas in the Cypriot National Reform Programme where weaknesses need to be tackled with the highest priority are: addressing ageing-related expenditure; implementing a lifelong learning strategy and increasing training and labour market opportunities for young people. Against this background, it is recommended that Cyprus:

- take steps to implement reforms of the pension and health care systems and sets a timetable for their implementation with a view to improving fiscal sustainability;
- enhance life long learning, and increase employment and training opportunities for young people by implementing the reforms of the vocational, education, training and apprenticeship system.

6. In addition, it will be important for Cyprus over the period of the National Reform Programme to focus on measures to: improve competition in the area of professional services; further stimulate private sector R&D; and address the very high gender pay gap.

Note: The number of country specific recommendations stays the same (2) compared to last year's assessment. The number of points to watch increases to 3 (from 2) compared to last year's assessment. Last year's point to watch on venture capital investments has been removed. New points to watch on private sector R&D and the gender pay gap have been added.

Latvia

1. In the light of Latvia's 2007 Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Latvia has made some progress in implementing its National Reform Programme over the 2005-2007 period and some progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows that there has been some progress in responding to the recommendations adopted by the Council. There has been a mixed response to the additional areas identified by the 2007 Spring European Council as requiring attention.

4. Among the strengths shown by the Implementation Report are: the first positive steps in the field of knowledge and innovation; the progress achieved on certain SME and entrepreneurship issues; the strengthened role of the Competition Authority in market surveillance; and further measures to promote energy efficiency and the use of renewable energy resources. Latvia has also implemented a set of measures that have successfully supported labour market performance.

5. The policy areas in the Latvian National Reform Programme where weaknesses need to be tackled with the highest priority are: more concrete measures to secure macroeconomic stability in the face of overheating pressures; further development of the R&D strategy to improve prioritisation and increase private sector involvement; and stronger measures to increase labour supply and strengthen the skills of the labour force. Against this background, it is recommended that Latvia:

- pursue a more restrictive fiscal policy, with a careful prioritisation of expenditures and wage developments that are in line with productivity, in order to contribute to correcting overheating pressures and reducing the risk of macroeconomic instability;
- make faster progress in the implementation of the research and innovation policy reforms, in order to meet the ambitious targets set. This concerns especially policies to stimulate partnerships between research and education institutions and businesses;
- within an integrated flexicurity approach, intensifies efforts to increase labour supply and productivity by improving regional mobility and, enhancing the responsiveness of education and training systems to labour market needs, by putting in place a lifelong learning system and pursuing active labour market policies.

6. In addition, it will be important for Latvia over the period of the National Reform Programme to focus on: improving further the regulatory environment, notably by means of an explicit better regulation policy; and improving access to childcare.

Note: Aside from a slight rephrasing, the number of country specific recommendations (3) stays the same compared to last year's assessment. The number of points to watch decreases to 2 (from 4) compared to last year's assessment. The point to watch on promoting entrepreneurship education has been removed and the point to watch on pursuing active labour market policies has been included in the country specific recommendation.

Lithuania

1. In the light of the 2007 Lithuania's Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Lithuania has made good progress in implementing its National Reform Programme over 2005-2007. Lithuania has also been showing some progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a limited policy response to the recommendations adopted by the Council. There has been some policy response on the additional areas identified by the Council as requiring attention.

4. Among the strengths shown by the 2007 Lithuania's Implementation Report are: approval of priority areas for R&D development and adoption of the Vocational Training Law.

5. The policy areas in the Lithuanian National Reform Programme where challenges need to be tackled with the highest priority are implementing measures: increasing and improving the efficiency of investment in R&D and support for innovation; to increase internal mobility of labour, promote adult participation in lifelong learning, especially among older workers, and reform the education and training systems to ensure quality and labour market relevance. Against this background it is recommended that Lithuania:

- accelerates the implementation of the structural reform of its R&D and innovation system so as to raise the efficiency of public spending and create conditions favourable to increased private investments in this area, including for innovation in traditional and low-tech sectors;
- intensifies efforts to increase the supply of skilled labour, with a special focus on the participation of older workers by: improving the regional mobility, reforming the education and training systems to ensure their quality and relevance to the labour market needs and implementing the revised lifelong learning strategy.

6. In addition, it will be important for Lithuania to focus over the period of the National Reform Programme on the following challenges: improving macro-economic stability and containing inflation; increasing foreign direct investment; improving the efficiency of regulatory environment with particular focus on legislative simplification; improving youth employability; expanding entrepreneurship education; increasing the availability of childcare; and strengthening occupational health and safety.

Note: Despite a slight rephrasing, the number of country specific recommendations (2) stays the same compared to last year's assessment. The number of points of watch decreases to 7 (from 8) compared to last year's assessment. The point to watch on environmental protection has been removed.

Luxembourg

1. In the light of the Luxembourg 2007 Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Luxemburg has made very good progress in implementing its National Reform Programme over the 2005-2007 period. Luxembourg has shown some progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a mixed policy response to the areas identified by the Council as requiring attention. The Implementation Report also specifically addresses the recommendations issued to the euro area countries.

4. Among the strengths shown by the Luxembourg's 2007 Implementation Report are: investments to integrate the economy into the international context, efforts to develop an extensive simplification policy focussed on business needs, the development of childcare infrastructures, reform of professional training, and the introduction of new forms of employment.

5. It will be important for Luxembourg over the period of the National Reform Programme to focus on the following challenges: accelerate the implementation of measures aimed at increasing the employment rate of older workers, in particular through reform to discourage early retirement; take further measures to reduce the number of early school leavers, and to remove the artificial barriers between different types of education; closely monitoring the impact of recently adopted measures to reduce unemployment amongst the young; and in order to deliver a more attractive economic environment, greater support is needed to deliver competitive markets, improve the transposition of EU legislation, and support SMEs.

Note: The number of points to watch has been reduced to 4 (from 5) compared to last year's assessment. The points to watch on increasing the employment rate of older workers and reforming the early-retirement system have been merged.

Hungary

1. In the light of the 2007 Hungarian Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Hungary has made limited progress in implementing its National Reform Programme over 2005-2007. Hungary has shown limited progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3 The Implementation Report shows a mixed policy response to the recommendations adopted at the Council. There has been some policy response on the additional areas identified in the Council conclusions as requiring more attention.

4. Among the strengths shown by the 2007 Implementation Report are: strong improvements on fiscal consolidation, the adoption of various structural reform steps, the shortening of the setting-up time for businesses and the efforts to reduce administrative costs, the introduction of further incentives to work and to remain on the labour market and the transformation of undeclared work into formal employment.

5. The policy areas in the Hungarian National Reform Programme where challenges need to be tackled with the highest priority are: correcting the excessive deficit as planned, further improving the sustainability of public finances, improving the labour market situation of disadvantaged groups, reducing persistent regional disparities in employment and reforming the education and training systems. Against this background, it is recommended that Hungary:

- continues to implement the necessary measures to ensure a durable reduction of the government deficit and of the public debt ratio, with increased reliance on the expenditure side, including through the establishment of more thorough and comprehensive expenditure rules;
- continues to reform the public administration, health care, pension and education systems with a view to ensuring long-term fiscal sustainability and improving economic efficiency. This should include steps to further limit early retirement, reduce the number of new recipients of disability pensions and further restructure health care;
- reinforces active labour market policies to improve the labour market situation of disadvantaged groups; and reduces persistent regional disparities in employment;
- ensures access to high quality education and training for all, upgrade skill levels, and increases responsiveness of education and training systems to labour market needs.

6. In addition, it will be important for Hungary over the period of the National Reform Programme to focus on the following challenges for the future: further reforming the public research system, increasing the effectiveness of public R&D expenditure and improving linkages between public and private R&D; reducing and redirecting state aids; improving the regulatory environment through further reducing administrative burden and legislative simplification; introducing further incentives to work and to remain in the labour market; ensuring better reconciliation of work and private life; completing the establishment of the integrated employment and social services system; transforming undeclared work into formal employment; and implementing the lifelong learning strategy.

Note: Despite some slight rephrasing, the number of country specific recommendations (4) has stayed the same as last year's assessment. The number of points (8) to watch has also stayed the same.

Malta

1. In the light of the 2007 Maltese Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Malta has made good progress in the implementation of its National Reform Programme over the 2005-2007 period. Malta has shown good progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a limited policy response to recommendations adopted by the Council. There has also been a limited policy response to the additional areas identified by the Council as requiring attention.

4. Among the strengths of the Maltese National Reform Programme and its implementation are its governance and the progress achieved in fiscal consolidation as well as progress in strengthening the business environment, liberalising certain markets (e.g. ports), reforming education and increasing ICT use.

5. The policy areas in the National Reform Programme where weaknesses need to be tackled with the highest priority are competition policy and persistent labour market problems. Against this background, it is recommended that Malta:

- strengthens competition, notably by reducing state aids and redirecting them towards horizontal objectives as well as by reinforcing the competition authority and by further steps in opening up professional services;
- steps up efforts to attract more people into the labour market, particularly women and older workers; maintain efforts to tackle undeclared work and take further action on the benefit system to make declared work more attractive.

6. In addition, it will be important for Malta over the period of the National Reform Programme to focus on: continue implementing and reinforcing measures on health care reform; further improving the regulatory environment by continuing simplifying legislation, by introducing systematic impact assessments and effective one stop shops for business start-ups; diversifying its energy sources, including enhancing energy efficiency and renewable energy and connecting Malta to Europe's energy networks; continuing efforts to raise educational attainment and reduce early school leaving.

Note: Despite a slight rephrasing (the employment rate of older workers becomes part of the recommendation), the number of country specific recommendations (2) has stayed the same compared to last year's assessment. The number of points to watch has decreased to 4 (from 6) compared to last year's assessment. The points to watch on measuring R&D expenditure and increasing the employment rate of older workers have been removed.

The Netherlands

1. In the light of the 2007 Dutch Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate:

2. The Netherlands has made significant progress in implementing its National Reform Programme over the 2005-2007 period. The Netherlands has shown a good response to fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows some policy response to the recommendation adopted by the Council. There has been a limited policy response on the additional areas identified in the Council conclusions as requiring attention. The Implementation Report also specifically addresses the recommendations issued to the euro area countries.

4. Among the strengths of the National Reform Programme and its implementation are: the efforts to reduce administrative burden and to improve the business climate; the ambitious plans in the area of energy and climate change; and incentives to improve childcare provision.

5. The policy area in the Dutch National Reform Programme where challenges need to be tackled with the highest priority is in improving labour supply. Against this background it is recommended that the Netherlands:

- take further measures to improve labour supply of women, older workers and disadvantaged groups with a view to raising overall hours worked in the economy.

6. In addition, it will be important for the Netherlands over the period of the National Reform Programme to focus on the following challenges: stepping up efforts aimed at increasing private sector R&D expenditure by avoiding fragmented policy governance structures and putting in place a coherent strategy for R&D and innovation which addresses the interaction between private R&D and public research as well as foreign R&D investment.

Note: Despite a slight rephrasing (increasing number of hours worked has become part of the recommendation), the number of country specific recommendations (1) has stayed the same compared to last year's assessment. The number of points to watch has decreased to 1 (from 3) compared to last year's assessment. The points to watch on creating a single public administration point for the recruitment of the first employee and raising overall hours worked in the economy have been removed.

Austria

1. In the light of the 2007 Austrian Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate:

2. Austria has made significant progress in implementing its National Reform Programme over the 2005-2007 period. Austria has shown good progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a limited policy response to the employment recommendation adopted by the Council. There has been some response on the additional areas identified in the Council conclusions as requiring attention. The Implementation Report also specifically addresses the recommendations issued to the euro area countries.

4. Among the strengths shown by the 2007 Austrian Implementation Report are: good practices to boost innovation, such as the innovation voucher; increased budgets for R&D in line with the 3% target; the creation of a climate and energy fund; the successful implementation and further development of its flexicurity model.

5. The policy areas in the Austrian National Reform Programme where challenges need to be tackled with the highest priority are: increasing labour supply of older workers and improving the skills and employability of disadvantaged young people. Against this background it is recommended that Austria:

- further improve incentives for older workers to continue working by implementing a comprehensive strategy including enhanced job-related training, adaptation of working conditions and tightening the conditions for early retirement; and improve education outcomes for vulnerable youth.

6. In addition, it will be important for Austria to focus over the period of the National Reform Programme on the following challenges: strengthening the fiscal adjustment in order to achieve a balanced budget before 2010; increasing competition in services, in particular in professional services; strengthening entrepreneurship education; identifying further emission reduction policies and measures; tackling the gender segregation of the labour market, including by further improving the availability of childcare.

Note: Despite a slight rephrasing, the number of country specific recommendations (1) and points to watch (5) has stayed the same compared to last year's assessment.

Poland

1. In the light of the 2007 Poland's Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Poland has made limited progress in implementing its National Reform Programme over the 2005-2007 period and has shown limited progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a mixed policy response to the recommendations adopted by the Council. There has been some policy response on the additional areas identified in the Council conclusions as requiring attention.

4. Among the strengths shown by the 2007 Poland's Implementation report are: the attention paid to developing entrepreneurship; initial steps to bring down the tax burden on labour; the priority and funding allocated to active labour market measures; and the strong linkage of the National Reform Programme priorities with EU funding.

5. The policy areas in the Polish National Reform Programme where challenges need to be tackled with the highest priority are: a stronger commitment to address the sustainability of the public finances; vigorous actions to improve regulation and to promote opening of markets in network industries; rapid implementation of the R&D reforms; further measures to address the low employment rate of older workers; better focusing of active labour market policy on the most vulnerable groups; and putting in place the lifelong learning strategy. Against this background Poland is recommended to:

- strengthen the fiscal consolidation and supplement the nominal state budget deficit "anchor" (deficit ceiling) with further mechanisms to enhance control over expenditure;
- improve the framework for competition in network industries, including through a review of the role of regulators, and vigorously continue the process of the liberalisation of energy markets;
- pursue the reform of the public research sector with a view to R&D and innovation being boosted, and implementing the framework for private sector R&D, thereby maximising the benefits from foreign direct investment;
- with a view to developing an integrated flexicurity approach, increase the level and efficiency of active labour market policy, notably for older persons and groups vulnerable to poverty, review benefit systems to improve the incentive to work, put in place the lifelong learning strategy, and modernise education and training systems in view of labour market needs.

6. In addition, it will be important for Poland over the period of the National Reform Programme to focus on the following challenges: upgrading transport infrastructure; speeding-up the business registration process; ensuring timely implementation of the e-government programmes; improve the transposition of internal market legislation; and increasing the provision of childcare facilities.

Note: Despite a slight rephrasing, the number of country specific recommendations (4) has stayed the same compared to last year's assessment. The number of points to watch has decreased to 5 (from 7) compared to last year's assessment. The points to watch on improving environmental protection and ensuring an effective framework for competition in the financial sector have been removed. New points to watch have been introduced on e-government programmes and internal market legislation. The points to watch on state aids and ensuring the alignment of cohesion policy instruments with the priorities highlighted in the Implementation Report have been removed.

Portugal

1. In the light of the 2007 Portuguese Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Portugal has made good progress in implementing its National Reform Programme over the 2005-2007 period. Portugal has shown good progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a good policy response to the recommendations issued by the Council. There has also been some policy response on the additional areas identified by the Council conclusions as requiring attention. The Implementation Report also specifically addresses the recommendations issued to the euro area countries.

4. Some of the strengths shown by the 2007 Portuguese Implementation Report are: the progress achieved in correcting fiscal imbalances and promoting sustainable reforms of the public administration, on pension and health-care reform, progress on unlocking business potential and the implementation of the Technological Plan.

5. The policy areas in Portugal's National Reform Programme where challenges need to be tackled with the highest priority are: consolidating public finances, whilst improving its quality and sustainability, and gearing public spending towards raising Portugal's growth potential; improving the efficiency of the educational system notably by improving attainment levels and reducing early school leaving; modernising employment protection to curb the segmentation of the labour market. Against this background it is recommended that Portugal:

- in the context of the on-going correction of fiscal imbalances and public administration reform, redirect public spending towards uses more supportive to potential economic growth, while maintaining firm expenditure control overall;
- further implement measures to strongly improve the efficiency of the educational system notably by improving attainment levels of the young, fighting early school leaving and developing a vocational training system that is relevant to the labour market needs and based on the National Qualifications Framework;
- continue efforts to modernise employment protection, including legislation to reduce the high levels of labour market segmentation, within the flexicurity approach.

6. In addition, it will be important for Portugal over the period of the National Reform Programme to focus on the following challenges for the future: narrowing its current account deficit in a sustained way; pursuing the implementation of the Technological Plan, consolidating the linkages between research, higher education and industry, and involving the private sector further; ensuring effective competition, notably in energy and financial services markets; further implement a better regulation programme and in particular strengthen the impact assessment system; reducing the deficit in transposing EU legislation into national law; devising and implementing the measures needed to reduce green house gas emissions; and continuing to address factors undermining social cohesion.

Note: Despite a slight rephrasing, the number of country specific recommendations (3) has stayed the same as in last year's assessment. The number of points to watch has increased to 6 (from 5) compared to last year's assessment. A new point to watch on better regulation has been added.

Romania

1. In the light of Romania's 2007 Implementation Report and the Commission's assessment of the National Reform Programme and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Overall, the National Reform Programme focuses on the right challenges. However, in some critical areas, such as strengthening administrative capacity and improving the business environment, the programme lacks ambition. In other areas, information about the content of measures, their timelines and budgetary support is sometimes lacking which makes it difficult to assess whether measures will bring solutions to the problems and challenges identified.

3. The programme's strengths include initiatives aimed at implementing a medium-term expenditure framework, reducing non-wage labour costs and reforming research structures.

4. The policy areas in the Romanian National Reform Programme where weaknesses need to be tackled with the highest priority are: strengthening administrative capacity, addressing overheating and improving budget planning and the quality of expenditure; cutting red tape and activating labour supply and raising skill levels. Against this background, it is recommended that Romania:

- urgently strengthen administrative capacity at both central and local levels of government by building up effective regulatory, control and enforcement capacity;
- avoid pro-cyclical fiscal policy to contain the growing current account deficit and inflationary pressures, keep wage developments in line with productivity growth and improve budget planning and execution as well as the quality of public finances by reviewing the composition of public spending and by reducing and redirecting state aid to horizontal objectives.
- substantially reduce administrative procedures and delays to obtain authorisations as part of a coherent better regulation policy in order to improve the business environment.
- implement an integrated approach to increasing employment, activity rates and productivity levels, especially by accelerating reforms of the education system to respond better to labour market needs, by reducing early school leaving, by significantly increasing adult participation in education and training; and by transforming subsistence/semi-subsistence farming into sustainable employment.

5. In addition it will be important for Romania over the period of the National Reform Programme to focus on: taking further measures to ensure the long-term sustainability of public finances, in particular with regard to potential risks in terms of adequacy and sustainability of pensions; reinforcing measures to tackle fragmentation of the research base whilst ensuring that planned increases in public research funding yield effective returns by vigorously implementing the national R&D and innovation strategy and by regularly monitoring its results; pursuing a more integrated approach to infrastructure development and roll-out of ICT; intensifying efforts to tackle undeclared work; improving the effectiveness and geographical scope of public employment services, particularly to assist vulnerable groups.

Note: Since the Romanian National Reform Programme was submitted at the end of July 2007, the Commission's assessment is mainly based on the analysis of the main priorities and of Romania's proposed approach to sequencing its reforms.

Slovenia

1. In the light of the 2007 Slovenian Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Slovenia has made good progress in implementing its National Reform Programme over the 2005-2007 period. Slovenia has also been showing some progress in fulfilling the commitments agreed by the 2006 Spring European Council.

3. The Implementation Report shows some policy response to the recommendations issues by the Council. There has also been some policy response on the additional areas identified in the Council conclusions as requiring attention. The Implementation Report does not however specifically address the recommendations issued to the euro area countries.

4. Among the strengths shown by the 2007 Implementation Report are: the involvement of social partners in drafting all major labour market reforms; efforts to strengthen the link between education and scholarship systems and the economy; the shortening of business start-up times and the reduction of administrative burden. Slovenia's entry into the euro area is the central achievement in the macro field.

5. The policy areas in the National Reform Programme where challenges need to be tackled with the highest priority are: further pension reform and effective implementation of the active ageing strategy; and a more flexible labour market combined with a more effective personalised approach in the implementation of active labour market policies. Against this background it is recommended that Slovenia:

- take further steps to strengthen the reform of the pension system and promote active ageing, with a view to increasing the employment rate of older workers and improving long-term sustainability.
- within an integrated flexicurity approach, promotes more flexible contractual arrangements and improves the effectiveness of employment services, particularly in relation to persons with low employment prospects, in order to counter labour market segmentation mainly affecting young people.

6. In addition, it will be important for Slovenia to focus over the period of the National Reform Programme on the following challenges: develop an effective research and innovation strategy and ensure its effective implementation; also with a view to containing inflation, improve competition in the services sector, with particular emphasis on retail, financial services, utilities and professional services; improve implementation of energy efficiency measures, particularly with regard to CO_2 emissions and unfulfilled Kyoto targets; implement the ambitious plans to strengthen the link between the education system and the labour market.

Note: Despite a slight rephrasing, the number of country specific recommendations (2) has stayed the same compared to last year's assessment. The number of points to watch has decreased to 4 (from 8) compared to last year's assessment. The points to watch on intellectual property rights, business start-ups, youth employment and strengthening the role of the new Office for Growth and of the Slovenian Technology Agency have been removed. Youth employment has become part of the country specific recommendation.

Slovakia

1. In the light of the 2007 Slovak Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Slovakia has made some progress in implementing its National Reform Programme over the period 2005-2007. There has been a limited response in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority areas.

3. The Implementation Report shows a mixed policy response to the recommendations adopted by the Council. Further reforms are necessary to increase R&D and education expenditure, implement strategies in the micro-economic area, to tackle long-term unemployment and to complete education and training reform. There has been a mixed response on the additional areas identified in the Council conclusions as requiring attention.

4. Among the strengths shown by the 2007 Slovak Implementation Report are: the foreseen reduction of the public finance deficit to below 3% of GDP in 2007; the adoption of a number of strategy documents in the area of R&D and innovation, energy efficiency and renewably energy; the partial implementation of a one-stop-shop for start-up companies; the revision of employment legislation; the adoption of the lifelong learning strategy; and efforts to revise active labour market policies to better comply with labour market developments.

5. The policy areas in the Slovak National Reform Programme where challenges need to be tackled with highest priority are: increasing expenditure to education, R&D and innovation, improving the regulatory environment, tackling long-term unemployment, completing the reform of the education and training system and raising its quality in line with labour market needs. Against this background, it is recommended that Slovakia:

- reallocate resources to education, R&D and innovation, and duly implement a coherent R&D and innovation strategy with a particular focus on the institutional reform of the public research sector and substantial improvement of business-research cooperation;
- improve the regulatory environment, notably by implementing a comprehensive better regulation strategy covering both impact assessment and simplification of existing legislation;
- within an integrated flexicurity approach, ensures implementation of the lifelong learning strategy addressing the needs of the labour market, completes the reforms of primary, secondary and tertiary education to improve qualification and skill levels, and enhance access to employment, notably for the long-term unemployed and vulnerable groups.

6. In addition, it will be important for Slovakia over the period of the National Reform Programme to focus on: further developing ICT policies, especially for broadband infrastructure; full implementation of one-stop shops for start-up companies; introducing entrepreneurship education; increasing competition in power supply; addressing the gender gap in pay and employment; developing an active ageing strategy; and creating job opportunities for young people.

Note: The number of country specific recommendations (3) has stayed the same as in last year's assessment. However, last year's recommendations on employment have been merged and a new recommendation on the regulatory environment has been added. The number of points to watch has increased to 7 (from 4) compared to last year's assessment. New points to watch on one-stop shops for start-up companies, entrepreneurship education, competition in the power supply and youth employment have been added.

Finland

1. In light of the 2007 Implementation Report for Finland and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate:

2. Finland has made very good progress in implementing its National Reform Programme over the 2005-2007 period. Good progress has been shown in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows some policy response on the additional areas identified by the Council as requiring attention. The Implementation Report also specifically addresses the recommendations issued to the euro area countries.

4. Among the strengths of the 2007 Implementation Report are the ongoing reforms to further improve the functioning of the national innovation system and the observed increase in the employment rate of older workers.

5. It will be important for Finland over the period of the National Reform Programme to focus on the following challenges: continue reforms to improve competition and productivity in services, and create the necessary leverage to reduce high price levels; implement announced measures to reach its Kyoto target; continue reforms to address bottlenecks in the labour market, with a particular view to tackling high structural unemployment, especially unemployment of low skilled workers, including young people, and taking into account the contribution economic migration can make.

Note: The number of points to watch (3) has stayed the same as in last year's assessment. The point to watch on encouraging local wage bargaining systems has been removed while a new point to watch on the Kyoto targets has been added.

Sweden

1. In the light of Sweden's 2007 Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate.

2. Sweden has made very good progress in implementing its National Reform Programme over the 2005-2007 period. Sweden has also shown very good progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a good policy response to the areas identified by the Council as requiring attention.

4. Among the strengths shown by the 2007 Sweden's Implementation Report are: the action plan for regulatory simplification and the commitment to improve the impact assessment system; the progress with increasing labour supply and reducing unemployment; the sustainable use of energy; and the progress made on increasing public investment in R&D.

5. It will be important for Sweden to take further regulatory measures to increase competition, notably in services; and to focus on the implementation and impact evaluation of recent reforms to increase work incentives, to tackle youth unemployment, to raise the employment rate of immigrants and to reintegrate people on sickness-related schemes.

Note: The number of points to watch (2) has decreased compared to last year's assessment (4). The points to watch on the impact assessment system and better regulation have been removed.

United Kingdom

1. In the light of the UK's 2007 Implementation Report and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate:

2. The UK has made significant progress in implementing its National Reform Programme over 2005-2007. The UK has shown good progress in fulfilling the commitments agreed by the 2006 Spring European Council in the four priority action areas.

3. The Implementation Report shows a good policy response to the recommendation issued by the Council. There has also been a good policy response on the additional areas identified in the Council conclusions as requiring attention.

4. Among the strengths shown by the 2007 UK Implementation Report are: the plans to provide an integrated approach to employment and skills, moves towards the creation of a business-friendly regulatory environment, and the forward-looking plans on energy policy.

5. The policy areas in the UK National Reform Programme where challenges need to be tackled with the highest priority are improving skills levels to increase productivity and reduce disadvantage in the labour market. Against this background it is recommended that the UK:

- implement recent plans to substantially improve skill-levels and establish an integrated approach to employment and skills in order to improve productivity and increase opportunities for the disadvantaged.

6. In addition, it will be important for the UK to focus on the following challenges for the future: progressively increase housing supply in order to meet medium term demand pressures; ensure progress towards the UK's R&D intensity target through full implementation of the recent review of R&D and innovation policy, particularly taking fuller account of the specific needs of the services sector.

Note: Despite a slight rephrasing, the number of country specific recommendations (1) has stayed the same as in last year's assessment. The number of points to watch (2) has decreased compared to last year's assessment (4). The points to watch on access to childcare and pension reform have been removed.

Euro Area Member States

1. In the light of the 2007 Implementation Reports of the euro area Member States, and the Commission's assessment of progress made in implementing key structural reforms and based on the Integrated Guidelines for Growth and Jobs, the following conclusions are appropriate:

2. Based on their Implementation Reports, the euro area Member States have been making some progress in implementing policy measures that improve the functioning of the euro area.

3. Significant further reforms are necessary to fulfil the micro-economic and employment recommendations. The progress recorded in 2007 concerning the macro-economic area needs to be sustained.

4. Among the strengths shown by the 2007 Implementation Reports of the euro area Member States are: budgetary adjustment in 2007, the implementation of legislation to foster financial market integration, and wage bargaining systems more conducive to wage flexibility in some Member States.

5. The policy areas in the euro area where challenges now need to be tackled with the highest priority are: the sustainability of public finances and their contribution to growth; competition in product markets, especially in services, financial integration and competition in financial retail services, in order to facilitate adjustment and more flexible prices; adequate wage developments at the aggregate, sector, regional and occupational level; flexicurity in labour markets; and more labour mobility in order to foster labour market adjustment.

6. Against this background it is recommended that the euro area Member States together with their country specific recommendations:

- pursue budgetary consolidation towards their medium-term objectives in line with the Stability and Growth Pact, hence striving to achieve an annual structural adjustment of at least 0.5% of GDP as a benchmark;
- improve the quality of public finances by reviewing public expenditures and taxation, with the intention to enhance productivity and innovation, thereby contributing to economic growth and fiscal sustainability;
- effectively implement measures that improve competition, especially in services, and step up measures that promote the full integration of financial markets and the competition in retail financial services, whilst strengthening stability and supervisory arrangements;
- improve flexibility and security on labour markets inter alia by implementing "flexicurity" strategies, better aligning wage and productivity developments, and enacting measures to promote labour mobility across borders and between occupations.

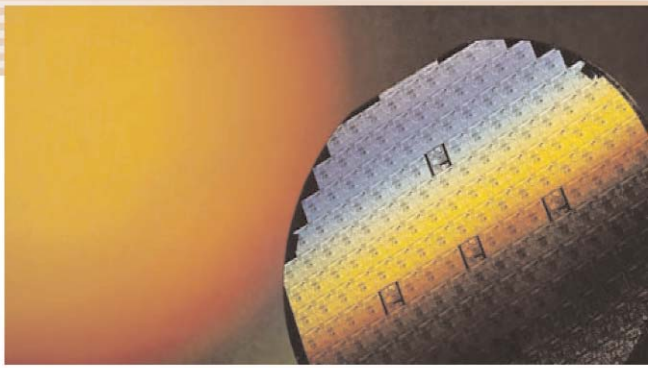
7. For the future it will also be important for euro area to further strengthen governance to maximise policy synergies, which are stronger in a monetary union, and enhance political ownership of reforms. The Eurogroup's April 2007 Berlin orientations on public finances are a welcome step in this regard and a similar approach should be extended to other fields. A strengthening of the euro's representation in international financial institutions and fora would be in line with its potential as a pole of stability and growth in the global economy.

Note: Aside from a slight rephrasing, the number of specific recommendations (4) has stayed the same compared to last year's assessment.

PRO INNO Europe paper N° 6

EUROPEAN INNOVATION SCOREBOARD 2007

COMPARATIVE ANALYSIS OF INNOVATION PERFORMANCE



European Commission
DIRECTORATE-GENERAL FOR ENTERPRISE AND INDUSTRY

PRO INNO EUROPE
INNO METRICS

EUROPEAN INNOVATION SCOREBOARD 2007

COMPARATIVE ANALYSIS OF INNOVATION PERFORMANCE

February 2008

The innovation policy initiative PRO INNO Europe combines **analysis and benchmarking** of national and regional innovation policy performance with support for cooperation of national and regional innovation programmes and incentives for innovation agencies and other innovation stakeholders to implement joint actions. The initiative aspires to become the main European reference for innovation policy analysis and development throughout Europe and brings together over 200 **innovation policy makers and stakeholders** from 33 countries. Additional information on PRO INNO Europe is available on the Internet (www.proinno-europe.eu).

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1. Executive Summary

This is the seventh edition of the *European Innovation Scoreboard* (EIS). The EIS is the instrument developed at the initiative of the European Commission, under the Lisbon Strategy, to provide a comparative assessment of the innovation performance of EU Member States. The EIS 2007 includes innovation indicators and trend analyses for the EU27 Member States as well as for Croatia, Turkey, Iceland, Norway, Switzerland, Japan, the US, Australia, Canada and Israel. Tables with definitions as well as comprehensive data sheets for every country are included in the Annexes. The EIS report and its Annexes, accompanying thematic papers, interactive tables to view results and the indicators' database are available at http://www.proinno-europe.eu/metrics.

The methodology for the 2007 EIS remains largely the same as that used in 2006, although a more robust analysis of country groupings has been added. For the first time, Australia, Canada and Israel have been included as these countries provide interesting comparisons to EU Member States. The thematic reports that accompany this year's Scoreboard are on innovation in services, wider factors influencing innovation performance and on innovation efficiency. In addition, the 2007 EIS reflects on seven years' experience in comparing countries' innovation performance and on where the main future challenges lie.

Sweden, Finland, Denmark, Germany and UK are the most innovative EU countries and ahead of the US (Section 2)

Based on their innovation performance, the countries included in the EIS 2007 fall into the following country groups:

- The *innovation leaders* include Denmark, Finland, Germany, Israel, Japan, Sweden, Switzerland, the UK and the US. Sweden is the most innovative country, largely due to strong innovation inputs although it is less efficient than some other countries in transforming these into innovation outputs.
- The *innovation followers* include Austria, Belgium, Canada, France, Iceland, Ireland, Luxembourg and the Netherlands.
- The *moderate innovators* include Australia, Cyprus, Czech Republic, Estonia, Italy, Norway, Slovenia and Spain.
- The *catching-up countries* include Bulgaria, Croatia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania and Slovakia. Turkey currently performs below the other countries.

These country groups appear to have been relatively stable over the last five years. Within these groups, countries have changed their relative ranking but it is rare for a country to have moved between groups. Only Luxembourg seems to be on the verge of entering the group of innovation leaders.

Czech Republic, Estonia and Lithuania are on track to reach the EU average within a decade (Section 3)

Although there is relative stability in the country groupings, over a longer time period there is a general process of convergence, with the countries showing below average EU innovation performance moving towards the EU average and closing the gap with the innovation followers and leaders. Based on trends over recent years, it would take most moderate innovators and catching-up countries 20 or more years to close the gap with the EU. However Cyprus, Czech Republic, Estonia, Lithuania and Slovenia seem to be in a position to close this gap in a shorter period of time, and for the Czech Republic and Estonia and Lithuania this could occur within 10 years.

A persistent but decreasing innovation gap with the US and Japan (Section 4)

The innovation gap between the EU and its two main competitors, the US and Japan, has been decreasing but remains significant. The US keeps its lead in 11 out of 15 indicators for which comparable data are available, and Japan keeps its lead in 12 out of 14 such indicators. A comparison over time shows that the EU is experiencing an increasing lead over the US in S&E graduates, employment in medium-high and high-tech manufacturing and Community trademarks, and a stable lead in Community designs. The EU is experiencing a declining gap with the US in broadband penetration, early-stage venture capital, ICT expenditures and triad patents. But the gap with the US is increasing in public R&D expenditures and high-tech exports.

Innovation policies might need to better take account of the needs of services innovators (Section 5.1)

Services are becoming more and more important as the major contributor to GDP and employment in the European economies. A comparison between manufacturing and services firms of the importance for innovation of different policy actions shows a bias towards manufacturing firms in two areas: demand from public procurement and support from innovation programmes. Here better policy interventions could help to improve the innovative capabilities of services firms. Elsewhere there do not seem to be systematic differences in innovation performance between service and manufacturing firms, although this may be due to current limitations in measuring innovation in services.

Social capital and knowledge flows are potential key factors in innovation performance (Section 5.2)

Although there is a general process of convergence in innovation performance, there still remain large differences in performance between European countries. An analysis, which builds upon previous EIS reports, examines the effect of 26 indicators measuring various aspects of a country's wider socio-economic environment on each of the 5 EIS innovation dimensions. This shows that beyond GDP, differences in social capital and technology flows have the greatest power to explain differing levels of innovation performance.

Most Member States could improve their efficiency in transforming innovation inputs into outputs (Section 5.3)

Innovation performance in the EIS is measured as the average performance on both innovation inputs and innovation outputs. Efficiency analyses between the different input and output dimensions show that for most countries there are efficiency gains to be reached. This applies to countries of all levels of performance: many of the innovation leaders have relatively low innovation efficiency while several of the moderate innovators and catching-up countries have relatively high efficiencies.

Non-R&D based innovation is as widespread as R&D driven innovation (Section 5.4)

R&D is important as a driver of productivity increases and has often been the focus, both by policy makers and academics, of measuring innovation. However, an analysis of European innovative firms shows that almost half of these innovate without doing any R&D, for example through organisational or marketing innovations. In particular the least innovative countries have the highest shares on non-R&D innovators. It is therefore important to understand if there are different behaviours and needs between non-R&D and R&D innovators in order to improve the effectiveness of public policies to stimulate innovation.

2. European Innovation Scoreboard: Base Findings

2.1. Summary Innovation Index

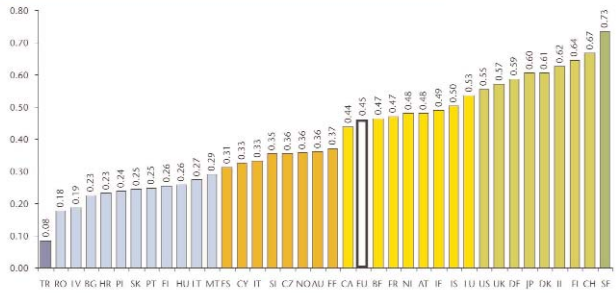
The Summary Innovation Index (SII) gives an 'at a glance' overview of aggregate national innovation performance. Figure 1 shows the results for the 2007 SII. For Australia, Canada, Croatia, Israel, Japan, Turkey and the US the SII is an estimate based on a more limited set of indicators. The relative position of these countries in Figure 1 should thus be interpreted with care[1].

The SII is calculated using the most recent statistics from Eurostat and other internationally recognised sources as available at the time of analysis, as shown in Annex A[2]. International sources have been used wherever possible in order to improve comparability between countries[3]. It is important to note that the data relates to actual performance in years previous to 2007 as indicated in Annex B[4]. As a consequence the 2007 SII does not capture the most recent changes in innovation performances, or the impacts of policies introduced in recent years which may take some time to impact on innovation performance.

Based on their SII scores the countries can be divided into the following groups[5]. This grouping also takes account of performance over a 5 year time period in order to increase robustness.

- Sweden, Switzerland, Finland, Israel, Denmark, Japan, Germany, the UK and the US are the *innovation leaders*, with SII scores well above that of the EU27 and most other countries. Sweden has the highest SII of all countries, but its leading position is mostly based on strong inputs.
- Luxembourg, Iceland, Ireland, Austria, the Netherlands, France, Belgium and Canada are the *innovation followers*, with SII scores below those of the innovation leaders but equal to or above that of the EU27.

Figure 1: The 2007 Summary Innovation Index (SII)



[1] The Technical Annex (section 7.2) provides more details.

[2] Data as available on 18 October 2007. More recent data which might have become available after 18 October 2007 could not be included due to the time constraint in the publication scheme of the EIS.

[3] The EU Member States, Iceland and Norway are fully covered by Eurostat. For these countries only data from international sources are used. For the other countries data from other, sometimes national, sources are also used in order to improve data availability for these countries.

[4] In the large majority of cases (almost 90%) data is from 2004, 2005 or 2006.

[5] These country groups were determined using hierarchical clustering techniques (with between groups linkage using squared euclidean distances as the clustering method) and SII scores for 5 years between 2003 and 2007.

- Estonia, Australia, Norway, Czech Republic, Slovenia, Italy, Cyprus and Spain are the *moderate innovators* with SII scores below that of the EU27.
- Malta, Lithuania, Hungary, Greece, Portugal, Slovakia, Poland, Croatia, Bulgaria, Latvia and Romania are the *catching-up countries*. Although their SII scores are significantly below the EU average, these scores are increasing towards the EU average over time with the exception of Croatia and Greece. Turkey is currently performing below the other countries included in the EIS.

2.2. Key dimensions of innovation performance

As in previous EIS reports, the 25 innovation indicators in the 2007 EIS have been classified into five dimensions to better capture the various aspects of the innovation process[6]. *Innovation drivers* measure the structural conditions required for innovation potential, *Knowledge creation* measures the investments in R&D activities, *Innovation & entrepreneurship* measures the efforts towards innovation at the firm level, *Applications* measures the performance expressed in terms of labour and business activities and their value added in innovative sectors, and *Intellectual property* measures the achieved results in terms of successful know-how.

Figure 2 shows the ranking of countries and for each of the 5 dimensions, from worst to best performer. Countries and groups generally perform at a comparable level in each of these dimensions but with some noteworthy exceptions.

The *innovation leaders* are among the best performers in all 5 dimensions. However, Germany is performing relatively worse in Innovation drivers, Denmark in Knowledge creation and in Applications and the UK in Intellectual property. Sweden's overall innovation leadership is based on its exceptional performance in the three dimensions capturing innovation inputs, but Sweden's performance in the two dimensions capturing innovation outputs is not as good. Of the newly added countries, we observe that Israel is a strong performer in Innovation drivers, Knowledge creation and Applications, but that Intellectual property is a relatively weakness.

The *innovation followers* are above average performers in almost all cases. However, Luxembourg is performing relatively worse in Innovation drivers, the Netherlands in Innovation & entrepreneurship and in Applications and Austria in Applications. Iceland is performing relatively well in Knowledge creation and Luxembourg in Intellectual property.

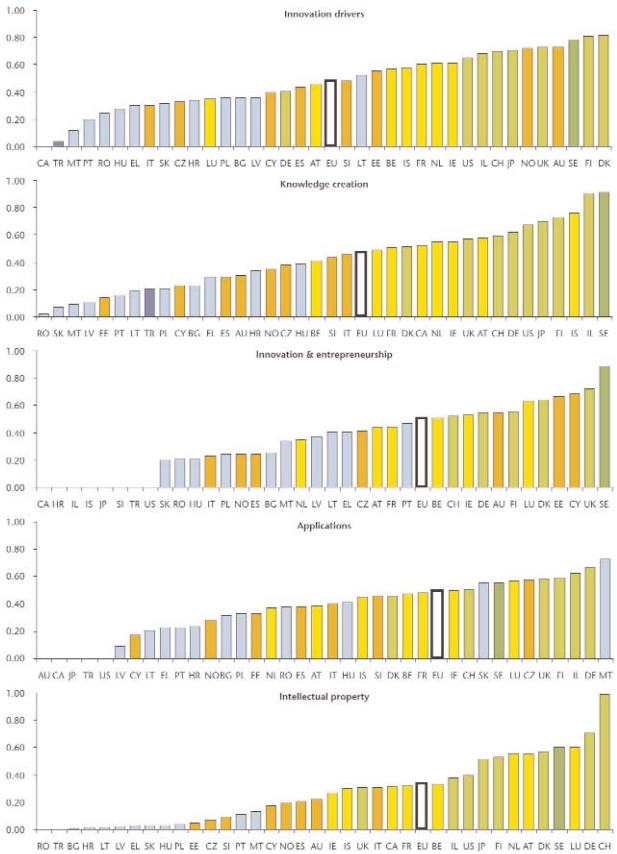
The *moderate innovators* are close to or below average across the dimensions. However, Norway is performing relatively well in Innovation drivers, Cyprus and Estonia in Innovation & entrepreneurship and Czech Republic in Applications. Performance is relatively worse for Italy in Innovation drivers and Innovation & entrepreneurship, Estonia in Knowledge creation and Cyprus in Applications. The relative gap between the moderate innovators and innovation leaders tends to be greatest in Intellectual Property. Of the newly added countries, Australia shows relatively strong performance in Innovation drivers and Innovation & entrepreneurship, but performance in Knowledge creation and Intellectual property is relatively weak. For Canada only information for two of the dimensions is available, showing about the same relative moderate performance.

The *catching-up countries* are below EU average in all of the dimensions with the noticeable exception on Applications where Malta has the highest ranking and Slovakia ranks above some innovation leaders. In both cases these countries score highly on sales of new to market products, which may be a reflection of the relatively small markets that companies in these countries operate within. In both cases the high ranking on Applications is also partly due to the structure of their economies as Malta has high exports of high technology products and Slovakia a high share of employment in medium-high and high tech manufacturing. Although Turkey's overall performance is below that of EU Member States, it has a stronger performance than some Member States on Knowledge creation[7].

[6] These dimensions were introduced in the EIS 2005. Details can be found in the 2005 Methodology Report: http://www.proinno-europe.eu/extranet/admin/uploaded_documents/EIS_2005_Methodology_Report.pdf

[7] Turkey's performance may not be accurately reflected in the Intellectual property dimension as it does not have the same "home advantage" for EPO patents and Community designs and trademarks as the EU Member States have.

Figure 2: Innovation performance per innovation dimension*



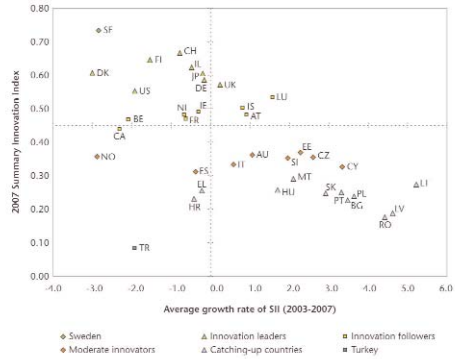
Colour coding is conform the groups of countries as identified in Section 2.1: bright green is Sweden, green are the innovation leaders, yellow are the innovation followers, orange are the moderate innovators, blue are the catching-up countries, dark blue is Turkey.

* For Innovation drivers CA is not ranked due to missing information. For Innovation & entrepreneurship CA, HR, IL, IS, JP, SI, TR and US are not ranked due to missing information. For Applications AU, CA, JP, TR and US are not ranked due to missing information. See Annex A. For Intellectual property scores for RO and TR are too small to be shown in the figure.

An important result from this analysis is that the innovation leaders and the innovation followers have a relatively even and strong performance across all five dimensions of innovation[9]. This tends to indicate mature innovation systems, although in all cases there are areas of relative weakness that require attention. In contrast, the moderate innovators and catching up countries tend to have a less even performance across the five dimensions, indicating that these countries may need to correct the imbalances in their innovation systems if they are to progress to higher levels of performance (Figure 3).

Figure 3: Convergence in innovation performance

Current performance as measured by the SII is shown on the vertical axis. Relative to EU growth performance of the SII is shown on the horizontal axis. This creates four quadrants: countries above both the average EU trend and the average EU SII are forging ahead from the EU, countries below the average SII but with an above average trend performance are catching up, countries with a below average SII and a below average trend are falling behind, and countries with an above average SII and a below average trend maintain their lead but are growing at a slower rate.



Dotted lines show EU performance.

[9] As demonstrated in the IUS 2005 Thematic report on Strengths and Weaknesses, a well-rounded and equivalent performance on all dimensions increases overall innovation performance.

3. Convergence in Innovation Performance between EU Member States

3.1. Overall process of convergence

Figure 3 shows current innovation performance as measured by the SII on the vertical axis against short-run trend performance of the SII on the horizontal axis[10]. There is a *process of convergence* in innovation performance in Europe with most Member States with below average performance having positive trends. Most of the moderate innovators and catching-up countries are closing the gap with the EU and the innovation leaders and followers. The innovation leaders and followers are experiencing a relative decline in their innovation lead. Notable exceptions include Luxembourg which combines a moderate level of performance which a high SII growth rate; Spain, Greece and Croatia which all have relatively low SII growth rates; and Norway and Turkey which are experiencing very low SII growth rates. The following section will analyse in more detail if this overall process of convergence is taking place between and/or within the four identified country groupings.

3.2. Stable membership of country groups

As set out in Section 2.1, countries have been classified into different innovation groups based on their SII scores over a 5-year period. Changes in group membership within the 5-year period of time are shown in Figure 4. Group memberships are largely stable but we do see some changes:

- Luxembourg is in the process of moving from the innovation followers to the innovation leaders;
- Cyprus and Malta have moved from the catching-up countries to the moderate innovators;
- Latvia and Romania are first part of a cluster with Turkey and then moved to the catching-up countries.

Cluster membership (Figure 4) is more stable than the ranks of countries; ranks within a cluster are far from stable, as shown by for example Belgium in the cluster of innovation followers and the US in the cluster of innovation leaders. These results show that one should not focus too much on changes in rank from one year to the next within the same cluster. It is better to focus on cluster membership and the countries within the same cluster and to identify for each country peer countries. This is consistent with the Strengths and Weaknesses report of 2005 where peer countries were identified based on comparable relative performance levels.

3.3. Convergence between country groups

The previous section showed that despite the general process of convergence, cluster membership is stable over time. This suggests that the observed convergence is a general trend rather than the result of exceptional single countries' developments. This can be shown by plotting the evolution of the innovation performance of the different clusters (upper half of Figure 5. We observe increasing relative performance for the catching-up countries and the moderate innovators, stable relative performance for the innovation followers and declining relative performance for the innovation leaders. Convergence between the country groups is shown in the lower half of Figure 5 where the differences in the cluster SII scores have been plotted over time. The results show a strong process of convergence

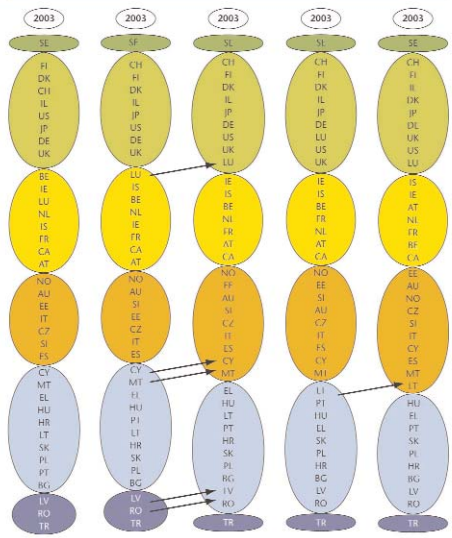
[10] The Technical Annex (section 7.3) provides more details.

taking place between the innovation leaders, innovation followers and moderate innovators. There is also some convergence between catching-up countries and moderate innovators. We can estimate the theoretical time of convergence for each of these processes using a simple linear approach which will be discussed in Section 3.4. On this simplified basis, it would take almost 30 years for the catching-up countries to close the gap with the moderate performers, and almost 40 years for the latter to close the gap with the innovation followers and about 25 years for the latter to close the gap with the innovation leaders. In conclusion one can see that convergence between clusters is taking place, but it is likely to take many years before this convergence process is completed.

3.4. Expected time to convergence

Using a simple linear extrapolation of current performance levels and growth rates[11], an estimate can be made for how many years it would take countries to either catch up or decline to the EU average level of performance based on current trends. Figure 6 shows the estimated number of years to catch up to or decline to the EU average for European countries only. For 4 of the moderate innovators and catching-up countries a short-term convergence to the EU average performance level could be expected in about 10 year's time. These countries are Estonia, Czech

Figure 4: Cluster membership over time



Colour coding is conform the groups of countries as identified in Section 2.1: bright green is Sweden, green are the innovation leaders, yellow are the innovation followers, orange are the moderate innovators, blue are the catching-up countries, dark blue is Turkey. The ordering of the countries follows the rankings of their SII score for that year (see Annex D).

These country groups were determined using hierarchical clustering techniques (with between-groups linkage using squared Euclidean distances as the clustering method) and SII scores for each year between 2003 and 2007. Cluster results for 2007 as shown in other sections of the EIS 2007 report were determined using SII scores for 5 years between 2003 and 2007 and thus differ from those shown in Figure 3 where the cluster results are for SII scores for 2007 only. Hence LU, LT and MT are in different groupings based on their 2007 SII than for the 5 year period shown in Figure 1.

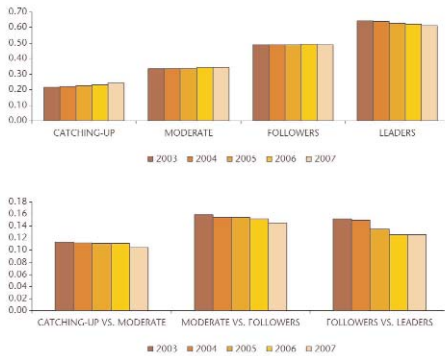
[11] The Technical Annex (section 7.4) provides more details.

Republic, Lithuania and Cyprus. For Slovenia short-term convergence could be expected in about 15 year's time, for Poland, Portugal, Latvia, Bulgaria, Slovakia, Malta and Romania convergence would take at least 20 years. For Hungary and Italy the catching up process would take more than 30 years. On the other hand, countries like Belgium, France, the Netherlands and Denmark: these countries still show an average value of the SII above the EU average, but might regress to the EU average, possibly within the next 5 to 10 years, as the average EU performance increases faster than their individual innovation performance. Finally, based on this analysis, some countries seem to stay outside the convergence process (and are not therefore represented in the chart) as they are either moving away from the average in a negative direction (Spain, Greece, Croatia, Norway and Turkey) or in a positive direction (UK, Iceland, Austria and Luxembourg).

However, linear extrapolations of trends are likely to become less reliable over longer time periods, as maintaining the above EU growth rates will become more and more difficult when countries start to approach the EU average level of performance. A non-linear catching-up process was therefore modelled by assuming that the growth rate of each country would diminish over time[12]. The catching-up process now looks different, with only Estonia and the Czech Republic as likely candidates to complete their catching-up process in the short-run. Belgium, France and the Netherlands are still in danger of falling back to the average EU level of performance within a relatively short time period. While Sweden was predicted to fall back to the EU level in 17 years time using the linear approach, in the non-linear approach it would take more than 100 years.

Understanding how countries' innovation performance can change over time is one of the key future challenges identified in Section 6. The analysis conducted in this section shows that over a five year time period there has been a relatively stable grouping of countries, with each group at a different level of innovation performance. This finding points to the difficulty of bringing about major changes in overall innovation performance. This may be because innovation has many dimensions along which countries need to improve in order to increase their overall

Figure 5: Convergence between groups of countries



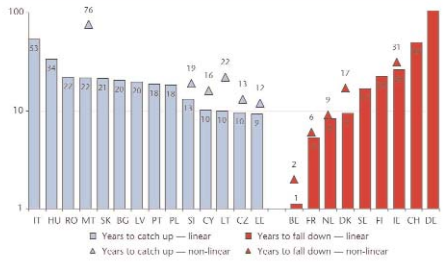
Average for moderate innovators does not include Australia, average for innovation followers does not include Canada and average for innovation leaders does not include Israel, Japan and the US.

[12] The Technical Annex provides more details.

performance; but also because changing innovation performance simply takes time.

However, over a longer time period we do observe a more dynamic situation. First, there are some countries that appear to have made a transition between different levels of innovation performance and it would appear that some other countries are on track to making such a transition in future. Second, there appears to be a long-term trend towards convergence between the different groupings. If this continues, it may mean that the different groupings merge over time or alternatively it may lead to new patterns and trends emerging.

Figure 6: Time to catch up or fall back to EU average performance



For countries having either both above average SII and growth rates or both below average SII and growth rates, years to catch up could not be calculated as these countries are either expected to increase their lead, respectively gap, towards the EU (AT, EL, ES, HR, IS, LU, NO, TR AND UK). Time to catch up exceeding 100 years is not shown (linear: DE; non-linear: BG, CH, DE, FI, IL, HU, IT, LV, PL, PT, RO, SE, SK).

4. The EU Innovation Gap with the US and Japan

The data used for the 2007 EIS (Figure 7) shows that the US and Japan are still ahead of the EU, but the innovation gaps have been declining[13]. The EU-US gap has dropped significantly between 2003 and 2006 and shows a further but very modest reduction in 2007. The EU-Japan gap first increased in 2004 and then dropped more significantly between 2004 and 2006 and very modestly in 2007.

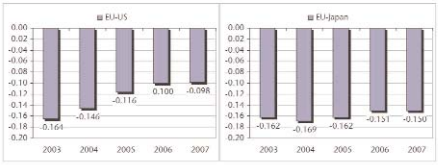
There are 15 indicators with full data for the US and EU, and of these the US performs better than the EU in 11 indicators (Table 1), while the EU scores above the US in 4 indicators (S&E graduates, employment in medium-high and high-tech manufacturing, community trademarks and community designs). Although the US is leading in 11 indicators, on 9 of these indicators the US is outperformed by at least one European country. Only in tertiary education and USPTO patents the US is performing better than any European country.

Japan performs better than the EU in 12 indicators, while the EU only scores above Japan in 2 indicators (community trademarks and community designs). Although Japan is leading in 12 indicators, on 9 of these indicators Japan is outperformed by at least one European country. Only in tertiary education, USPTO patents and triad patenting Japan is performing better than any European country.

For the EU, EU 'innovation leaders', US and Japan the latest available data are shown (cf. Annexes A and B). For indicator 3.4 for the EU and the EU 'innovation leaders' data for 2005 are used instead of the 2006 data as shown in Annex A. European early-venture capital data fluctuate on average by 150% between 2005 and 2006 turning a long-lasting EU-US gap suddenly in an EU-US lead assuming an the same US performance in 2006 as in 2005. Pending the release of 2006 US data showing the true nature of this possible lag reversal, we have adopted to compare performance levels in 2005.

Figure 8 shows those areas where there is an increasing or stable EU lead over the US, where there is a decreasing gap and where there is an increasing gap. The EU is experiencing a stable lead with the US in Community designs where it would be expected to have a home advantage over the US. The EU is increasing its lead in S&E graduates, medium-high and high-tech manufacturing employment and

Figure 7: EU Innovation Gap towards US and Japan



The vertical axis represents the difference between SII scores of EU and US and Japan respectively. SII scores are calculated using the re-scaled values for those indicators only for which data for the US respectively Japan are available. For the EU-US comparison these are the following indicators: S&E graduates, population with tertiary education, broadband penetration, public R&D, business R&D, share of medium/high-tech R&D, early-stage venture capital, ICT expenditures, high-tech exports, medium/high-tech manufacturing employment, FPO patents, USPTO patents, triad patent, trademarks and designs. For the EU-Japan comparison the same indicators are used except early-stage venture capital.

[13] A direct comparison of the 2004-2006 gaps shown in Figure 7 with those reported in the IUS 2006 report is not possible for several reasons. First, not for all indicators data has been updated with one year, for some indicators data either could not be updated or the update is for more than one year, so the gap shown for 2006 in Figure 2007 will be different from the gap shown in the IUS 2006 report. Second, last year the gap was calculated as the difference between the SII using all indicators, thus by comparing the SII for the EU with the estimated SII scores for the US and Japan. This year, in order to improve the comparability, the gap is calculated as the difference between the SII scores only using those indicators for which data are available for the US respectively Japan.

Community trademarks. For community trademarks a similar home advantage applies for Community designs, but here the EU is steadily increasing its lead from having about twice as many new Community trademarks in 2002 to more than 3 times as many new Community trademarks in 2006. The increase in the lead in S&E graduates and medium-high and high-tech manufacturing employment is more moderate.

The EU is experiencing a gap in all other indicators, but this gap is decreasing for the broadband penetration rate, early-stage venture capital[14], ICT expenditures and triad patents. The gap for the broadband penetration rate has almost disappeared in 2006, with the US having only about 10% more broadband lines per 100 population as compared to almost 100% in 2002-2003. The gap for ICT expenditures has also almost disappeared with the US GDP spending share on ICT only about 5% higher than that of the EU. For early-stage venture capital we first see an overall decline, but with some periods of increase which may reflect the cyclical nature of venture capital markets. Nevertheless the gap remains large, with the GDP share of early-stage venture capital still being more than 50% higher in the US. The gap for triad patents has been steadily decreasing since 2000, when the US had more than twice the amount of triad patents per million population. In 2006 the US still had 60% more triad patents per million population, the gap thus remains large.

Table 1: Differences in EU-US and EU-Japan Performance by Indicator

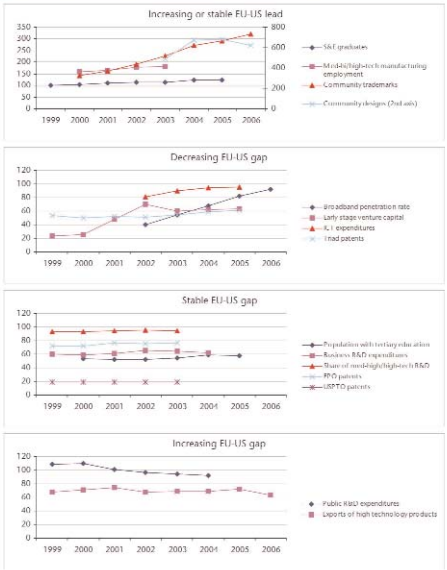
	EU	US	JP	European 'Innovation leaders'		
INNOVATION DRIVERS						
1.1 S&E graduates	12.9	10.6	13.7	IE (24.5)	FR (22.5)	LT (18.9)
1.2 Tertiary education	23.0	39.0	40.0	FI (35.1)	DK (34.7)	NO (33.6)
1.3 Broadband penetration rate	14.8	18.0	18.9	DK (29.6)	NL (29.0)	IS (28.1)
KNOWLEDGE CREATION						
2.1 Public R&D expenditures	0.65	0.69	0.74	IS (1.17)	FI (0.99)	SE (0.92)
2.2 Business R&D expenditures	1.17	1.87	2.40	SE (2.92)	FI (2.46)	CH (2.16)
2.3 Share of medium-high/high-tech R&D	85.2	89.9	86.7	SE (92.7)	DE (92.3)	CH (92.0)
INNOVATION & ENTREPRENEURSHIP						
3.4 Early-stage venture capital	0.022	0.035	–	DK (0.051)	UK (0.047)	FI (0.044)
3.5 ICT expenditures	6.4	6.7	7.6	BG (9.9)	EE (9.8)	LV (9.6)
APPLICATIONS						
4.2 High-tech exports	16.7	26.1	20.0	MT (54.6)	LU (40.6)	IE (28.9)
4.5 Employment in medium-high/ high-tech manufacturing	6.63	3.84	7.30	DE (10.75)	CZ (10.33)	SK (9.72)
INTELLECTUAL PROPERTY						
5.1 EPO patents	128.0	167.6	219.1	CH (425.6)	DE (311.7)	FI (305.6)
5.2 USPTO patents	49.2	273.7	274.4	CH (167.5)	FI (133.2)	DE (129.8)
5.3 Triad patents	19.6	33.9	87.0	CH (81.3)	DE (53.8)	NL (47.4)
5.4 Community trademarks	108.2	33.6	12.9	LU (902.0)	CH (308.3)	AT (221.5)
5.5 Community designs	109.4	17.5	15.2	DK (240.5)	CH (235.7)	AT (208.8)

[14] US data are available up until 2004, EU data up until 2005. Until 2004 the EU has been experiencing a lag which, as shown in Figure 8, has been decreasing. The early-stage venture capital performance of the EU improved with 150% in 2005, thus reversing this gap in a hypothetical lead as shown in Table 1 assuming that the US performance level in 2005 would remain unchanged.

The EU-US gap is stable for population with tertiary education, business R&D, medium-high and high-tech manufacturing R&D, EPO patents and USPTO patents. The gap is smallest for the share of medium-high and high-tech manufacturing R&D, but given the fact that most R&D expenditures in the manufacturing sector come from so-called high-tech and medium-high-tech manufacturing industries, it should not come as a surprise that these shares are almost equal in the US and the EU as both have similar R&D specialisation patterns. The EU is experiencing a gap in EPO patents despite its home advantage, and a large gap in USPTO patents where the US has a home advantage. The decreasing gap in Triad patents may therefore be a more important indicator. There is a large gap in business R&D expenditures, 1.17% of EU GDP as compared to 1.87% in the US which is not becoming smaller. The EU-US gap in the share of population with tertiary education is also large with almost 40% of US adults in 2005 having completed a tertiary education as compared to 23% in the EU in 2006. This gap might be an indicator of a relative shortage of the supply of advanced skills in Europe, but differences in US and European educational systems might lead to relatively overrated US scores on this indicator.

The EU-US gap is increasing in public R&D expenditures and exports of high-tech products. Up until 2001 the EU was leading in public R&D expenditures, but in

Figure 8: Convergence and Divergence in EU-US Innovation Gap



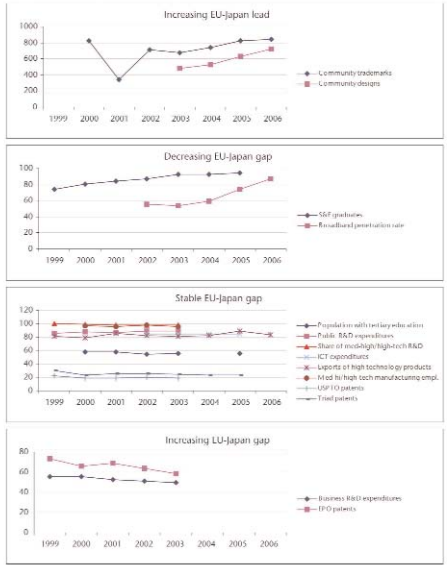
All values are relative to the US with the US = 100.

2002 this lead turned into a small but increasing gap. This switch in leadership was both caused by a decline in the public R&D intensity in the EU and an increase in public R&D intensity in the US, in particular by decreasing EU R&D expenditures and increasing US R&D expenditures in the government sector (GOVERD). The US is also increasing its lead in high-tech exports, in particular from 2005 to 2006.

The trends in the EU-Japan innovation gap show greater stability with no significant changes in the indicators for population with tertiary education, public R&D expenditures, medium/high-tech manufacturing R&D, ICT expenditures, exports of high-tech products, employment in medium/high-tech manufacturing, USPTO patents and triad patents. As is the case with the US, the EU is experiencing an increasing lead over Japan in Community trademarks and Community designs (Figure 9). The EU-Japan gap is decreasing in S&E graduates and broadband penetration. The share of S&E graduates is almost equal in the EU and Japan in 2006. Japan is still enjoying a lead in broadband penetration but this lead disappearing fast. The EU-Japan gap is increasing for business R&D expenditures and EPO patents.

Figure 9: Convergence and Divergence in EU-Japan Innovation Gap

All values are relative to Japan with Japan = 100.



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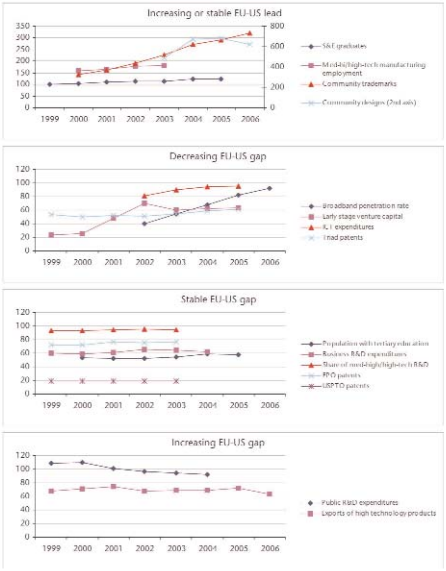
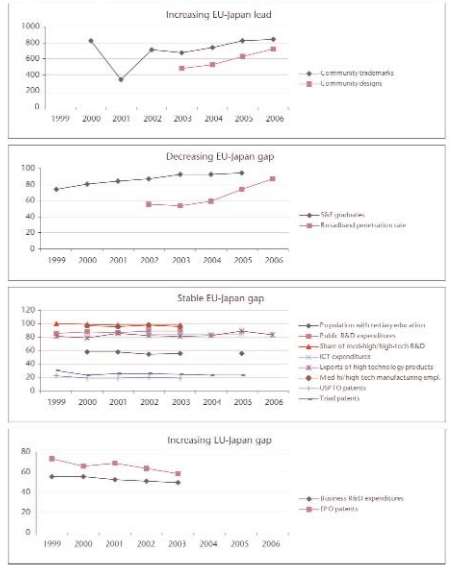


2002 this lead turned into a small but increasing gap. This switch in leadership was both caused by a decline in the public R&D intensity in the EU and an increase in public R&D intensity in the US, in particular by decreasing EU R&D expenditures and increasing US R&D expenditures in the government sector (GOVERD). The US is also increasing its lead in high-tech exports, in particular from 2005 to 2006.

The trends in the EU-Japan innovation gap show greater stability with no significant changes in the indicators for population with tertiary education, public R&D expenditures, medium/high-tech manufacturing R&D, ICT expenditures, exports of high-tech products, employment in medium/high-tech manufacturing, USPTO patents and triad patents. As is the case with the US, the EU is experiencing an increasing lead over Japan in Community trademarks and Community designs (Figure 9). The EU-Japan gap is decreasing in S&E graduates and broadband penetration. The share of S&E graduates is almost equal in the EU and Japan in 2006. Japan is still enjoying a lead in broadband penetration but this lead disappearing fast. The EU-Japan gap is increasing for business R&D expenditures and EPO patents.

Figure 9: Convergence and Divergence in EU-Japan Innovation Gap

All values are relative to Japan with Japan = 100.



5. Thematics

5.1. Innovation in services

This section provides a summary of the thematic paper on services innovation[15]. The services sector[16] is becoming more and more important in developed countries, both in terms of its share in total value-added or GDP and employment. On average, the services sector contributed to 40% of total EU25 employment in 2004 and to 46% of EU25 value-added. This contribution is over twice as large as the contribution of the manufacturing sector. Within the services sector, Knowledge Intensive Business Services (KIBS)[17] have attracted policy interest because of rapid rates of growth in some countries and because they are considered to be highly innovative. The relative economic contribution of KIBS has been increasing over time. The share of manufacturing value-added in real prices declined by 2.5% between 1999 and 2004 while the share of services sector value-added decreased by 0.3% and KIBS increased by 6.8%. Based on these trends and the larger contribution of services to the economy, KIBS are likely to be one of the main factors for future growth within the EU. The economic importance of services suggests that improvements in European living standards are likely to depend more on productivity improvements in the services sector than in manufacturing. This has been demonstrated for the US, where services contributed three-quarters of the increase in productivity after 1995[18]. Much of the productivity increase is due to different types of innovation, developed both in-house by service firms and from service firms adopting productivity enhancing innovations such as ICT.

Although both the economic weight of the services sector and the importance of service sector innovation to economic prosperity have been recognized for well over a decade, there has been a lag in the collection of European innovation statistics for services and in the development of innovation policies of relevance to service sector firms. There are partly good reasons for this. For instance, the manufacturing sector is the source of many of the technical product and process innovations that are adopted by services sector firms. However, a growing awareness of the role of non-technological innovation, software, and logistics in innovation has meant that the service sector is no longer (if it ever was) a passive adopter of manufacturing innovations. This is also leading to a rethink of European innovation policy and an evaluation of the steps that might be needed to remove or reduce the policy bias towards manufacturing[19].

A common concern is that innovation policy is not adequately serving the needs of service sector firms. By comparing innovation indicators for firms in the service and manufacturing sectors one can examine whether firms' responses to the CIS support this concern or not. This comparison indicates two areas where service firms' responses differ markedly from those of manufacturing firms: public procurement and support from innovation programmes. For three policy areas, support could be required under specific conditions: use of intellectual property, use of and access to public science, and availability of financing. For three areas there is no evidence to suggest that policy is biased against service firms: supply of qualified personnel, support for start-ups, and regulatory burdens. However, in

[15] http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=282&parentID=91

[16] The Services Sector is defined as NACE classes G (Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods), H (Hotels and restaurants), I (Transport, storage and communication), J (Financial intermediation), and K (Real estate, renting and business activities). Not included are the services included in NACE classes L (Public administration and defence; compulsory social security), M (Education), N (Health and social work) and O (Other community, social and personal service activities) as these sectors are not covered by the Community Innovation Survey (CIS).

[17] KIBS includes Computer and related activities (NACE K72), Research and development (NACE K73), Architectural and engineering activities and consultancy (NACE K74.2) and Technical testing and analysis (NACE K74.3).

[18] Bosworth BP, Triplett, J. The early 21st Century US productivity expansion is still in services. *International Productivity Monitor*, No. 14, pp 3-19, Spring 2007.

[19] Examples include the report by the European Commission, *Staff working document on Innovation in Services, 2007* and the report by the Expert Group on Innovation in Services, *Fostering Innovation in Services - Final Report, 2007*.

these areas the particular needs of services firms may differ from manufacturing firms even though the overall levels of concern are similar.

Another important concern for policy is whether innovation performance differs significantly between manufacturing and services sectors. Analyzing composite innovation indicators using CIS-4 data shows that several of the new Member States perform better on service sector innovation than on general innovation as measured by the Summary Innovation Index. The results suggest that innovative service sector firms in the new Member States could benefit as much from innovation as firms in more innovative countries, even though the nature of the 'innovation' could be very different. The results of an analysis of Knowledge Intensive Business Services (KIBS) provide no evidence that KIBS drive overall innovative performance, as measured by a change in the Summary Innovation Index. However, the KIBS share of total employment and value-added in 2004 is positively correlated with innovative performance on the 2006 Summary Innovation Index. This is probably because of the high level of innovative activity within KIBS itself, such as in software development. The lack of evidence for a driving role for KIBS could be due to a lack of data for many countries for NACE 73, which is a key KIBS sector that includes R&D services and high technology start-up firms.

A final important concern is whether current indicators properly capture services innovation. The Community Innovation Survey (CIS) is the main source of innovation indicators and was at first designed to measure technological innovation in the manufacturing sector. Over time improvements have been made to cover a large share, but not all, of the business services sector and improve questions dealing with both technological and non-technological innovation. But further improvements are needed to measure services innovation in the future, either through modifications to the CIS or through other surveys:

1. Research on service sector innovation (and on innovation in the manufacturing sector) would be considerably improved if disaggregated results were available for the CIS questions on firms introducing new or significantly improved goods and/ or services. Results for these two options could be used to obtain a better measure of the types of new products introduced both by manufacturing and service firms. Similarly, disaggregated results are needed on firms introducing new or improved methods of manufacturing or producing goods or services, new or significantly improved logistics, delivery or distribution methods, and new or improved supporting activities such as maintenance systems or purchasing operations.
2. CIS data are missing for far too many countries. Every effort should be made to ensure full coverage for all CIS questions.
3. All countries should be encouraged to survey NACE sector 73 to improve the measurement of innovation in KIBS.

Many other new indicators could be constructed using CIS data, such as a measure of new to market innovations that controls for large differences in what constitutes a 'market'[20].

5.2. Socio-economic and regulatory environment

This section provides a summary of the thematic paper on socio-economic and regulatory environment[21]. Economic growth is at the heart of increases in people's well-being. Innovation including technological progress is one of the main sources of economic growth. Variations in economic growth and well-being can be partially explained by variations in innovation performance. This section seeks to identify factors that can help explain why countries' innovation performance varies so markedly.

[20] See Arundel, A., Innovation Survey Indicators: What Impact on Innovation Policy?, in: *Science, Technology and Innovation Indicators in a Changing World: Responding to Policy Needs*, OECD, September 2007.
[21] http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=282&parentID=51

Previous EIS Thematic Papers — the NIS 2003 and EXIS 2004 report — have identified innovation categories and indicators which explained variations in innovation performance as measured by the Summary Innovation Index (SII). This section builds upon the findings of the NIS 2003 and EXIS 2004 report and extends the analysis to the 5 innovation dimensions as identified in the EIS: Innovation drivers, Knowledge creation, Innovation & entrepreneurship, Applications and Intellectual property. Based on the findings of the NIS 2003 report, the EXIS 2004 report, the World Economic Forum's 'Global Competitiveness Report 2006-2007' and the World Bank's 'Worldwide Governance Indicators' project 7 categories of 'policy indicators'

Table 3 Relative importance of socio-economic and regulatory environment for explaining differences in innovation performance

	SII	Innovation drivers	Knowledge creation	Innovation & entrepre-neurship	Appli-cations	Intellectual property
DEMAND CONDITIONS						
Youth share						
Buyer sophistication		+				
Government procurement	++			+		
Demanding regulatory standards	++					
SOCIAL CAPITAL						
Trust	+++	+++		++		+
Perception of corruption	+++	++		+++		
INSTITUTIONAL FRAMEWORK						
Burden of administration	+	++		++		
Quality of educational system	+			+		
Intellectual property protection	+					
Price stability	++					++
MARKET EFFICIENCY						
Intensity of local competition	++			+	+	
Foreign ownership restrictions	+				++	
Flexibility of wage determination	++	+++				
Financial market sophistication						
TECHNOLOGY FLOWS						
Brain drain						
Firm-level technology absorption	+++			+++	++	+
University-industry research collaboration	+++	++	+	+++	+	
SOCIAL EQUITY						
Social protection expenditure						
Income equality	++		++		+++	
Employment rate		++		+++		
(INNOVATION) GOVERNANCE						
Voice and accountability						
Political stability	+			+		
Government effectiveness	+	+++		+		
Regulatory quality	+	+		+		
Rule of law					+	
Control of corruption	+					

+++: Strong correlation between variation in indicator and innovation performance; ++: Moderate correlation; +: Weak correlation.

have been identified covering 26 indicators. The explanatory power of each of these on the five different innovation dimensions was explored using linear regressions controlling for differences in per capita GDP[22]. Table 3 summarises for each of the innovation dimensions the explanatory power of the indicators.

The main conclusions of the analysis are as follows. The two categories that seem to correlate best with differences in overall innovation performance are social capital and technology flows. These categories are also highly significant for the Innovation & entrepreneurship aspect of innovation performance. This is important because this aspect is not highly correlated with GDP, meaning that factors other than overall income level are important in determining country performance. This finding suggests that policies that build trust and collaboration — such as promoting innovation networks and collaborations — should be relevant for countries at various income levels that under perform on innovation and entrepreneurship.

Social capital and technology flows are also highly correlated with innovation drivers, but in this case the causality may be in the other direction. For example investments in innovation drivers (education, public research, broadband access) may help build social capital which in turn improves technology flows and innovative performance.

The other five categories investigated also appear to have some influence on overall innovation performance, but here the linkages are less clear. Within the demand category, the indicators for government procurement and demanding regulatory standards appear to be most important, suggesting an important role for government in raising innovation performance through these mechanisms. These indicators are not strongly correlated with any of the innovation dimensions, suggesting that their impact is diffused over different parts of the innovation process.

Most indicators of market efficiency and the institutional framework have some correlation with differences in innovation performance, of which price stability, intensity of local competition and flexibility of wage determination appear to be the most important. This result might be related to the importance of macroeconomic stability and strong competition for raising innovation performance. The indicator for burden of administration is particularly correlated with the innovation drivers and innovation & entrepreneurship dimensions, suggesting the need for governments to reduce administrative burdens in order to foster innovation and entrepreneurship.

The result for flexibility of wage bargaining is more curious, particular as it is most strongly correlated with the innovation drivers dimension of innovation performance. Linked to this, the indicators of social equity also correlate relatively strongly with some dimensions of innovation performance, with the notable exception of social protection expenditure. There are no clear cut causal explanations for this, but it is consistent with earlier work (e.g. NIS paper) and could warrant further examination.

There are some correlations between indicators of governance and overall innovation performance. This is particularly the case between government effectiveness and innovation drivers, and to some extent for explaining differences in innovation and entrepreneurship[23].

It is noticeable that relatively few of the indicators correlate with the applications dimension of innovation performance (which includes employment in high tech services, exports of high tech products, sales of new to firm and of new to market

[22] Correlation analyses show that innovation performance measured by the SII and innovation performance in each of the innovation dimensions correlates moderately to highly with the level of per capita GDP. By controlling for variations in per capita GDP, we minimize the risk of so-called spurious correlations where two unrelated occurrences would show a significant correlation coefficient due to the a third, unseen factor, i.e. per capita GDP, which is correlated with each of the two occurrences.

[23] See Celikel Esser, F. 2007, 'The Link between Innovation Performance and Governance', JRC Scientific and Technical Reports (JRC42104), for an analysis between innovation and governance for a sample including many more non-EU countries.

products, and employment in medium high and high tech manufacturing), particularly as this is the dimension which is least correlated with GDP. The most highly correlated indicator with applications is that for income equality. One possible explanation might be that more equal societies have a higher demand for innovative products and services, i.e. that income equality creates innovation friendly demand conditions. Another explanation is that this dimension of innovation performance is the most difficult to measure, and hence improvements in the indicators are needed before causal factors can be properly identified.

5.3. Innovation efficiency: linking inputs to outputs

This section provides a summary of the thematic paper on innovation efficiency[24]. Following the Lisbon strategy and the Barcelona target of an R&D intensity of 3% in 2010, many countries have taken steps to increase their innovation efforts. Innovation efficiency is related to the concept of productivity. Higher productivity is achieved when more outputs are produced with the same amount of inputs or when the same output is produced with less input. Innovation efficiency will here be defined similarly: innovation efficiency is improved when with the same amount of innovation inputs more innovation outputs are generated or when less innovation inputs are needed for the same amount of innovation outputs. Although innovation is not a linear process where inputs automatically transfer into outputs, it is worthwhile to examine differences in efficiency by assuming that efficiency can be defined as the ratio of outputs over inputs. In the EIS the indicators are divided into 3 innovation input dimensions covering 15 indicators and 2 innovation output dimensions covering 10 indicators[25]. Innovation efficiency will be measured by comparing the ratio between the composite indicator scores for one or more input dimensions and one or more output dimensions. Inputs and outputs can be plotted in a multidimensional space where the most efficient performers will be on or close to the 'efficiency frontier'. The larger the distance to this frontier, the smaller will be the level of innovation efficiency[26]. In a two-dimensional graph with inputs on one axis and outputs on the other axis, the frontier can be visualised as the envelope curve connecting those dots with the most efficient output/input ratios.

In our analysis we have employed a constant-returns-to-scale output-oriented DEA (Data Envelopment Analysis[27]) on all combinations of the 3 input and 2 output dimensions. Missing values have been imputed using the techniques used in the 2005 EIS Methodology Report. The analyses were done separately for the most innovative countries (Sweden, the innovation leaders and innovation followers) and for the least innovative countries (moderate innovators and catching-up countries). Average efficiency scores for both output dimensions are shown in Figure 10.

All *innovation leaders* except Sweden have above average efficiency in transforming inputs into Applications. Despite its overall leadership in innovation performance, Sweden has the lowest efficiency in Applications of these countries indicating that despite its very good overall performance it has room to make improvements here. Germany and Switzerland show high efficiency in generating Intellectual property. Some of the innovation leaders, in particular the UK, have relatively low efficiency in transforming inputs into Intellectual property outputs. This may because the type of their innovation activities does not lead to formal IPRs but it could also indicate that these countries could be creating more IPRs for their level of inputs.

[24] http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=282&parentID=51

[25] Intellectual property, one of the output dimensions, can also be seen as an intermediate dimension with the revenues earned from the use of patents, trademarks and designs in the production process or the licensing of these representing the final output.

[26] For an introduction into and more detailed discussions of efficiency measures see Coelli, Timothy J., D.S. Prasada Rao, Christopher J. O'Donnell and George E. Battese, 'An introduction into efficiency and Productivity Analysis', Springer, 2de edition, 2005.

[27] 'DEA involves the use of linear programming methods to construct a non-parametric piece-wise surface (or frontier) over the data. Efficiency measures are then calculated relative to this surface.' (Coelli et al., 2005, p.162).

The *innovation followers* have above average efficiency in transforming inputs into Applications, with Luxembourg and Belgium showing highest efficiency rates. Only Austria, the Netherlands and Luxembourg show above average efficiency in Intellectual property, and hence Belgium, France and Iceland could seek to improve their efficiency rates by generating more IPRs from their innovation inputs.

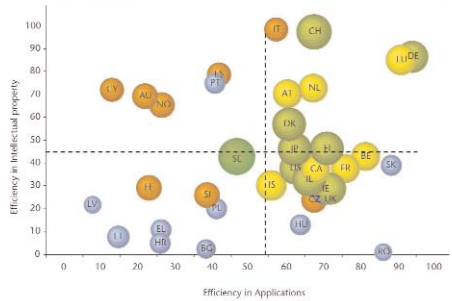
The *moderate innovators* show a range of different efficiencies: we find these countries in all four quadrants in Figure 10 combining above or below average efficiency performance. Italy combines above average efficiency scores in both output dimensions. This result suggests that it may be difficult for Italy to improve its innovation performance without increasing innovation inputs. Australia, Cyprus, Norway and Spain show above average efficiency in Intellectual property[28] and the Czech Republic shows above average efficiency in Applications. Estonia and Slovenia combine below average efficiency in both Applications and Intellectual property.

The *catching-up countries* also show a variety of efficiencies in transforming innovation inputs into Applications. On Intellectual property efficiency all countries are significantly below average with the exception of Portugal. This may be because IPR is of less relevance for the innovative activities of these countries or that there is the potential to generate higher levels of IPR from the existing inputs. Some of these countries are also still in a process of replacing national patent applications by EPO patent applications. For Slovakia and Romania the efficiencies for Applications are relatively high, suggesting that these countries need to increase inputs to increase performance in generating more Applications. The majority of catching up countries have below average efficiencies and this suggests that for these countries an important focus should be improving innovation efficiencies.

Based on their relative position in Figure 10, peer countries in efficiency terms can be identified as those countries with higher efficiency scores in either Applications or Intellectual property. For example, Austria's possible peer countries include Germany, Luxembourg, the Netherlands and Switzerland, which combine higher efficiency scores in both Applications and Intellectual property. The innovation

Figure 10: Efficiencies between innovation inputs and application and intellectual property outputs

Colour coding is conform the groups of countries as identified in the IUS 2007: bright green is Sweden, green are the innovation leaders, yellow are the innovation followers, orange are the moderate innovators, blue are the catching-up countries. The size of the bubble gives the value of the 2007 Summary Innovation Index (SII). The dotted lines give the unweighted average of the efficiency scores for the EU27 Member States.



[28] We also have to keep in mind that the efficiency scores for the moderate innovators were calculated within the group of least innovative countries thus not including the innovation leaders and innovation followers.

policies implemented in these countries could be compared with those in Austria to identify options for policy improvements to increase the efficiency of transforming innovation inputs into outputs[29].

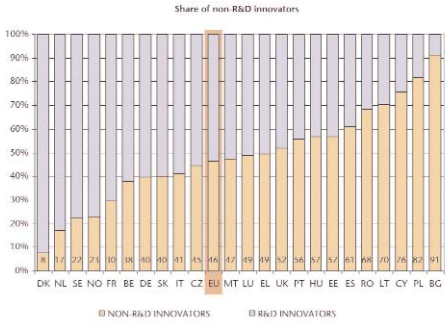
5.4. Non-R&D innovators

This section provides a preliminary summary of a forthcoming thematic paper on non-R&D innovators[30]. Until recently R&D has been synonymous with technology and innovation in many discussions on science, technology and innovation. Most support measures for innovation on the national and the EU level are for R&D activities. The Lisbon strategy, which aims to build Europe by 2010 the most competitive and dynamic knowledge-based economy in the world, incorporates a policy goal that the R&D expenditure in the European economies should reach 3 percent of GDP by 2010. As emphasized in the Lisbon strategy, R&D intensity is extensively used by scholars and policy makers as a benchmark for measuring the innovativeness of a firm, an industry, a region and a country.

There is no doubt about the importance of R&D: it is the source of many productivity enhancing innovations; it is essential to competitiveness in fast-growing high technology industries such as pharmaceuticals, it is critical to the absorptive capacity of a firm or an industry and is associated with terms of trade advantages of a country; and R&D activities create demand and supply for high skilled people which give impetus to the development of the education system in a country.

However, although R&D is vital for many innovation activities of firms and the competitiveness of an industry and a country, the Community Innovation Survey shows that almost half of the European innovators do not conduct intramural or in-house R&D (Figure 11). Such non-R&D innovation includes the purchase of advanced machinery and computer hardware specifically purchased to implement new or significantly improved products or processes, the purchase of rights to use

Figure 11: Share of innovators not performing R&D



Results based on CIS-4 data. R&D innovators are defined as all innovators performing in house or intramural R&D. Non-R&D innovators innovate by acquiring or by buying extramural R&D (i.e. R&D performed by other companies or research organisations), by buying advanced machinery, equipment and computer hardware or software, by buying or licensing patents and non-patented inventions, by training their personnel, or by spending resources on the design and market introduction of new goods or services.

[29] The INNO-Policy Trendchart provides a database of innovation policies, see http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=52&parentID=52

[30] http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=282&parentID=51 (forthcoming January 2008)

patents and non-patented inventions, licenses, know-how, trademarks and software, internal or external training activities for firm's personnel aimed at the development or introduction of innovations, and internal and external marketing innovations aimed at the market introduction of new or significantly improved products.[31] The shares of non-R&D innovators tend to be higher in the new Member States. Breaking down the data of non-R&D innovators by sector, we find that non-R&D innovators are concentrated in low technology manufacturing and service sectors. The distribution of these non-R&D innovators is also skewed towards small and medium sized firms (or SMEs).

Non-R&D and R&D innovators are similar and dissimilar. The effect on innovation activities on the performance of the enterprise is not that much different (Table 4), but non-R&D innovators do consider universities and government research institutes as less important sources of information for their innovation activities. Non-R&D innovators also introduce less products which are also new to their market and the share of non-R&D innovators receiving public support from their central government or the EU is less than half that of the R&D innovators. Both non-R&D and R&D innovators face almost the same barriers to innovation and share similar objectives of innovation. The fact whether or not a firm engages in R&D is still an extremely important firm characteristic from a policy perspective as R&D performers are the target of most policy actions. A failure to differentiate between non-R&D and R&D innovators reduces the effectiveness of both (academic) analyses of innovative firms and the effectiveness of public policies to stimulate innovation.

Given that a significant number of firms innovate without any R&D, non-R&D innovation activities should have drawn considerable attention from academics and policy makers. In fact, the Oslo Manual provides a broad definition of innovation in

Table 4 Differences between Non-R&D and R&D innovators

	Non-R&D innovators	R&D innovators	Ratio
Percentage of firms:			
Receiving funding from local governments	10	13	0.77
Receiving funding from central government	5	16	**0.33**
Receiving funding from the EU	3	8	**0.44**
Reported that information source was used for innovation:			
Internal sources — within the enterprise	75	92	0.82
Internal sources — other enterprises within the same group	16	28	0.59
Market sources — suppliers	70	77	0.90
Market sources — clients or customers	67	83	0.81
Market sources — competitors	61	72	0.85
Institutional sources — universities	21	45	**0.46**
Institutional sources — research institutes	15	31	**0.48**
Other sources — conferences, meetings	58	76	0.76
Other sources — fairs, exhibitions	68	81	0.85
Sales share due to:			
New to firm products	25	29	0.86
New to market products	5	10	**0.54**

Results based on CIS-3 data.

[31] Non-R&D innovation is not the same as non technological innovation. The latter includes organisational and marketing innovations, where an organisational innovation is the implementation of new or significant changes in firm structure or management methods intended to improve a firm's knowledge, quality of goods and services or the efficiency of work flows and a marketing innovation is the implementation of new or significantly improved designs or sales methods intended to increase the appeal of goods or services or to enter new markets.

recognition of the facts that diffusion is crucial to realizing the economic benefits of innovation and that R&D only covers a part of all of the different methods that firms use to innovate. However, there is lack of systematic studies on other means that firms use to innovate and through research that links different types of innovation to performances of firms.

The Community Innovation Survey (CIS) collects only a limited amount of information on precisely how non-R&D innovators innovate. In order to provide more statistical information on how these firms innovators, the Innobarometer (IB) 2007 survey was performed to delve further into the methods used by non-R&D performing firms to innovate and to see if one of the methods is based on 'user driven' innovation. The forthcoming EIS thematic paper on non-R&D based innovation provides results based on an econometric analysis of the IB data.

Table 5: Changes in the European Innovation Scoreboard

	EIS 2000 (Pilot)	EIS 2001	EIS 2002	EIS 2003	EIS 2004	EIS 2005	EIS 2006	EIS 2007
Number of indicators	16	18	18	22	22	26	25	25
Dissimilarity with previous EIS		(28%)	3%	34%	14%	35%	4%	0%
Number of groups/dimensions	4	4	4	4	4	5	5	5
Indicators based on CIS	4	4	4	5	6	7	7	7
Summary Innovation Index	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Countries	17: EU15, US, JP	17: EU15, US, JP	33: EU25, US, JP, IS, NO, CH, BG, RO, TR	33: EU25, US, JP, IS, NO, CH, BG, RO, TR	33: EU25, US, JP, IS, NO, CH, BG, RO, TR	33: EU25, US, JP, IS, NO, CH, BG, RO, TR	34: EU25, US, JP, IS, NO, CH, BG, RO, HR, TR	37: EU27, US, JP, IS, NO, CH, HR, TR, AU, CA, IL
Input — Innovation drivers (EIS 2005)								
S&E (Science and Engineering) graduates	Share of post-secondary graduates	Share of population aged 20-29	←	←	←	←	←	←
Share of working-age population with tertiary education	←	←	←	←	←	←	←	←
Broadband penetration rate						←	←	←
Participation in life-long learning		←	←	←	←	←	←	←
Youth education attainment level						←	←	←
Input — Knowledge creation (EIS 2005)								
Public R&D expenditures (% of GDP)	GOVERD only	GOVERD + HERD	GERD — BERD	←	←	←	GOVERD + HERD	←
Business R&D expenditures (% of GDP)	←	←	←	←	←	←	←	←
Share of medium-high/high-tech R&D in manufacturing						←	←	←
Share of enterprises that receive public funding for innovation (CIS)						←	←	←
Share of university R&D funded by private sector						←		
Input — Innovation & entrepreneurship (EIS 2005)								
Share of SMEs innovating in-house (CIS)	Manufacturing sector	←	←	← – Services sector	Total business sector	←	←	←
Share of SMEs co-operating in innovation (CIS)	Manufacturing sector	←	←	← – Services sector	Total business sector	←	←	←
Innovation expenditures (% of turnover) (CIS)	Manufacturing sector	←	←	← – Services sector	Total business sector	←	←	←
Venture capital (% of GDP)	Early stage and expansion stage			Early stage only	←	←	←	←

ICT expenditures (% of GDP)	←	←	←	←	←	←	←	←
Share of SMEs using organisational innovations (CIS)					Using non-technological change	←	Using organisational innovation	←
High-tech venture capital		Share of GDP	←	←	Share of venture capital			
Internet use	Users per 100 population	Share of households	←	Composite indicator for households and firms	←			
Capitalisation of new markets (% of GDP)	←	←	←					
Volatility rates of SMEs				←				
Output - Applications (EIS 2005)								
Share of high-tech services employment	←	←	←	←	←	←	←	←
Share of high-tech exports						←	←	←
New-to-market products (% of turnover) (CIS)	Manufacturing sector	←	←	← – Services sector	Total business sector	←	←	←
New-to-firm products (% of turnover) (CIS)				Manufacturing + Services sector	Total business sector	←	←	←
Share of medium-high/high-tech manufacturing employment	←	←	←	←	←	←	←	←
Share of high-tech manufacturing value-added	Percent change	Share of value-added	←	←	←			
Output — Intellectual property (EIS 2005)								
EPO patents per million population				←	←	←	←	←
USPTO patents per million population				←	←	←	←	←
Triad patents per million population						←	←	←
Community trademarks per million population						←	←	←
Community designs per million population						←	←	←
High-tech EPO patents per million population	←	←	←	←	←			
High-tech USPTO patents per million population		←	←	←	←			

6. Future Challenges

Since the 2000 pilot report, seven full versions of the European Innovation Scoreboard have been published. The list and number of indicators has undergone major changes over time as highlighted in Table 5. The number of indicators has increased from 18 to 25 and those derived from the Community Innovation Survey from 4 to 7[32]. With major revisions in 2003 and 2005 (the dissimilarity percentages exceed 30 in both years), only 13 indicators feature in all Scoreboards. The number of countries has increased to 37, although actual data availability varies from very good (90% or more) for most EU27 countries, Norway and Switzerland, to good for Bulgaria, Cyprus, Latvia, Slovenia, UK and Iceland (between 75% and 90%), to moderate for US, Israel and Australia (between 60% and 70%) and to poor for Croatia, Turkey, Japan and Canada (less than 60%). The EIS indicators are grouped in different categories to capture key dimensions of the innovation process. In 2005 the current five dimensions were introduced. Overall innovation performance is captured by a composite index, the Summary Innovation Index, which has also been revised several times, most recently in 2005 following the EIS 2005 Methodology Report.

Current and past versions of the EIS and accompanying thematic papers have continuously tried to improve measurement of innovation performance by countries, sectors and regions. Future editions of the EIS will have to deal with a number of existing and new challenges under the following four headings:

- Measuring new forms of innovation
- Assessing overall innovation performance
- Improving comparability at national, international and regional levels
- Measuring progress and changes over time

Across these areas, there is a need to maximise the relevance and utility of the EIS for policy makers, programme managers, and the wider innovation community.

Measuring new forms of innovation

The changes in indicators and definitions of indicators used in the different EIS reports all reflect changes in our perception and understanding of the innovation process[33]. Innovation is a complex phenomenon where firms can use different models of innovation. Science-based innovation has been used by certain industries and large firms for a long time. Innovation and technological progress is here driven by firms by their new scientific discoveries. Innovation surveys were at first designed to measure science-based or R&D-based innovation. But new concepts of the innovation process have emerged. The model of user innovation, which was introduced in the 1980s, states that consumers and end users develop innovations. More recently the model of open innovation has emerged: companies can no longer rely on their own research but must instead combine own ideas and research with external research e.g. by buying licenses and other external knowledge. Many of the current EIS indicators are better suited to capture science-based innovation. Therefore, new indicators are increasingly required to better capture new trends in innovation as portrayed in the models of user and in particular open innovation, for example on measuring knowledge flows.

Services innovation is becoming more and more important as the relative size of the services sector in the economy is continuously increasing. Innovation in services may differ from that in manufacturing e.g. by greater use of marketing and

[32] Also see Arundel, A. and H. Hollanders, "Innovation Scoreboards: Indicators and Policy Use", in C. Nauwelaers and R. Wintjes (eds.), Innovation Policy in Europe, Edward Elgar: Cheltenham, 2008 for a history of the EIS and a comparison with other (innovation) scoreboards.

[33] Alternative indicators and approaches to measure innovation were explored in two thematic papers in 2003 and 2004. The 2003 NIS thematic report investigated various structural and socio-cultural indicators and their impact on a country's innovation performance. The 2004 EXIS 2004 thematic report developed an alternative scoreboard with a focus on innovation at the firm-level including a more diverse range of non-technological innovative activities (e.g. market- and organisational innovation). This approach is followed up in the 2007 thematic report on innovation and socio-economic and regulatory environment.

organisational innovation. Also service innovations may be increasingly prevalent within manufacturing sectors. Current statistics and innovation policies are biased towards measuring technological innovation and therefore new developments in both statistics and policies may be needed for better understanding and stimulating non-technological innovation.

To improve the measurement of new forms of innovation in future editions of the EIS we need to develop and implement new indicators measuring e.g. open innovation, user innovation and non-R&D innovation. New indicators can draw on new data, in particular the improved measurement on marketing and organisational innovation and services innovation in the latest editions of the Community Innovation Survey, but more improvements are needed to fully capture all innovation process in the European economies.

Assessing overall innovation performance

The EIS provides a composite index, the Summary Innovation Index, which summarises innovation performance by aggregating the various indicators for each country in one single number. The 2005 Methodology Report studied in detail alternative computation schemes for the SII, but recent developments in composite indicator theory may call for changes in the scheme. The SII transforms each indicator on a relative basis, i.e. each indicator is measured relative to the best and worst performing country. Some of the indicators are highly skewed, e.g. patent applications. The question emerges whether or not to transform the indicators as for many of the indicators the distribution of the data differ from the normal distribution on which composite indicator theory is based.

In addition, the EIS provides innovation performance by 5 groups of indicators, the innovation dimensions. This helps to capture the overall innovation environment in a country. But with the innovation process becoming more complex, new innovation dimensions may emerge which should be included in the EIS. The current EIS distinguishes between input and output indicators, with about 50% more indicators measuring innovation inputs then outputs. This is due to the greater number and maturity of many input indicators, such as R&D expenditures. But just as companies are more interested in their profits or the final results of their production activities, should the EIS not focus more in the future on measuring the outputs of the innovation process? And is it justified to classify the indicators in input and output indicators only or should be also introduce process or throughput indicators? In particular for the patent indicators it is questionable if these are true output indicators instead of input or process indicators.

Assessing innovation performance inherently also covers assessing the efficiency of the innovation process[14]. Countries can increase their innovation performance by improving the efficiency of their innovation process without having to increase their innovation inputs. It is essential to continue to improve the measurement of the level of innovation efficiency correctly and to identify areas of improvement, drawing on academic studies in this area?[15]

Countries also differ in their state of economic development, in their industrial specialisation patterns and in their need for innovation driving their current and future well-being. Clearly not all countries have to invest as heavily in innovation as some of the innovation leaders do; other strategies for improving economic well-being are more realistic for those countries relying on productivity improvements driven by increases in other production factors. How could differences in the industrial structure between countries be taken better into account when benchmarking their innovation performance? Should different measures of innovation performance be applied depending on the type and/ or level of innovative activity in a country?

[14] Cf. the first attempts to measure innovation efficiency in the EIS 2007 thematic report on innovation efficiency.
[15] Cf. Coelli, Timothy J., D.S. Prasada Rao, Christopher J. O'Donnell and George E. Battese, An Introduction to Efficiency and Productivity Analysis, Springer, 2nd edition, 2005.

Should the EIS include wider socio-economic factors? For example governance and market indicators could provide useful information for policy makers about the environment for innovation. Innovation as such is not a goal in itself, companies innovate to improve their performance and countries similarly innovate to improve their economic performance. Should the EIS include economic indicators as a second layer of output or outcome indicators to measure the effect of innovation on the economic performance of a country?

Improving comparability at national, international and regional levels

Comparability issues arise within the EU due to differences between Member States in methodologies or sampling methods for collecting their data. Some of the EIS indicators are subject to national contexts (e.g. what constitutes tertiary education) which makes cross country comparisons difficult. In addition, the indicator of early stage venture capital investments fluctuates greatly between different countries and different years and hence may affect the robustness of comparisons. Particular comparability difficulties arise in the Community Innovation Survey, where differences in the perception of innovativeness (e.g. the perception the sales share of new-to-market products) between countries may hamper the comparability of the results between the Member States. Further improvements are needed to ensure that differences in people's and firms' perception across Europe do not bias the comparisons of innovation performance.

In a globalising world, the EU needs to compare itself with emerging competitors and the EIS therefore may need to include more non-EU countries. For ensuring comparable benchmark results, data should be collected from harmonized databases supplied by international institutes as the OECD or the World Bank. There is also a need to eliminate biases between the EU and other regions in IP data, with EU Member States experiencing home advantages in EPO patents, Community trademarks and Community designs and the US in USPTO patents. Other comparability problems arise from the non-existence of innovation surveys in many non-EU countries or differences in the survey questions or methodologies between the EU countries and non-EU countries. How should the globalising EIS deal with these issues? Should it aim at including as many indicators as possible or select a core set of indicators for which data are available for all countries?[16]

At present, innovation at the regional level is captures in the Regional Innovation Scoreboard (RIS)[17] which attempts to use the same methodology as the EIS, but with significantly reduced data availability. The RIS is seriously hampered by the non-availability of regional CIS data and regional data for many of the other indicators. Data are not available as these are either not collected as such the national statistical offices (NSO) or they are considered to be unreliable due to sampling methods. Another problem arises from the location of the headquarters of a company and where the regional activities of a company are reported, at the respective region or at the headquarters' region? What could be done to improve data availability and its accuracy in assigning inputs and outputs to the correct geographical region?

Measuring progress and changes over time

The EIS is currently designed as a tool for comparing innovation performance across Member States and other countries. In the past there have also been country specific assessments. However, changes in innovation performance over time also need to be measured to allow countries and regions to monitor progress in their

[16] The latter approach was adopted in the EIS 2006 thematic report on Global Innovation Scoreboards: http://www.proinno-europe.eu/doc/eis_2006_global_innovation_report.pdf
The GIS report is seriously hampered by the lack of CIS data for most non-EU countries and the use different non-harmonized databases as those used in the EIS complicating a direct comparison between EIS and GIS results.
[17] http://www.proinno-europe.eu/doc/eis_2006_regional_innovation_scoreboard.pdf

innovation performance and to analyse the impacts of innovation policies on aggregate performance. At the EU level, better measurement of changes in innovation performance over time could be used to further assess progress against national reform programmes under the Lisbon strategy, and to underpin the Open Method of Coordination approach whereby countries benchmark their performance and set voluntarily targets.

All of this requires a sound and robust measurement of innovation performance over time. The current EIS is constructed as a measure of relative changes in innovation performance vis-à-vis other countries in the sample, where, due to the observed general process of convergence, the best performing countries show a relative decline in their SII scores and the worst performing countries an increase in their SII scores. The overall policy-relevance of the EIS could improve if it also allowed to measure improvements in absolute innovation performance, creating opportunities for policy makers to use the EIS as a tool to set objectives, monitor performance and evaluate past policies so as to improve future innovation policies. In addition, there is currently a constraint in using the EIS to monitor progress due to the delays of several years in the availability of many indicators. Therefore ways should be explored to improve the timeliness of the indicators such that policy makers have more up to date measurements of performance.

Measuring the dynamics of innovation performance over time may also require new approaches, such as considering trends over longer time periods, whether time lags should be introduced for some input indicators, and whether it would be appropriate to model stocks of innovative capabilities that accumulate over time.

7. Technical Annex: Choice of Indicators and Methodology

7.1. Indicators

The European Innovation Scoreboard (EIS) covers the 27 EU Member States, Croatia and Turkey, the associate countries Iceland, Norway and Switzerland, as well as Australia, Canada, Israel, Japan and the US. The indicators of the EIS summarise the main elements of innovation performance.

In 2005, the EIS has been revised in collaboration with the Joint Research Centre[38]. The number of categories of indicators was increased from four to five and the set of innovation indicators was modified and increased to 26. The EIS 2005 Methodology Report (MR) (available on the INNO Metrics website[39]) describes and explains all changes in full detail. The EIS 2006 implemented three changes. The indicator measuring the share of university R&D expenditures financed by the business sector was removed; the indicator on public R&D expenditures, which was defined as the differences between total R&D expenditures and business R&D expenditures, was redefined as the sum of government R&D expenditures and university R&D expenditures only; and the indicator on the share of SMEs using non-technological change was changed into the share of SMEs using organisational innovation following the change in the survey questions on non-technological change from the third Community Innovation Survey (CIS-3) to the fourth Community Innovation Survey (CIS-4).

The EIS 2007 fully implements the list of indicators from the EIS 2006. The innovation indicators are assigned to five dimensions and grouped in two main themes: inputs and outputs. Table 6 shows the 5 main categories, the 25 indicators[40], and the primary data sources for each indicator[41]. Innovation inputs cover three innovation dimensions: *Innovation drivers* measure the structural conditions required for innovation potential; *Knowledge creation* measures the investments in R&D activities, considered as key elements for a successful knowledge-based economy; and *Innovation & entrepreneurship* measures the efforts towards innovation at firm level. Innovation outputs cover two innovation dimensions: *Applications* measures the performance, expressed in terms of labour and business activities, and their value added in innovative sectors; and *Intellectual property* measures the achieved results in terms of successful know-how.

7.2. Methodology of calculating the Summary Innovation Index

The SII 2007 is calculated as follows:

1. Calculate for every indicator and for every country the most recent relative to the EU score. E.g. if for country A the most recent data point is 500 for year 2005, for country B 400 for year 2004, and the EU scores for 2004 and 2005 are respectively 100 and 125, then the relative to EU score for country A is 100*(500/125)=400 and for country B 100*(400/100)=400. By calculating relative to EU scores business cycles effects will be minimized when timeliness

[38] Joint Research Centre (JRC), Unit of Econometrics and Applied Statistics of the Institute for the Protection and Security of the Citizen (IPSC).

[39] See http://www.proinno-europe.eu/metrics

[40] Annex C gives full definitions for all indicators and also briefly explains the rational for selecting these indicators.

[41] National data sources were used for several indicators where Eurostat or OECD data were not available. In particular, the statistical offices from Israel, Malta and Switzerland provided valuable support.

of data availability differs between countries (cf. Annex B for differences in most recent years between countries). Possible outliers are identified as those scores which are higher than the EU mean plus 3 times the standard deviation. These outliers are not included determining the maximum relative to EU scores.

2. Calculate re-scaled scores of the indicator data by first subtracting the lowest value found within the group of EU27 countries, Iceland, Norway and Switzerland (thus excluding non-European countries and European countries where data availability is less than 75%) and then dividing by the difference between the highest and lowest values found within the group of EU27 countries, Iceland, Norway and Switzerland. The maximum re-scaled score is thus equal to 1 and the minimum value is equal to 0. For Croatia, Turkey, Australia, Canada, Israel, Japan and the US for those cases where the value of an indicator is above the maximum relative to EU score or below the minimum

Table 6: EIS 2007 Indicators

INNOVATION DRIVERS (INPUT DIMENSION)		
1.1	S&E graduates per 1000 population aged 20-29	Eurostat
1.2	Population with tertiary education per 100 population aged 25-64	Eurostat, OECD
1.3	Broadband penetration rate (number of broadband lines per 100 population)	Eurostat, OECD
1.4	Participation in life-long learning per 100 population aged 25-64	Eurostat
1.5	Youth education attainment level (% of population aged 20-24 having completed at least upper secondary education)	Eurostat
KNOWLEDGE CREATION (INPUT DIMENSION)		
2.1	Public R&D expenditures (% of GDP)	Eurostat, OECD
2.2	Business R&D expenditures (% of GDP)	Eurostat, OECD
2.3	Share of medium-high-tech and high-tech R&D (% of manufacturing R&D expenditures)	Eurostat, OECD
2.4	Share of enterprises receiving public funding for innovation	Eurostat (CIS4)
INNOVATION & ENTREPRENEURSHIP (INPUT DIMENSION)		
3.1	SMEs innovating in-house (% of all SMEs)	Eurostat (CIS4)
3.2	Innovative SMEs co-operating with others (% of all SMEs)	Eurostat (CIS4)
3.3	Innovation expenditures (% of total turnover)	Eurostat (CIS4)
3.4	Early-stage venture capital (% of GDP)	Eurostat
3.5	ICT expenditures (% of GDP)	Eurostat, World Bank
3.6	SMEs using organisational innovation (% of all SMEs)	Eurostat (CIS4)
APPLICATIONS (OUTPUT DIMENSION)		
4.1	Employment in high-tech services (% of total workforce)	Eurostat
4.2	Exports of high technology products as a share of total exports	Eurostat
4.3	Sales of new-to-market products (% of total turnover)	Eurostat (CIS4)
4.4	Sales of new-to-firm products (% of total turnover)	Eurostat (CIS4)
4.5	Employment in medium-high and high-tech manufacturing (% of total workforce)	Eurostat, OECD
INTELLECTUAL PROPERTY (OUTPUT DIMENSION)		
5.1	EPO patents per million population	Eurostat, OECD
5.2	USPTO patents per million population	Eurostat, OECD
5.3	Triad patents per million population	Eurostat, OECD
5.4	New community trademarks per million population	OHIM, Eurostat, OECD
5.5	New community designs per million population	OHIM, Eurostat, OECD

OHIM: Office of Harmonization for the Internal Market

of data availability differs between countries (cf. Annex B for differences in most recent years between countries). Possible outliers are identified as those scores which are higher than the EU mean plus 3 times the standard deviation. These outliers are not included determining the maximum relative to EU scores.

2. Calculate re-scaled scores of the indicator data by first subtracting the lowest value found within the group of EU27 countries, Iceland, Norway and Switzerland (thus excluding non-European countries and European countries where data availability is less than 75%) and then dividing by the difference between the highest and lowest values found within the group of EU27 countries, Iceland, Norway and Switzerland. The maximum re-scaled score is thus equal to 1 and the minimum value is equal to 0. For Croatia, Turkey, Australia, Canada, Israel, Japan and the US for those cases where the value of an indicator is above the maximum relative to EU score or below the minimum

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5.5	New community designs per million population	OHIM, Eurostat, OECD

OHIM: Office of Harmonization for the Internal Market

relative to EU score the re-scaled score is set equal to 1 respectively 0. Countries where indicator scores were identified as a possible outlier (cf. Step 1) receive a re-scaled score of 1.

3. The SII 2007 is then calculated as the average value of all re-scaled scores where indicators for which data are available receive the same weight. The SII is by definition between 0 and 1 for all countries.

For the CIS indicators EU mean values are available from Eurostat. EU mean scores are calculated separately for each CIS indicator dividing the sum of all numerator data for those countries for which CIS data are available by the sum of all denominator data. In fact, as only CIS-4 data are used, these EU mean values are not necessary for calculating the re-scaled indicator scores but they illustrative purposes as shown in the relative to EU performance charts for each country.

The SII values for those countries where data is missing for 8 or more indicators — Croatia, Turkey, Australia, Canada, Israel, Japan and the US — are estimated as follows:

4. Calculate for all countries a summary innovation index using only data for the 18 non-CIS indicators ('non-CIS SII').
5. For the EU27 countries, Iceland, Norway and Switzerland a simple linear regression is performed with the 'non-CIS SII' as the dependent variable and the SII as the independent variable. The estimated regression coefficient equals 1.0742, the estimated constant -0.0478 and the R^2 equals 0.950. The regression coefficients are significant at the 1% level and 5% level respectively.
6. For Australia, Croatia, Canada, Japan, Israel, Turkey and the US the SII 2007 is then calculated by dividing the difference between the 'non-CIS SII' and the value for the estimated constant by the value for estimated regression coefficient: SII 2007 = ('non-CIS SII' — (-0.0478)) / 1.0742.

7.3. Methodology of calculating the SII growth rate

The SII growth rate is based on SII values over a 5-year period. These SII values are calculated differently than the SII 2007 as we use maximum and minimum scores of the full 5 years (denoted as T-4, T-3, T-2, T-1 and T, where T comes closest to the years used for calculating the SII 2007) so the SII scores will also identify changes in improvement for those countries showing highest performance in individual indicators.

The procedure is as follows:

7. Calculate for every indicator and for every country the relative to EU scores (cf. Step 1 above).
8. Most recent data are then used for year T etc. If data for a year-in-between is not available we substitute with the value for the next year. If data are not available for all 5 years, we replace missing values with the latest available year. Two examples will clarify this step.

Example 1	T	T-1	T-2	T-3	T-4
Available relative to EU score	150	Missing	120	110	105
Substitute with next year	150	**150**	120	110	105
Example 2	T	T-1	T-2	T-3	T-4
Available relative to EU score	150	130	120	Missing	Missing
Substitute with latest available year	150	130	120	**120**	**120**

9. Calculate re-scaled scores of the indicator data by first subtracting the lowest value found for all 5 years within the group of EU27 countries, Iceland, Norway and Switzerland and then dividing by the difference between the highest and lowest values found for all 5 years within the group of EU27 countries, Iceland, Norway and Switzerland. The maximum re-scaled score is thus equal to 1 and

the minimum value is equal to 0. For Croatia, Turkey, Australia, Canada, Israel, Japan and the US for those cases where the value of an indicator is above the maximum relative to EU score or below the minimum relative to EU score the re-scaled score is set equal to 1 respectively 0. Note that these scores can differ from those calculate under Step 1 if either the maximum or minimum value within the group of EU27 countries, Iceland, Norway and Switzerland is found for a year prior to the most recent year.

10. The SII scores are then calculated as the average value of all re-scaled scores where indicators for which data are available receive the same weight.

For the CIS indicators the CIS-4 results are used for all 5 years. The SII values for those countries where data is missing for 8 or more indicators — Croatia, Turkey, Australia, Canada, Israel, Japan and the US — are estimated for each year using the procedure as outlined in Steps 4 to 6 above.

The growth rate of the SII is then calculated as the annual percentage change between the SII in year T and the average over the preceding three years, after a one-year lag (i.e. T-4, T-3 and T-2). The three-year average is used to reduce year-to-year variability; the one-year lag is used to increase the difference between the average for the three base years and the final year and to minimize the problem of statistical/sampling variability.

7.4. Calculation of time to convergence

The time to convergence can be calculating using a linear and non-linear approach. The linear approach assumes a simple extrapolation of the current SII trend rate:

$$SII_X^T = SII_X^{T-1} * \left(1 + \frac{TREND\_SII_X}{100}\right)$$

is the growth rate of the SII for country X and equals the SII 2007 at time T. The SII for country X at time T equals the current SII for country X multiplied by the current SII growth rate to the power T.

The non-linear approach takes into account that it will become more and more difficult to maintain high growth rates. The non-linear approach assumes that the growth rate of each country will diminish over time with the rate of decrease depending on the size of the initial gap (i.e. the larger the initial gap, the faster the subsequent rate of decline):

$$SII_X^T = SII_X^{T-1} * \left(1 + \left(\sqrt{ABS\left(\frac{SII_{EU}^{2007}}{SII_X^{2007}}\right)}\right)^{\sqrt{T}} * \frac{TREND\_SII_X}{100}\right)$$

The SII for country X at time T equals the SII of the previous year for country X multiplied by a reduced version of the SII growth rate where the size of the reduction depends on the initial gap with the EU and decreases over time with a diminishing rate of decrease.

8. Annexes

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Annex C European Innovation Scoreboard 2007 — Definitions and interpretation 43

Annex D European Innovation Scoreboard 2007 — SII scores over a 5 year time period 51

Annex E European Innovation Scoreboard 2007 — Country abbreviations 52

Country data sheets for all of the countries covered in the 2007 EIS are available separately on the INNO Metrics website: http://www.proinno-europe.eu/metrics

Annex A: European Innovation Scoreboard 2007 — Current performance

The data used in this report is the most recent available from the sources shown in Annex C as on 18 October 2007.

For the EU the average value shown is that of the EU27, except, due to missing data for EU27 respectively EU25, EU25 for indicators 1.3, 3.5, 5.2 and 5.3 and EU15 for indicator 3.4. For the indicators based on CIS-4 data, EU averages are not available from Eurostat. The EU averages for indicators 2.4, 3.1, 3.2, 3.3, 3.6, 4.3 and 4.4 are weighted estimates based on CIS-4 country data available from Eurostat. The EU averages for these CIS indicators are thus not official Eurostat estimates.

	EU	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	IT	CY	LV	LT	LU	HU	MT	NL
1.1 S&E graduates	12.9	10.9	8.6	8.2	14.7	9.7	12.1	24.5	10.1	11.8	22.5	9.7	3.6	9.8	18.9	1.8	5.1	3.4	8.6
1.2 Population with tertiary education	23.0	31.8	21.9	13.5	34.7	23.8	33.3	30.8	21.5	29.9	25.5	12.9	30.5	21.1	26.8	24.0	17.7	12.0	29.5
1.3 Broadband penetration rate	14.8	20.7	—	8.4	29.6	15.3	16.6	8.8	2.7	13.2	18.0	13.1	6.6	6.8	8.4	17.4	7.5	12.8	29.0
1.4 Participation in life-long learning	9.6	7.5	1.3	5.6	29.2	7.5	6.5	7.5	1.9	10.4	7.5	6.1	7.1	6.9	4.9	8.2	3.8	5.5	15.6
1.5 Youth education attainment level	77.8	82.4	80.5	91.8	77.4	71.6	82.0	85.4	81.0	61.6	82.1	75.5	83.7	81.0	88.2	69.3	82.9	50.4	74.7
2.1 Public R&D expenditures	0.65	0.55	0.38	0.50	0.76	0.76	0.50	0.43	0.43	0.51	0.79	0.56	0.28	0.34	0.61	0.21	0.50	0.19	0.76
2.2 Busines s R&D expenditures	1.17	1.24	0.11	0.92	1.67	1.76	0.42	0.82	0.18	0.61	1.32	0.55	0.09	0.23	0.16	1.34	0.41	0.42	1.02
2.3 Share of medium-high/high-tech R&D	85.2	79.5	85.8	85.4	84.7	92.3	—	85.0	81.0	77.0	86.8	87.8	—	—	—	—	90.9	71.4	87.9
2.4 Enterprises receiving public funding for innovation	9.0	11.7	0.8	6.1	7.8	9.2	0.3	27.8	10.4	9.0	6.6	14.0	16.3	—	3.6	39.3	5.7	3.5	12.9
3.1 SMEs innovating in-house	21.6	31.4	—	24.0	28.5	32.0	29.5	37.3	27.0	18.4	19.7	18.9	24.0	—	14.6	33.1	9.3	—	18.6
3.2 Innovative SMEs co-operating with others	9.1	16.6	3.1	12.9	20.8	8.6	16.0	15.6	8.4	5.7	11.5	4.3	16.5	6.1	14.8	14.8	6.6	5.3	12.3
3.3 Innovation expenditures	2.15	1.96	0.73	2.15	2.40	2.93	1.59	1.68	3.08	0.94	2.23	1.81	2.92	—	1.57	1.62	1.16	1.08	1.25
3.4 Early -stage venture capital	0.053	0.012	—	0.000	0.015	0.011	—	0.015	0.002	0.027	0.030	0.002	—	0.000	—	—	0.005	—	0.012
3.5 ICT expenditures	6.4	6.3	9.9	6.6	6.5	6.2	9.8	5.2	4.9	5.5	6.0	5.3	—	9.6	7.8	6.8	8.1	8.5	7.6
3.6 SMEs using organizational innovation	34.0	38.1	11.0	35.0	57.1	53.2	39.2	49.6	39.6	27.6	35.9	32.2	42.8	—	23.6	58.4	19.1	29.3	26.2
4.1 Employment in high-tech services	3.26	3.95	2.63	3.00	4.22	3.48	2.77	3.87	1.95	2.68	3.70	2.97	1.94	2.34	2.15	3.32	3.37	2.50	4.08
4.2 Exports of high technology produc ts	16.7	6.6	3.3	12.7	12.8	13.6	8.1	28.9	5.7	4.7	17.8	6.4	21.4	4.2	4.7	40.6	20.2	54.6	18.3
4.3 Sales of new -to-market products	7.3	4.8	8.5	7.7	5.2	7.5	4.4	5.6	4.8	3.8	6.2	6.3	1.9	3.5	4.4	6.4	4.2	13.6	4.0
4.4 Sales of new -to-f irm products	6.2	8.2	4.1	7.8	5.8	10.0	7.6	4.5	6.2	10.0	5.6	5.6	3.7	1.6	5.3	9.1	2.5	8.7	4.3
4.5 Employment in medium-high/high-tech manufacturing	6.63	6.60	4.81	10.33	5.80	10.75	3.49	5.65	2.23	4.53	6.33	7.37	0.98	1.58	2.42	1.38	8.41	6.08	3.25
5.1 EPO patents per million population	128.0	144.5	4.3	15.9	235.8	311.7	15.5	77.3	11.2	30.6	149.1	87.3	16.4	5.9	5.8	200.5	18.9	8.8	244.3
5.2 USPTO patents per million population	52.2	55.7	0.0	3.2	64.0	129.8	0.0	42.4	1.4	6.5	52.4	30.8	0.3	0.9	0.5	97.7	3.5	3.8	84.2
5.3 Triad patents per million population	20.8	20.0	0.3	1.1	25.3	53.8	1.4	11.4	0.3	2.7	25.1	8.3	0.0	1.2	0.1	47.2	1.8	3.9	47.4
5.4 Community trademarks per million population	108.2	103.7	8.4	33.1	191.5	164.6	42.5	164.2	34.4	143.0	83.9	105.2	187.3	13.6	20.9	902.0	20.5	157.5	172.3
5.5 Community industrial designs per million population	109.4	103.8	1.9	51.6	240.5	202.7	19.4	58.0	3.1	103.7	98.6	179.4	55.9	19.2	4.4	95.4	11.3	19.7	138.8

Annex A: European Innovation Scoreboard 2007 — Current performance (continued)

	AT	PL	PT	RO	SI	SK	FI	SE	UK	HR	TR	IS	NO	CH	US	JP	IL	CA	AU
1.1 S&E graduates	9.8	11.1	12.0	10.3	9.8	10.2	17.7	14.4	18.4	5.7	5.7	10.1	9.0	13.4	10.6	13.7	8.0	—	17.2
1.2 Population with tertiary education	17.6	17.9	13.5	11.7	21.4	14.5	35.1	30.5	30.7	16.2	9.3	29.5	33.6	29.9	39.0	40.0	45.0	46.0	32.0
1.3 Broadband penetration rate	15.8	3.9	12.9	—	11.4	4.0	24.9	22.9	19.2	—	3.0	28.1	24.7	26.3	18.0	18.9	20.0	22.4	16.5
1.4 Participation in life-long learning	13.1	4.7	3.8	1.3	15.0	4.3	23.1	32.1	26.6	2.1	2.0	25.7	18.7	22.2	—	—	—	—	—
1.5 Youth education attainment level	85.8	91.7	49.6	77.2	89.4	91.5	84.7	86.5	78.8	93.8	44.7	50.8	93.3	78.1	—	—	86.0	—	—
2.1 Public R&D expenditures	0.75	0.39	0.43	0.17	0.35	0.25	0.99	0.92	0.58	0.70	0.52	1.17	0.69	0.70	0.69	0.74	0.89	0.90	0.76
2.2 Busines s R&D expenditures	1.60	0.18	0.29	0.21	0.87	0.25	2.46	2.92	1.09	0.51	0.27	1.59	0.82	2.16	1.87	2.40	3.43	1.07	0.94
2.3 Share of medium-high/high-tech R&D	82.3	80.0	—	68.1	89.3	—	86.4	92.7	91.7	—	—	—	69.7	92.0	89.9	86.7	94.6	80.6	68.4
2.4 Enterprises receiving public funding for innovation	17.8	3.1	4.5	2.1	—	2.8	15.2	—	—	—	—	—	16.1	4.7	—	—	—	—	—
3.1 SMEs innovating in-house	32.4	13.8	24.0	13.4	—	11.6	24.7	30.0	—	—	—	—	19.4	34.4	—	—	—	—	—
3.2 Innovative SMEs co-operating with others	7.7	9.1	7.4	2.8	10.5	6.8	17.3	20.0	12.6	—	—	14.0	11.3	12.1	—	—	—	—	—
3.3 Innovation expenditures	—	1.56	1.40	1.52	—	1.90	—	3.47	—	—	—	—	1.01	1.35	—	—	—	—	3.30
3.4 Early -stage venture capital	0.003	0.001	0.039	0.004	—	0.001	0.027	0.058	0.224	—	—	0.024	0.013	0.024	0.035	—	0.040	—	0.011
3.5 ICT expenditures	6.3	7.2	7.4	8.2	5.4	6.7	7.0	8.6	8.0	—	3.2	—	5.2	7.7	6.7	7.6	8.3	5.9	6.2
3.6 SMEs using organizational innovation	48.1	19.3	40.7	15.5	—	13.4	—	—	—	—	—	—	23.2	—	—	—	—	—	—
4.1 Employment in high-tech services	2.89	2.37	1.85	1.43	2.87	2.53	4.59	5.06	4.20	2.18	—	4.97	3.90	3.81	—	—	5.90	—	—
4.2 Exports of high technology produc ts	11.3	3.1	7.0	3.9	4.5	5.4	18.1	12.8	26.5	6.8	1.4	8.9	3.0	20.4	26.1	20.0	22.5	8.5	2.8
4.3 Sales of new -to-market products	5.2	8.1	4.4	7.1	7.4	12.8	9.7	8.3	6.4	—	—	4.9	2.1	4.9	—	—	—	—	—
4.4 Sales of new -to-f irm products	5.4	5.4	5.6	9.5	6.9	6.4	5.1	5.1	7.6	—	—	7.8	5.1	5.8	—	—	—	—	—
4.5 Employment in medium-high/high-tech manufacturing	6.75	5.13	3.17	5.67	8.50	9.72	6.81	6.29	5.52	4.87	—	2.12	4.27	7.25	3.84	7.30	4.40	3.89	3.28
5.1 EPO patents per million population	195.1	4.2	7.5	1.2	50.4	8.1	305.6	284.9	121.4	18.2	1.9	153.6	117.1	425.6	167.6	219.1	237.2	86.4	98.0
5.2 USPTO patents per million population	63.4	0.6	1.2	0.3	7.0	0.4	133.2	113.9	50.6	3.1	0.2	68.5	51.3	167.5	273.7	274.4	131.3	161.6	79.6
5.3 Triad patents per million population	30.0	0.2	0.4	0.0	2.7	0.0	29.3	42.7	15.8	0.7	0.2	13.7	11.2	81.3	33.9	87.0	34.6	25.4	20.2
5.4 Community trademarks per million population	221.5	24.7	98.0	5.6	30.5	16.7	119.0	164.1	139.0	1.6	1.9	164.1	41.5	308.3	33.6	12.9	36.3	27.0	36.9
5.5 Community industrial designs per million population	208.8	30.2	57.5	0.9	51.5	27.3	97.9	144.9	75.0	1.8	3.7	10.0	36.6	235.7	17.5	15.2	10.8	6.0	14.1

Annex B: European Innovation Scoreboard 2007 — Years used for current performance

The data used in this report is the most recent available from the sources shown in Annex C as on 18 October 2007.

	EU	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	IT	CY	LV	LT	LU	HU	MT	NL
1.1 S&E graduates	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2000	2005	2005	2005
1.2 Population with tertiary education	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
1.3 Broadband penetration rate	2006	2006	—	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
1.4 Participation in life-long learning	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
1.5 Youth education attainment level	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
2.1 Public R&D expenditures	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2004	2005	2005	2005	2005	2005	2005	2004
2.2 Business R&D expenditures	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005
2.3 Share of medium-high/high-tech R&D	2004	2004	2002	2004	2004	2004	—	2004	2003	2004	2003	2004	—	—	—	—	2002	2002	2004
2.4 Enterprises receiving public funding for innovation	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	—	2004	2004	2004	2004	2004
3.1 SMEs innovating in-house	2004	2004	—	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	—	2004	2004	2004	—	2004
3.2 Innovative SMEs co-operating with others	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004
3.3 Innovation expenditures	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	—	2004	2004	2004	2004	2004
3.4 Early-stage venture capital	2006	2006	—	2006	2006	2006	—	2006	2006	2006	2006	2006	—	2001	—	—	2006	—	2006
3.5 ICT expenditures	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	—	2005	2005	2002	2005	2004	2005
3.6 SMEs using organizational innovation	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	—	2004	2004	2004	2004	2004
4.1 Employment in high-tech services	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2005	2006	2006	2006
4.2 Exports of high technology produc ts	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
4.3 Sales of new -to-market products	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004
4.4 Sales of new -to-f irm products	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004	2004
4.5 Employment in medium-high/high-tech manufacturing	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2005	2006	2006	2006
5.1 EPO patents per million population	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
5.2 USPTO patents per million population	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003	2003
5.3 Triad patents per million population	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005	2005
5.4 Community trademarks per million population	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
5.5 Community industrial designs per million population	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006

Annex C: European Innovation Scoreboard 2007 — Definitions and interpretation

#	EIS 2007 indicators	Numerator	Denominator	Interpretation
1.1	New S&E graduates per 1000 population aged 20-29	Number of S&E (science and engineering) graduates. S&E graduates are defined as all post-secondary education graduates (ISCED classes 5a and above) in life sciences (ISC42), physical sciences (ISC44), mathematics and statistics (ISC46), computing (ISC48), engineering and engineering trades (ISC52), manufacturing and processing (ISC54) and architecture and building (ISC58).	The reference population is all age classes between 20 and 29 years inclusive.	The indicator is a measure of the supply of new graduates with training in Science & Engineering (S&E). Due to problems of comparability for educational qualifications across countries, this indicator uses broad educational categories. This means that it covers everything from graduates of one-year diploma programmes to PhDs. A broad coverage can also be an advantage, since graduates of one-year programmes are of value to incremental innovation in manufacturing and in the service sector.
1.2	Population with tertiary education per 100 population aged 25-64	Number of persons in age class with some form of post-secondary education (ISCED 5 and 6).	The reference population is all age classes between 25 and 64 years inclusive.	This is a general indicator of the supply of advanced skills. It is not limited to science and technical fields because the adoption of innovations in many areas, in particular in the service sectors, depends on a wide range of skills. Furthermore, it includes the entire working age population, because future economic growth could require drawing on the non-active fraction of the population. International comparisons of educational levels however are difficult due to large discrepancies in educational systems, access, and the level of attainment that is required to receive a tertiary degree. Differences among countries should be interpreted with caution.
1.3	Broadband penetration rate (number of broadband lines per 100 population)	Number of broadband lines. Broadband lines are defined as those with a capacity equal to or higher than 144 Kbit/s.	Total population as defined in the European System of Accounts (ESA 1995).	Realising Europe's full e-potential depends on creating the conditions for electronic commerce and the Internet to flourish, so that the Union can catch up with its competitors by hooking up many more businesses and homes to the Internet via fast connections. The Community and the Member States are to make available in all European countries low cost, high-speed interconnected networks for Internet access and foster the development of state-of-the-art information technology and other telecom networks as well as the content for those networks (Lisbon European Council, 2000). The Barcelona European Council (2002) attached priority to the widespread availability and use of broadband networks throughout the Union by 2005 and the development of Internet protocol IPv6. Further development in this area requires accelerated broadband deployment; in this respect the Brussels European Council (2003) called on Member States to put in place national broadband / high speed Internet strategies by end 2003 and aim for a substantial increase in high speed Internet connections by 2005.

#	EIS 2007 indicators	Numerator	Denominator	Interpretation
1.4	Participation in life-long learning per 100 population aged 25-64)	Number of persons involved in life-long learning. Life-long learning is defined as participation in any type of education or training course during the four weeks prior to the survey. The information collected relates to all education or training whether or not relevant to the respondent's current or possible future job. It includes initial education, further education, continuing or further training, training within the company, apprenticeship, on-the-job training, seminars, distance learning, evening classes, self-learning etc. It includes also courses followed for general interest and may cover all forms of education and training as language, data processing, management, art/ culture, and health/medicine courses.	The reference population is all age classes between 25 and 64 years inclusive	A central characteristic of a knowledge economy is continual technical development and innovation. Individuals need to continually learn new ideas and skills or to participate in life-long learning. All types of learning are valuable, since it prepares people for 'learning to learn'. The ability to learn can then be applied to new tasks with social and economic benefits.
1.5	Youth education attainment level (% of population aged 20-24 having completed at least upper secondary education)	Youth education attainment level is defined as the percentage of young people aged 20-24 years having attained at least upper secondary education attainment level, i.e. with an education level ISCED 3a, 3b or 3c long minimum (numerator). The denominator consists of the total population of the same age group, excluding no answers to the questions 'highest level of education or training attained'.	The reference population is all age classes between 20 and 24 years inclusive	The indicator measures the qualification level of the population aged 20-24 years in terms of formal educational degrees. So far it provides a measure for the 'supply' of human capital of that age group and for the output of education systems in terms of graduates. A study for OECD countries suggests a positive link between education and economic growth. According to this study an additional year of average school attainment is estimated to increase economic growth by around 5% immediately and by further 2.5% in the long run (De la Fuente and Ciccone, 'Human capital in a global and knowledge-based economy', Final report for DG Employment and Social Affairs, 2002). Completed upper secondary education is generally considered to be the minimum level required for successful participation in a knowledge-based society. It is increasingly important not just for successful entry into the labour market, but also to allow students access to learning and training opportunities offered by higher education. School attainment is a primary determinant of individual income and labour market status. Persons who have completed at least upper secondary education have access to jobs with higher salaries and better working conditions. They also have a markedly higher employment rate than persons with at most lower secondary education (Employment in Europe 2004).

#	EIS 2007 indicators	Numerator	Denominator	Interpretation
2.1	Public R&D expenditures (% of GDP)	All R&D expenditures in the government sector (GOVERD) and the higher education sector (HERD). Both GOVERD and HERD according to the Frascati-manual definitions, in national currency and current prices.	Gross domestic product as defined in the European System of Accounts (ESA 1995), in national currency and current prices.	R&D expenditure represents one of the major drivers of economic growth in a knowledge-based economy. As such, trends in the R&D expenditure indicator provide key indications of the future competitiveness and wealth of the EU. Research and development spending is essential for making the transition to a knowledge-based economy as well as for improving production technologies and stimulating growth. Recognising the benefits of R&D for growth and being aware of the rapidly widening gap between Europe's R&D effort and that of the principal partners of the EU in the world, the Barcelona European Council (March 2003) set the EU a target of increasing R&D expenditure to 3 per cent of GDP by 2010, two thirds of which should come from the business enterprise sector.
2.2	Business R&D expenditures (% of GDP)	All R&D expenditures in the business sector (BERD), according to the Frascati-manual definitions, in national currency and current prices.	Gross domestic product as defined in the European System of Accounts (ESA 1995), in national currency and current prices.	The indicator captures the formal creation of new knowledge within firms. It is particularly important in the science-based sector (pharmaceuticals, chemicals and some areas of electronics) where most new knowledge is created in or near R&D laboratories.
2.3	Share of medium-high-tech and high-tech R&D (% of manufacturing R&D expenditures)	R&D expenditures in medium-high and high-tech manufacturing, in national currency and current prices. These include chemicals (NACE24), machinery (NACE29), office equipment (NACE30), electrical equipment (NACE31), telecommunications and related equipment (NACE32), precision instruments (NACE33), automobiles (NACE34) and aerospace and other transport (NACE35).	R&D expenditures in total manufacturing, in national currency and current prices.	This indicator captures whether a country invests in future technologies (medium-high and high-tech manufacturing industries) or rather in historical industries (medium-low and low-tech manufacturing industries). This follows a recent report published by the JRC (R&D expenditure scoreboard), which highlights that the R&D problem observed in Europe is more a business structure problem. In most sectors R&D intensity is as high in the EU as in the rest of the world, however the relative importance of R&D intensive sectors in the total business is relatively low in Europe.
2.4	Share of enterprises receiving public funding for innovation	Number of innovative enterprises that have received public funding. Public funding includes financial support in terms of grants and loans, including a subsidy element, and loan guarantees. Ordinary payments for orders of public customers are not included. (*Community Innovation Survey*)	Total number of enterprises, thus both innovating and non-innovating enterprises. (*Community Innovation Survey*)	This indicator measures the degree of government support to innovation. The indicator gives the percentage of all firms (innovators and non-innovators combined) that received any public financial support for innovation from at least one of three levels of government (local, national and the European Union).

#	EIS 2007 indicators	Numerator	Denominator	Interpretation
3.1	SMEs innovating in-house (% of SMEs)	Sum of SMEs with in-house innovation activities. Innovative firms are defined as those firms which have introduced new products or process either 1) in-house or 2) in combination with other firms. This indicator does not include new products or processes developed by other firms. (*Community Innovation Survey*)	Total number of SMEs. (*Community Innovation Survey*)	This indicator measures the degree to which SMEs, that have introduced any new or significantly improved products or production processes during the period 2002-2004, have innovated in-house. The indicator is limited to SMEs because almost all large firms innovate and because countries with an industrial structure weighted to larger firms would tend to do better.
		Note: data for this indicator are not available on Eurostat's online database. The indicator has been estimated as the average of the share of product innovators with in-house innovation activities and the share of process innovators with in-house innovation activities. As product innovators can also have introduces process innovations and vice versa, there would be a serious problem of double-counting when adding both shares. By taking the average of both shares it is expected that this problem will be minimized, but there could still be significant deviations with the data for this indicator based on Member States' national databases.		
3.2	Innovative SMEs co-operating with others (% of SMEs)	Sum of SMEs with innovation co-operation activities. Firms with co-operation activities are those that had any co-operation agreements on innovation activities with other enterprises or institutions in the three years of the survey period. (*Community Innovation Survey*)	Total number of SMEs. (*Community Innovation Survey*)	This indicator measures the degree to which SMEs are involved in innovation co-operation. Complex innovations, in particular in ICT, often depend on the ability to draw on diverse sources of information and knowledge, or to collaborate on the development of an innovation. This indicator measures the flow of knowledge between public research institutions and firms and between firms and other firms. The indicator is limited to SMEs because almost all large firms are involved in innovation co-operation.
3.3	Innovation expenditures (% of turnover)	Sum of total innovation expenditure for enterprises, in national currency and current prices. Innovation expenditures includes the full range of innovation activities: in-house R&D, extramural R&D, machinery and equipment linked to product and process innovation, spending to acquire patents and licenses, industrial design, training, and the marketing of innovations. (*Community Innovation Survey*)	Total turnover for all enterprises, in national currency and current prices. (*Community Innovation Survey*)	This indicator measures total innovation expenditure as percentage of total turnover. Several of the components of innovation expenditure, such as investment in equipment and machinery and the acquisition of patents and licenses, measure the diffusion of new production technology and ideas. Overall, the indicator measures total expenditures on many activities of relevance to innovation. The indicator partly overlaps with the indicator on business R&D expenditures.

#	EIS 2007 indicators	Numerator	Denominator	Interpretation
3.4	Early-stage venture capital (% of GDP)	Venture capital investment is defined as private equity raised for investment in companies. Management buyouts, management buyins, and venture purchase of quoted shares are excluded. Early-stage capital includes seed and start-up capital. *Seed* is defined as financing provided to research, assess and develop an initial concept before a business has reached the start-up phase. *Start-up* is defined as financing provided for product development and initial marketing, manufacturing, and sales. Companies may be in the process of being set up or may have been in business for a short time, but have not yet sold their product commercially.	Gross domestic product as defined in the European System of Accounts (ESA 1995), in national currency and current prices.	The amount of early-stage venture capital is a proxy for the relative dynamism of new business creation. In particular, for enterprises using or developing new (risky) technologies venture capital is often the only available means of financing their (expanding) business.
3.5	ICT expenditures (% of GDP)	Total expenditures on information and communication technology (ICT), in national currency and current prices. ICT includes office machines, data processing equipment, data communication equipment, and telecommunications equipment, plus related software and telecom services.	Gross domestic product as defined in the European System of Accounts (ESA 1995), in national currency and current prices.	ICT is a fundamental feature of knowledge-based economies and the driver of current and future productivity improvements. An indicator of ICT investment is crucial for capturing innovation in knowledge-based economies, particularly due to the diffusion of new IT equipment, services and software. One disadvantage of this indicator is that it is ultimately obtained from private sources, with a lack of good information on the reliability of the data. Another disadvantage is that part of the expenditures is for final consumption and may have few productivity or innovation benefits.
3.6	SMEs using organizational innovation (% of SMEs)	CIS question 10.1 asks firms if, between 2000 and 2002, they introduced 'new or significantly improved knowledge management systems', 'a major change to the organisation of work within their enterprise' or 'new or significant changes in their relations with other firms or public institutions'. A 'yes' response to at least one of these categories would identify a SME having introduced an organisational innovation. (*Community Innovation Survey*)	Total number of SMEs. (*Community Innovation Survey*)	The Community Innovation Survey mainly asks firms about their technical innovation, Many firms, in particular in the services sectors, innovate through other non-technical forms of innovation. Examples of these are organisational innovations. This indicator tries to capture the extent that SMEs innovate through non-technical innovation.

#	EIS 2007 indicators	Numerator	Denominator	Interpretation
4.1	Employment in high-tech services (% of total workforce)	Number of employed persons in the high-tech services sectors. These include post and telecommunications (NACE64), information technology including software development (NACE72) and R&D services (NACE73).	The total workforce includes all manufacturing and service sectors.	The high technology services provide services directly to consumers, such as telecommunications, and provide inputs to the innovative activities of other firms in all sectors of the economy. The latter can increase productivity throughout the economy and support the diffusion of a range of innovations, in particular those based on ICT.
4.2	Exports of high technology products as a share of total exports	Value of high-tech exports, in national currency and current prices. High-tech exports include exports of the following products: aerospace; computers and office machinery; electronics-telecommunications; pharmaceuticals; scientific instruments; electrical machinery; chemistry; non-electrical machinery and armament (cf. OECD STI Working Paper 1997/2 for the SITC Revision 3 codes).	Value of total exports, in national currency and current prices.	The indicator measures the technological competitiveness of the EU i.e. the ability to commercialise the results of research and development (R&D) and innovation in the international markets. It also reflects product specialisation by country. Creating, exploiting and commercialising new technologies is vital for the competitiveness of a country in the modern economy. This is because high technology sectors are key drivers for economic growth, productivity and welfare, and are generally a source of high value added and well-paid employment. The Brussels European Council (2003) stressed the role of public-private partnerships in the research area as a key factor in developing new technologies and enabling the European high-tech industry to compete at the global level.
4.3	Sales of new-to-market products (% of turnover)	Sum of total turnover of new or significantly improved products for all enterprises. (*Community Innovation Survey*)	Total turnover for all enterprises, in national currency and current prices. (*Community Innovation Survey*)	This indicator measures the turnover of new or significantly improved products, which are also new to the market, as a percentage of total turnover. The product must be new to the firm, which in many cases will also include innovations that are world-firsts. The main disadvantage is that there is some ambiguity in what constitutes a 'new to market' innovation. Smaller firms or firms from less developed countries could be more likely to include innovations that have already been introduced onto the market elsewhere.
4.4	Sales of new-to-firm products (% of turnover)	Sum of total turnover of new or significantly improved products to the firm but not to the market for all enterprises. (*Community Innovation Survey*)	Total turnover for all enterprises, in national currency and current prices. (*Community Innovation Survey*)	This indicator measures the turnover of new or significantly improved products to the firm as a percentage of total turnover. These products are not new to the market. Sales of new to the firm but not new to the market products are a proxy of the use or implementation of elsewhere already introduced products (or technologies). This indicator is thus a proxy for the degree of diffusion of state-of-the-art technologies.

#	EIS 2007 indicators	Numerator	Denominator	Interpretation
4.5	Employment in medium-high and high-tech manufacturing (% of total workforce)	Number of employed persons in the medium-high and high-tech manufacturing sectors. These include chemicals (NACE24), machinery (NACE29), office equipment (NACE30), electrical equipment (NACE31), telecommunications and related equipment (NACE32), precision instruments (NACE33), automobiles (NACE34) and aerospace and other transport (NACE35).	The total workforce includes all manufacturing and service sectors.	The share of employment in medium-high and high technology manufacturing sectors is an indicator of the manufacturing economy that is based on continual innovation through creative, inventive activity. The use of total employment gives a better indicator than using the share of manufacturing employment alone, since the latter will be affected by the hollowing out of manufacturing in some countries.
5.1	EPO patents per million population	Number of patents applied for at the European Patent Office (EPO), by year of filing. The national distribution of the patent applications is assigned according to the address of the inventor.	Total population as defined in the European System of Accounts (ESA 1995).	The capacity of firms to develop new products will determine their competitive advantage. One indicator of the rate of new product innovation is the number of patents. This indicator measures the number of patent applications at the European Patent Office.
5.2	USPTO patents per million population	Number of patents granted by the US Patent and Trademark Office (USPTO), by year of grant. Patents are allocated to the country of the inventor, using fractional counting in the case of multiple inventor countries.	Total population as defined in the European System of Accounts (ESA 1995).	The capacity of firms to develop new products will determine their competitive advantage. One indicator of the rate of new product innovation is the number of patents. This indicator measures the number of patents granted by the US Patent and Trademark Office.
5.3	Triad patents per million population	Number of triad patents. A patent is a triad patent if, and only if, it is filed at the European Patent Office (EPO), the Japanese Patent Office (JPO) and is granted by the US Patent & Trademark Office (USPTO).	Total population as defined in the European System of Accounts (ESA 1995).	The disadvantage of both the EPO and USPTO patent indicator is that European countries and the US respectively have a 'home advantage' as patent rights differ among countries. A patent family is a group of patent filings that claim the priority of a single filing, including the original priority filing itself, and any subsequent filings made throughout the world. Trilateral patent families are a filtered subset of patent families for which there is evidence of patenting activity in all trilateral blocks (USPTO, EPO and JPO). No country will thus have a clear 'home advantage'.

#	EIS 2007 indicators	Numerator	Denominator	Interpretation
5.4	Number of new community trademarks per million population	Number of new community trademarks. A trademark is a distinctive sign, which identifies certain goods or services as those produced or provided by a specific person or enterprise. The Community trademark offers the advantage of uniform protection in all countries of the European Union on the strength of a single registration procedure with the Office for Harmonization.	Total population as defined in the European System of Accounts (ESA 1995).	The Community trademark gives its proprietor a uniform right applicable in all Member States of the European Union on the strength of a single procedure which simplifies trademark policies at European level. It fulfils the three essential functions of a trademark at European level: it identifies the origin of goods and services, guarantees consistent quality through evidence of the company's commitment vis-à-vis the consumer, and is a form of communication, a basis for publicity and advertising. The Community trademark may be used as a manufacturer's mark, a mark for goods of a trading company, or service mark. It may also take the form of a collective trademark: properly applied, the regulation governing the use of the collective trademark guarantees the origin, the nature and the quality of goods and services by making them distinguishable, which is beneficial to members of the association or body owning the trademark.
5.5	Number of new community designs per million population	Number of new community designs. A registered Community design is an exclusive right for the outward appearance of a product or part of it, resulting from the features of, in particular, the lines, contours, colours, shape, texture and/or materials of the product itself and/or its ornamentation.	Total population as defined in the European System of Accounts (ESA 1995).	A design is the outward appearance of a product or part of it resulting from the lines, contours, colours, shape, texture, materials and/or its ornamentation. A product can be any industrial or handicraft item including packaging, graphic symbols and typographic typefaces but excluding computer programs. It also includes products that are composed of multiple components, which may be disassembled and reassembled. Community design protection is directly enforceable in each Member State and it provides both the option of an unregistered and a registered Community design right for one area encompassing all Member States.

Annex D: European Innovation Scoreboard 2007 — SII scores over a 5 year time period

	2003	2004	2005	2006	2007
EU27	0.45	0.45	0.45	0.45	0.45
BE	0.51	0.49	0.49	0.48	0.47
BG	0.20	0.21	0.20	0.22	0.23
CZ	0.32	0.33	0.33	0.34	0.36
DK	0.68	0.66	0.65	0.64	0.61
DE	0.59	0.59	0.59	0.59	0.59
EE	0.35	0.34	0.35	0.37	0.37
IE	0.50	0.49	0.50	0.49	0.49
EL	0.26	0.26	0.26	0.25	0.26
ES	0.32	0.31	0.32	0.32	0.31
FR	0.48	0.48	0.48	0.48	0.47
IT	0.32	0.33	0.33	0.33	0.33
CY	0.29	0.29	0.30	0.32	0.33
LV	0.16	0.16	0.17	0.18	0.19
LT	0.23	0.24	0.24	0.26	0.27
LU	0.50	0.50	0.53	0.57	0.53
HU	0.24	0.25	0.25	0.25	0.26
MT	0.27	0.27	0.28	0.29	0.29
NL	0.50	0.49	0.49	0.48	0.48
AT	0.47	0.46	0.48	0.48	0.48
PL	0.21	0.21	0.22	0.23	0.24
PT	0.21	0.24	0.23	0.25	0.25
RO	0.16	0.15	0.16	0.17	0.18
SI	0.32	0.34	0.34	0.36	0.35
SK	0.23	0.22	0.23	0.24	0.25
FI	0.69	0.68	0.65	0.67	0.64
SE	0.82	0.80	0.78	0.76	0.73
UK	0.57	0.57	0.56	0.55	0.57
HR	0.24	0.23	0.23	0.23	0.23
TR	0.09	0.09	0.08	0.08	0.09
IS	0.49	0.50	0.49	0.49	0.50
NO	0.40	0.39	0.38	0.37	0.36
CH	0.68	0.69	0.68	0.67	0.67
US	0.60	0.59	0.57	0.55	0.55
JP	0.60	0.61	0.61	0.60	0.60
IL	0.63	0.63	0.64	0.63	0.62
CA	0.48	0.48	0.45	0.44	0.44
AU	0.35	0.35	0.35	0.35	0.36

Annex E: European Innovation Scoreboard 2007 — Country abbreviations

BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
IE	Ireland
EL	Greece
ES	Spain
FR	France
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden
UK	United Kingdom
HR	Croatia
TR	Turkey
IS	Iceland
NO	Norway
CH	Switzerland
US	United States
JP	Japan
IL	Israel
CA	Canada
AU	Australia

European Commission

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I. Lisbon – and beyond

2008 marks a watershed for Europe – the start of the fourth and final phase of the Lisbon Agenda, laid down by EU heads of state and government in Portugal in 2000, and the moment when that agenda – once maligned by a High-Level Working Group as "a synonym for missed objectives and failed promises" – starts to look oddly prescient and well within reach. Since the original Lisbon Agenda was signed in Portugal in 2000, Europe has created 17 million new jobs. At the time of writing, Europe outpaces the United States in economic growth. And, for the first time in more than ten years, productivity is growing faster on a quarterly average basis than in the US – an intriguing trend which, if it proves sustainable, could signal a very real turning point in Europe's decade-long effort to establish itself as truly "the most competitive and dynamic knowledge-based economy" in the world, as the original Lisbon Agenda proposed. In other words – despite the decade long defeatism of the cynics – Lisbon is working.

Still, this is hardly a time to relax. For all of the positive news on the home front, Europe finds itself in the midst of dramatic global developments which threaten to undermine the improved economic performance of recent times. From the subprime meltdown in the United States and subsequent financial turmoil, to high oil prices and inflationary risks, clouds are gathering on the horizon. That is why the unequivocal message of The 2008 European Growth and Jobs Monitor is that **this is no time to change priorities or abandon a strategy that is working.** To the contrary, in the face of global uncertainty, Europe must redouble its effort to reform and modernise, and continue to lay the groundwork for a prosperous future. A relapse into the failed policies of the past – policies which produced slow growth, rising unemployment and unsustainable budget deficits – would be the worst possible policy choice for Europe at this important moment of transition. Above all, **we must use the next cycle of the Lisbon Agenda to strengthen our lead and consolidate our advances.** We must take advantage of these times of turbulence to re-enforce and strengthen the positive trends of the last decade, and to demonstrate to the world that a holistic agenda, built on reinforcing economic, social and environmental pillars, is possible and desirable.

This means – first and foremost – that Europe must focus on strengthening the drivers of growth which make our advanced social system possible. Future editions of the European Growth and Jobs Monitor will focus on these drivers – the key policy areas on which Europe's prosperity and social cohesion depends. And, in light of the Spring 2008 European Council meeting, which – as a key part of the Lisbon Agenda – will focus on energy and the environment, this edition of the European Growth and Jobs Monitor contains a special section on **energy efficiency** – and the economic role that Europe's leadership in this area plays in driving forward our social and economic advancement (the special report begins on page 29).

Drawing on the analysis laid out in the coming pages, we recommend that Europe redouble its focus on the key drivers of growth as a way of consolidating our gains and immunizing ourselves from further global turmoil. Among the key recommendations are:

1) **Strengthen the Internal Market and Competition.** Access to open markets and a strong competition policy is the best industrial policy Europe can have. These policies will lead to the creation of true national – or preferably European – champions, which will be capable of competing successfully in global markets. Europe should do more to complete the internal market, particularly in the services sector, which accounts for 70% of Europe's GDP. It should also take the lead in pursuing a successful conclusion to the Doha Development Round of World Trade Organisation talks.
2) **Reform the Labour Market to Create Jobs and Provide Security through Employment:** Europe needs to continue reforming its labour markets, looking for novel ways to provide the security people want with the flexibility that companies need. Efforts to promote and develop a model of "flexicurity" represent a step in the right direction.

3) **Link Wage Raises to Productivity Improvements.** Much of the success of the past decade comes from successful control of unit labour costs. This trend must continue, if Europe is to preserve and build on the prosperity these policies have brought. Wage increases should not exceed productivity gains – an important part of the formula that has made so much recent growth and job creation possible. And, while it is important that good work goes well rewarded, senior managers should set an example of wage moderation for the entire workforce.
4) **Invest for the Future.** We must put more money into developing the science and innovation of tomorrow, and less into subsidising the industries of yesterday. A successful reform of the European Union's budget – with more money allocated towards support for research and education, and away from subsidies for agriculture and smoke-stack industries – would send a crucial signal.
5) **Strengthen Human Capital, or Education, Education, Education.** Europe will never compete in the world economy based on cheap wages; it can only compete by developing and delivering ever higher value-added products. This, in turn, puts a huge requirement on our human capital to produce better goods and services in a cheaper and more efficient way (through ongoing process innovation). Put simply, we need the smartest, most well-trained and creative workforce on the planet. Our education system must be the best in the world. Workers of all types should take it upon themselves to constantly upgrade their skills. Governments, companies and individuals should all invest in life-long learning and ongoing skills development.
6) **Promote Energy Efficiency and Demonstrate Environmental Leadership.** Partly to highlight the opportunities that current challenges present – and to pay tribute to the imperative importance of solving the climate crisis and global warming – we have devoted a special section in The 2008 European Growth and Jobs Monitor to energy and resource productivity. The section, which begins on page 29, explores the link between environmental sustainability and economic development. Our data suggests that far from harming a country's prospects, the drive towards a resource-efficient economy and the application of innovative environmental technologies will lead over time to greater total factor productivity and economic growth.

To be sure, the imperative to build a "competitive and dynamic knowledge-based economy, capable of sustainable economic growth with more and better jobs and greater social cohesion" as the original Lisbon Agenda proposed, is as valid today as it was eight years ago. And while the goal remains the same, we are – partly thanks to the benefit of hindsight, partly due to a heightened understanding of future challenges – in a position to make the last cycle of the Lisbon Agenda a success, thereby laying the grounds for an even better reform programme to follow in 2010.

As we enter the last cycle of the Lisbon Agenda, it is fair to say that the oft-criticised programme has in no way been a failure. It has focused the policy debate on key issues, such as innovation and skills; it has provided a compelling and holistic vision for the 21st century, based on economic competitiveness, social cohesion and environmental sustainability; it has helped shift the EU budget in ways that benefit innovation and long-term prosperity; it has created a European platform for constructive exchange, where best practices can be highlighted and mutual learning be facilitated; it has made sustainable development and environmental protection a hallmark of European policy within, and outside, the EU. And most of all – it has focused our attention on a strong, compelling vision of the future, one based on European values, drawing on what is best in our past as we look to devise an even more attractive tomorrow.

II. The 2008 European Growth and Jobs Monitor: Ranking and results

In this, the second edition, of The European Growth and Jobs Monitor, an annual survey of Europe's economic and social progress, we have extended the group of countries analysed to include the 14 largest European economies, up from the nine countries we covered in the 2007 edition. In order to provide comparable performance rankings on a year-on-year basis, some countries' scores and relative rankings have been re-calculated and in some cases retroactively calculated to take account of the expanded list. The 14 countries covered in The 2008 European Growth and Jobs Monitor are Austria, Belgium, Denmark, Finland, France, Greece, Germany, Ireland, Italy, Netherlands, Poland, Spain, Sweden and the United Kingdom. The EU-15 average has also been included as a point of comparison.[1]

One point emerges clearly from the results: Most countries are doing better with respect to the Lisbon targets as measured by this survey than they were a year ago – a sign that economic progress continued throughout the year despite global turmoil and the consequent downside risk (the exceptions are Denmark, Netherlands and Sweden, which backtracked in the course of the year). The EU-15 as a whole did quite well, rising to a score of 1.08 in the second quarter of 2007 before edging back to 1.05 in the third quarter, the best third quarter result since the year 2000. The high score means that – as a whole – economic progress has been so strong and confident that the EU-15 is actually ahead of schedule and could even exceed the Lisbon targets as measured in this study by 2010, if the positive trend continues. However, the indicator also shows a distinct slowdown in the pace of growth in the third quarter, indicating that growth will probably not be as strong or solid in the uncertain period to come (see the box on page 9 for an explanation of how the overall Lisbon Indicator is calculated).

current rank		one year ago
1	Finland	3
2	Ireland	4
3	Denmark	1
4	Sweden	2
5	Poland	6
6	United Kingdom	9
7	Greece	7
8	Germany	11
9	Netherlands	5
10	Spain	10
11	Belgium	8
	EU15	
12	France	12
13	Austria	13
14	Italy	14

[1] The EU-15 constitutes the 15 countries that made up the European Union until May 2004, when the EU began enlarging to the 27 members it has today. The 15 countries of the EU 15 are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom.

The outright winner is Finland, a newcomer to the list this year, with Ireland weighing in at No. 2. Both countries saw substantial improvements in their score allowing them to overtake last year's winners (Denmark and Sweden) once the results had been recalibrated to include the larger field. Both countries also scored well on five of the six sub-indicators which make up the overall Lisbon Indicator (the exception being their investment ratios, where both Finland and Ireland could do relatively better.). By contrast, **Denmark, another newcomer, debuts on the list at No. 3, though the country would have been No. 1 in 2007 had it been included in that year** (Sweden was No. 1 last year, before Denmark joined the list). Denmark lost its lead due chiefly to the slower pace of economic growth, which fell to an estimated 1.9% percent in 2007, down from 3.6% in 2006. **Sweden came in at No. 4 – a disappointment after its second place finish last year.** What tipped the scales there was Sweden's relatively modest performance in the economic growth and productivity growth categories, although the country continued to perform well on maintaining sound public finances and investing in machinery and equipment. **Poland, another newcomer, came in at No. 5 despite a very mixed performance in the sub-indicators that make up the overall index.** In terms of GDP and productivity growth, Poland is one of the top three scorers, but its employment rate and the educational qualification of its workforce consign it to the bottom three in those sub-indicator categories. The results reflect the enormous human capital challenges that Poland faces as it seeks to shift from transition-led growth to an innovation economy.[7]

European Growth and Jobs Monitor
overall score

Rank	Country	Current Score 2007 Q3	Change in Ranking since then	Rank one year ago 2006 Q3	Score one year ago 2006 Q3
1	Finland	1.69	↑	3	1.45
2	Ireland	1.44	↑	4	1.27
3	Denmark	1.41	↓	1	1.46
4	Sweden	1.40	↓	2	1.45
5	Poland	1.38	↑	6	1.07
6	United Kingdom	1.25	↑ ↑	9	0.97
7	Greece	1.23	←	7	1.07
8	Germany	1.19	↑ ↑	11	0.91
9	Netherlands	1.10	↓ ↓	5	1.11
10	Spain	1.10	←	10	0.93
11	Belgium	1.08	↓ ↓	8	1.04
	EU15	1.05	↑		0.89
12	France	0.94	←	12	0.90
13	Austria	0.88	←	13	0.83
14	Italy	0.66	←	14	0.39

[7] Peer Ederer, Philipp Schuller and Stephan Willms, The European Human Capital Index: The Challenge of Central and Eastern Europe (Brussels: The Lisbon Council, 2007).

How the Lisbon Indicator is calculated

The European Growth and Jobs Monitor is an annual ranking which measures the performance of 14 European countries (and the EU-15 average) according to criteria derived from the original Lisbon Agenda. The Lisbon Indicator is the main indicator in the survey. It determines a country's overall performance on the path to reaching the so-called Lisbon objectives. This indicator, in turn, is based on each country's performance in six individual sub-indicators, each looking at a different type of economic and/or social performance. A performance benchmark is set in each area. And, once countries have been measured and ranked against the benchmark in each area, the six sub-indicators are brought together into one overall indicator (each sub-indicator is given equal weighting in compiling the overall indicator). A score of one indicates that a country is on track to fulfil the Lisbon criteria for 2010. Scores of less than one mean that a country will probably miss its targets. Scores of above one signal over-fulfilment.

1) The Economic Growth Sub-indicator. In this sub-indicator, we take a 3% increase in gross domestic product as the performance benchmark. This target comes from the original Lisbon Agenda and was taken up again in 2005 when the Lisbon process was revitalised. The sub-indicator looks at a country's actual economic growth rate, taken here as the year-on-year change in quarterly data, against the 3% target. In order to smooth over short-term fluctuations, the data are adjusted using a moving four-quarter average.
2) The Productivity Growth Sub-indicator. The Lisbon strategy does not formulate any specific productivity objectives, confining itself to the general vow to make "Europe the most competitive and dynamic knowledge-based economy in the world" by 2010. But, given the United States' acknowledged role as the industrial world's leader in economic dynamism, we use the US as the benchmark against which EU countries and the EU as a whole should be measured in this area. To do this, we compare the annual rates of change in labour productivity per employee on both sides of the Atlantic. Recent sharp fluctuations have prompted us to use a moving eight-quarter average for smoothing in preference to the four-quarter mean in the last edition of The European Growth and Jobs Monitor. An indicator value of 1 signifies that a country has the same productivity growth as the current level in America, while a reading of above 1 indicates that a country (or Europe itself) is performing better than the US. Values below 1 show that the country in question has fallen behind the US in productivity improvements.

3) The Employment Sub-Indicator. This important sub-indicator looks at development in employment. We have taken the original Lisbon goal of a 70% employment rate (the share of employed persons aged 15 to 64 in relation to the total population of the same age group) by 2010 as our benchmark, and devised a target path (based on the employment rate in the individual countries at the time when the Lisbon strategy was launched in 2000) for the quarterly increases required to meet the 70% rate on time. The current employment rate is then compared to the target rate to measure a country's performance.
4) The Education and Human Capital Sub-Indicator. This sub-indicator looks at the educational qualification of the workforce. Specifically, we measure the proportion of the working population aged 25 to 64 with tertiary education (academic degrees, Masters Degrees, university or cooperative education, higher research qualifications, doctorates) in the total workforce of the same age group. To calculate a scaled value, we begin by forming the average of the three highest and the three lowest shares among the EU-15 member states plus Poland (these shares in turn being averaged over the years 2000 to 2007) and then set them as boundary points of the scale. Countries are then placed according to their relative position vis-à-vis the highest and lowest. Values around 1 put the country in the group of "education frontrunners", while values close to zero flag the laggards.
5) The Future-Oriented Investment Sub-Indicator. The fifth sub-indicator refers to the ability of countries to build on and deploy their human capital through productivity-enhancing investment. To calculate this, we take investment in machinery and equipment as a percentage of gross domestic product for a measure of the implementation of technological progress. The investment ratio of the G3-aggregate, consisting of the EU-15, USA and Japan, serves as the benchmark. In order to eliminate fluctuations based on the economic cycle, we use a multi-year average.
6) The Sustainability of Public Finances Sub-Indicator. Our sixth and final sub-indicator measures the sustainability of public finances. To do this, we break the indicator down into two components: the primary balance (the difference between government receipts and expenditure excluding interest paid on public debt) and the public debt level. We look at each of these figures as a percentage of GDP. For the first component, primary balance equilibrium is the target; countries in equilibrium receive a score of one, and countries with better than one indicate over-fulfilment. The thinking behind this is that the primary balance casts light on actual current budget management without being "distorted" by interest payments stemming from the past, like the fiscal balance. The debt burden is considered as a second component, taking the 60% debt ratio laid down in the Maastricht criteria as the target. Both components are entered into our overall Sustainability of Public Finances Sub-Indicator with equal weightings.

The United Kingdom and Germany saw the most improvement. The UK elbowed its way to No. 6, up from No. 9 last year, mostly on the strength of faster productivity growth and also as a result of better economic performance. Germany similarly rose three places in the ranking and now ranks No. 8, driven mainly by a stronger cyclical dynamic, which together with the increase in value-added tax significantly improved public finances. On the downside, though, development in the investment ratio was disappointing. **The Netherlands suffered the steepest downgrade**, falling to No. 9 from No. 5 last year. This was not because the country fell behind in any particular area, as the country's score remained essentially unchanged, year-on-year. The fact is that the Netherlands simply failed to keep up with the pace setters in Europe and was overtaken by other countries. Something very similar happened to Belgium, which fell three rungs to No. 11 (down from No. 8) despite a slight improvement in its overall score.

Only three countries are actually behind schedule on meeting their Lisbon targets as things stand in 2007: Austria, France and Italy. Although France registered solid economic growth, it failed to make the 3% grade and came last in that department. It also shows clear deficiencies with regard to the sustainability of its public finances. Austria's main weakness lies in the low proportion of employees with tertiary qualifications. Its labour productivity also falls short of the mark. **Italy improved on its score from last year, but remains the absolute tail-ender, with an overall Lisbon score of 0.66** – meaning the country is two-thirds of where it should be to obtain its Lisbon targets by 2010.

Despite the generally rosy picture, the Lisbon Indicator does point to some potentially worrisome trends for the future. In the second quarter of 2007, for example, the EU-15 delivered the highest indicator reading since the launch of the Lisbon Strategy in 2000, weighing in at 1.08. But **in the third quarter of 2007 (and probably also in the last three months of the year, which were not included in this study), the curve began to show a downward trend.**

Is this the end of Europe's honeymoon – the moment when Europe relapses to the low-growth, high unemployment of the past? The answer is, it need not be. Moving forward, the EU as a whole has reached a stage of the economic cycle in which domestic demand is likely to provide a major impetus for future growth – a fact which should help Europe sustain its domestic momentum even if the US economy turns sour.[1] The remarkable progress in Europe on the jobs front (see the section on the Employment Sub-Indicator, which begins on page 18, for more on this phenomenon), forms a firm basis for consumer spending to act as an important driver of future growth and help to dampen the negative effects of a US slowdown.

What's more, the world economy is evolving in ways that might make it easier for Europe to "decouple" from the United States in the future. Thanks to globalisation, emerging economies account for 24.9% of world GDP today, up from only 19.7% in 1990 (by contrast, industrial economies make up 75.1% of the world economy as measured in GDP terms, down from 80.3% in 1990). This means that there are more markets for Europe to sell into.

But the Lisbon Agenda has played its part in making Europe stronger, too. Put simply, structural reforms introduced over the last decade have done much to help countries build sound, stable platforms for future development that will make them better able to withstand turmoil in the global economy. Towards that end, the ongoing integration of the European economy – and the economic activity that greater access to global and internal markets has made possible – has proven particularly important. Today, the emerging economies of Europe make up 18% of extra-EU-15 exports, up from 10.2% in 1995.

We believe the biggest threat Europe faces is not the risk that external shocks will knock us off our stride, but the possibility that recent prosperity will be used as an excuse to abandon the very policies that are working so well today. Already, some European countries are flirting with policies which – if adopted – would do much to undermine the economic prowess it took Europe a decade to regain. Some countries are even beginning to turn back the clock on reform, reversing hard-fought measures at precisely the moment when they are starting to bear fruit. We believe that policies of this type – if they continue to be adopted – will do the most harm to Europe's prospects. **The message of The 2008 European Growth and Jobs Monitor is: Stay the course. It's working.**

[1] Although the recent stock market slump shows that the transmission channel between America and Europe is still fully intact.

What's new in the Lisbon Agenda

In December 2007, the European Commission published a strategic report for the next – and final – cycle of the Lisbon Agenda, which will last until 2010. Alongside the traditional Lisbon targets for employment, growth and R&D investment, the Commission plans to deepen the scope and reach of the Lisbon Agenda in several key areas. Among the new priorities:

- A new focus on learning and skills. As part of the Lisbon process, the European Commission will provide annual forecasts of future European skill requirements, while member states commit to drawing up "national qualification frameworks" aligned with the overall EU framework. Put forward under the heading "investing in people," these national plans will be commented on and evaluated each year as part of the Lisbon process.
- Development of an external dimension for the Lisbon Agenda. Until recently, the Lisbon Strategy focused entirely on domestic reform, but the European Commission would like to include the Lisbon Agenda in its foreign policy. Specifically, it wants to talk to countries outside the EU about the benefits of a three-pillared approach to modernisation and perhaps even start evaluating those countries on the Lisbon criteria as well.
- A focus on SMEs. The European Commission wants to do more to encourage business start-ups and create the framework conditions in which small business can expand. The cornerstone of this effort will be the European Commission's Small Business Act, due to feature prominently under the French EU Presidency in the second half of 2008.
- More rigorous country evaluations. Member states have agreed to allow the European Commission and other EU countries to peer review their annual National Reform Programmes, thereby marking a return of the very effective "name and shame" evaluations discarded in 2005. The move demonstrates the new atmosphere of trust surrounding the Lisbon process, and amounts to a vote of confidence in the leadership of European Commission President José Manuel Barroso.

For more information about the Lisbon Agenda 2008-2010 cycle, visit
http://ec.europa.eu/growthandjobs

III. Economic growth: The power behind prosperity

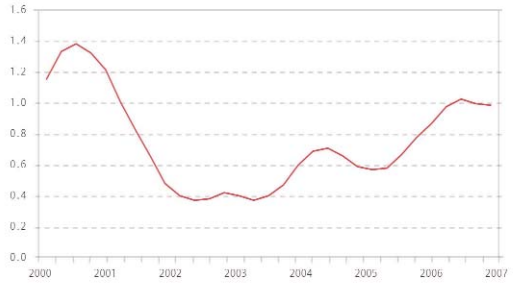
In order to score a perfect 1 in the Economic Growth Sub Indicator ranking, a country must register an average 3% economic growth over four quarters – an achievement that would have been unthinkable in some parts of Europe just two years ago (the 3% target is the figure laid down in the original Lisbon Agenda). Amazingly, the overall Lisbon Indicator comes in at 0.98 this year, meaning that the EU-15 stand collectively at 98% of a 3% growth rate – a remarkable achievement, which does much to shore up the improved performance figures in the five other categories surveyed.

The challenge for the future will be to maintain and hold this level. Member states will only achieve the objective of making "the EU the most competitive and dynamic knowledge-based economy in the world" by 2010 if they can turn in strong growth performance over a longer period, pushing ahead assertively with reforms and modernisation and thereby promoting sustainable employment throughout the economy. Irrespective of whether the EU delivers on the Lisbon targets or not, economic growth is necessary to **reduce unemployment** and **secure public revenues**. Another big advantage of growth is that it **defuses distributional conflicts**. Reforms that would mean painful cuts for one section of the population were there no increase in economic output can be implemented almost pain-free when the economy is humming along, creating a virtuous circle which helps Europe reach its overall social and economic goals.

Experience teaches that **sustained high growth will be difficult to achieve.** To be sure, economic growth did leap to 4% at the peak of the last economic cycle in 2000, but years of anaemic economic activity followed. Since then, the recovery that got underway in 2005 has proven remarkably durable – with eight quarters of solid growth in Europe. But given the worsening global climate, GDP is forecast to grow at best by around 2% in 2008 – less than the 2.2% average Europe has enjoyed since the beginning of the decade.

For 2009, we expect the European economy to show a bit more vigour, as the oil price eases and the external value of the euro softens.[1] However, over-priced housing markets in the UK, Spain and Ireland will exert downward pressure on growth. As lending rates rise, a process of consolidation has begun that entails flat or falling property markets. Jobs will be lost in housing construction, putting a damper on economic development in those countries for a while.

European Growth and Jobs Monitor
economic growth component (EU15)

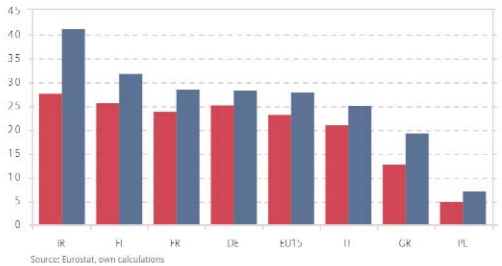


current rank		one year ago
1	Poland	2
2	Ireland	1
3	Finland	3
4	Greece	5
5	Spain	6
6	Austria	8
7	Sweden	4
8	United Kingdom	11
9	Germany	12
10	Netherlands	10
	EU15	
11	Belgium	9
12	Italy	14
13	Denmark	7
14	France	13

[1] Allianz/Dresdner forecasts the dollar/euro exchange rate will average 1.45 in 2008, declining to 1.37 in 2009. The price of oil is forecast to average $80 a barrel in both years.

The overall score of 0.98 for the EU-15 in the Economic Growth Sub-Indicator also masks huge regional variations – with differentials between some countries of more than 1.5 points. **Finland, Greece, Ireland and Poland** – all newcomers to this year's edition of The European Growth and Jobs Monitor – **top the ranking.** Poland, which has the lowest per capita income of the countries surveyed, notched up a score of well above 2 – indicating the country enjoyed a growth rate nearly twice the level required to attain the Lisbon Agenda targets. **Ireland and Finland**, which can already be numbered among Europe's wealthiest countries, were No. 2 and No. 3, respectively. Finland was buoyed by dynamic export trade and robust consumer spending. Ireland partly compensated for the drop in housing construction with a rise in public construction spending and extremely brisk private consumption, but its GDP growth still slowed from previous years. But Ireland's growth potential, which uniquely among European countries has been solid for several decades, is far from exhausted.

GDP per head
nominal, in EUR 1,000



Source: Eurostat, own calculations

Greece, which has turned in uninterrupted strong growth for 10 years, **came in at No. 4**, up one spot in this year's rank. It stands a **good chance** of staying on target for the economic growth component next year – thanks not least to substantial EU subsidies. **Spain**, where a slowdown in growth has been augured for some time with development funds from Brussels flowing more sparingly, managed to **improve its relative position a little**, rising to No. 5. The **UK and Germany**, by contrast, sharply stepped up the pace to overtake the EU-15 average, weighing in at Nos. 8 and 9, respectively, each of them up three positions in the Economic Growth Sub-Indicator ranking. At least through the third quarter of last year, Britain rode the wave of a booming housing market.

Denmark fell sharply in this category, dropping to No. 13 from No. 7, as tightening money market rates distinctly doused domestic demand. Here and there, **labour market constraints** also checked further growth. **Italy** is no longer bottom of the growth league, but it could certainly do with more growth in view of its **unsustainable finances** and the immense need for economic reform. The many extra items of expenditure destined for various sections of the population in 2008 will **keep the economy sweet for a while**, but they will not strengthen the country's potential growth.

IV. Productivity growth: Is it here to stay?

High productivity is key to any successful modern economic model. And, while the Lisbon Agenda does not set any specific productivity targets, it does vow to make Europe "the most competitive and dynamic knowledge-based economy in the world" – a ringing declaration which seems to imply that, in the vital area of economic dynamism, Europe can and should be benchmarked against the leading industrial countries. In the area of productivity, that means first and foremost the United States.

With an overall average score higher than one, our Productivity Growth Sub-Indicator shows the **EU-15 on a stronger productivity trend than the US since the beginning of 2007** (measured on an eight-quarter average). This is due partly to **weaker US performance**, as the chart below shows. US Productivity growth slowed to around 1% in 2006, and the rate of change year-on-year averaged only 0.7% in the first three quarters of 2007. But **labour productivity per person employed in Europe is gathering speed**. In 2006, the rate of increase rose to 1.4%, although it dipped in the two summer quarters of 2007 to 0.7%. As a result, the latest year-on-year difference came in below the 2000-2007 average, seemingly confirming the sceptics' theory that while Europe is doing better in the productivity sweepstakes, it probably owes its higher productivity more to the economic cycle than to structural improvements. If true, this means the recent gain – as impressive and potentially important as it is – may be only temporary and ultimately unsustainable.

Labour productivity growth
real GDP per person employed, in % y-o-y

Source: Eurostat, own calculations

The European Commission offers a cautious assessment. In a recent study[1], it notes that productivity growth has picked up since mid-2005, but says the **trend reversal is yet to be confirmed.** The European Central Bank writes in a similar vein.[2] "The latest data suggest that the **declining trend** may have **come to a halt** in recent years but, to date, there is no conclusive sign of an inversion of the trend," it notes, adding "since persistent changes in productivity growth are, by nature, relatively infrequent, they will often be mistaken for temporary fluctuations."

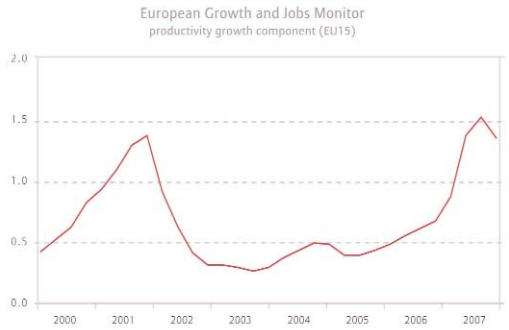
[1] Directorate-General Economic and Financial Affairs, "EU Economy 2007 Review: Moving Europe's Productivity Frontier," SEC (2007) 1507, (Luxembourg European Commission, 2007).
[2] European Central Bank, Monthly Bulletin January 2008.

It will take time and more data before we can say with certainty whether Europe has moved to a higher long-term productivity growth path. But one very important factor gives us reason to embrace the optimistic scenario. Europe's accelerated labour productivity has been accompanied by a "job miracle" since it began in 2005 (for more on this phenomenon, see the Employment Sub-Indicator section, which begins on page 18). In this study, we calculate labour productivity as output (GDP) per person employed, meaning there will be by definition a trade-off between growth in productivity and job creation. Remarkably, **our data shows no signs of that trade off – which could be an important sign that the recent productivity trends could well be due to structural improvements and may prove to be longer lived than the pessimists believe.** This trend is all the more remarkable given that, while productivity has been rising, the **"low-wage sector"** in Europe has been boosted through measures such as tax and contribution cuts for low earners, employment subsidies, wage top-ups or negative income taxes and the promotion of temporary and part-time employment. In point of fact, **employing more low-skilled labour should have acted as an additional damper to productivity, but it has not done so – a sign that there may well be a structural component in recent productivity improvements.**

Hence, we do not worry too much about the slight slowdown in the recent pace of European productivity growth, which we see as a reflection of changes in the business cycle. Since last autumn the overall trend has been dampened additionally by the credit crisis dragging down the banking sector. Looking forward, we also take a more upbeat view. There is, unquestionably, still much to do, with **two major thrusts.** First, **more competition** is needed to spur productivity by stepping up the pressure to innovate and open markets (encouraging businesses to come and go in a process of creative destruction).[1] **Greater flexibility** and less red tape also belong in this department. Second, investment needs to be made in **human capital**, for example to obtain maximum benefit from information and communications technologies or to optimise work and management processes and organisational structures. Productivity gains driven by technological advances also require appropriate **investment in research and development.** The Lisbon Agenda targets R&D spending equivalent to 3% of GDP by 2010, but on present planning the EU countries look set to achieve only 2.6%. With the official figure weighing in just under 2% in 2006, even this would mark a significant increase – but it will still require some considerable effort.

But the upside of all of this is that structural reform has been clearly targeted in the Lisbon Agenda; now that structural change is being implemented in many countries, the positive effects of these reforms should make themselves increasingly felt. The optimistic take is that **for years Europe's structural rigidities acted as a drag on productivity growth**, but tackling this sclerosis harbours **greater potential than in the US, whose economy is already comparatively flexible.** To rev up the slackened tempo of US productivity growth again, America may need a new technology revolution, given that the bones of the last IT wave have been picked more or less bare. Europe has yet to fully absorb the productivity boost which the IT wave of the 1990s made possible, indicating that there may yet be further upside in the productivity growth story.

[1] William W. Lewis and Ann Mettler, Consumers and Competition: Unlocking Europe's Drivers of Productivity (Brussels: Lisbon Council Policy Brief, 2007).



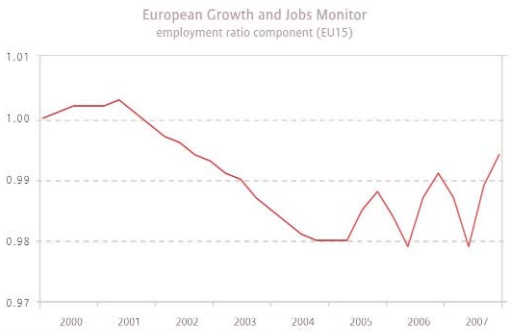
current rank		one year ago
1	Finland	3
2	Greece	2
3	Poland	5
4	United Kingdom	9
5	Germany	8
6	Ireland	11
7	Sweden	1
8	Denmark	4
	EU15	
9	France	7
10	Belgium	10
11	Netherlands	6
12	Austria	12
13	Italy	13
14	Spain	14

Our Productivity Growth Sub-Indicator reveals big performance differences among countries. **At the bottom of the league, Spain and Italy** rallied from their negative third-quarter 2006 readings to make substantial progress in the following four quarters. But **together with Austria** their performance is still **poor.** The other 11 countries analysed in this study scored more than one on the Productivity Growth Sub-Indicator, signalling that their labour productivity is rising faster than in the US. **There have been marked shifts in ranking.** Sweden, for instance, plummeted to No. 7, down from the top spot last year. Denmark and the Netherlands also registered steep declines. The three biggest climbers were the UK, Germany and Ireland. **Finland came in at No. 1,** with strong productivity gains helping to cushion pay increases averaging more than 3% in recent years (with upwards of 4% expected for 2008). **Greece and Poland also did well, weighing in at No. 2 and No. 3, respectively.** As quintessential catch-up countries, they offer the most scope for further productivity improvements in years to come.

V. Employment: The jobs miracle

Since 2000, nearly 17 million more people have entered the workforce in the EU-15 – a rate of growth that outpaces the US in the same time. What's more, having more people in work is strengthening the overall economic framework of the EU. Tax revenues in most countries are rising, and the workforce itself has become an important source of future EU growth, with more and more wage earners poised to exert their purchasing power as a future source of spending. **More than six million new jobs have been created in the last two years alone.** The **EU-15 unemployment rate has hit an historic low** of 6.8%, down from its peak of 8.1% in 2005.

current rank		one year ago
1	Netherlands	3
2	Sweden	2
3	Denmark	1
4	Austria	4
5	Finland	5
6	Ireland	6
7	Germany	9
8	United Kingdom	7
9	Spain	8
	EU15	
10	France	10
11	Greece	11
12	Belgium	13
13	Italy	12
14	Poland	14



Interpolated annual figures 2000 - 2004, seasonally unadjusted quarterly figures starting 2005.

Our Employment Sub-Indicator tracks countries' relative proximity to the overall 70% workforce participation target of the original Lisbon Agenda. A score of one means a country is on track to meet its 70% target. A score above one means that it has already met and over-fulfilled that goal or will probably do so in 2010, while a score of less than one means that the country is not on track to meet the goal. Surprisingly, nine of the 14 countries surveyed have a score of one or higher, meaning they will likely meet their 70% participation target by 2010. The exceptions are Belgium, France, Greece, Italy, and Poland. The EU-15 as a whole is much improved, with an overall participation rate of 67%, putting it almost perfectly on track to hit the 70% Lisbon target in 2010.

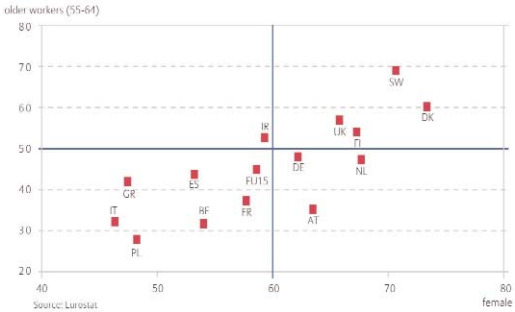
The **Netherlands, Sweden and Denmark** have shown the best performance in this category. All three countries have beaten the target since the beginning of the Lisbon process and can currently boast employment rates of more than 75%. **They are followed by Austria, Finland, Ireland, Germany and the UK, all of whose rates hover relatively close to the 70% mark.**

The UK has long since surpassed the 70% level, though the figure has in fact been stagnating since 2000. This gives the UK a relatively low ranking of No. 8 in the Employment Sub-Indicator, although its overall score of 1.02 is still a good result that many of its neighbours can only envy. **Spain has made huge progress**, growing the rate of labour force participation since 2000 by almost 10 percentage points to 66%. However, this extremely positive trend appears very vulnerable as the severe slowdown expected in the Spanish economy as a whole and the construction sector in particular will put a strain on employment figures.

At 65%, the French employment rate is clearly unsatisfactory – not simply because of its low rank on the Lisbon Scorecard, but also because of the evident social problems which accompany its chronically high youth unemployment. Though France's overall employment picture is roughly the same as Spain's, France has seen little of the rapid improvement that Spain has enjoyed (employment participation is 65%, up a mere three percentage points on the 2000 rate). As our performance level of less than 1 for **France** indicates, the country **needs to move into higher gear** on the Employment Sub-Indicator, if it is to make the 70% mark by 2010. **Greece, Belgium and Italy** occupy places No. 11, No. 12 and No. 13, respectively, with employment rates of just over or exactly 60%. **Even farther removed from the Lisbon target is Poland**, whose participation rate barely brushes 58%.

As the chart below shows, **Denmark and Sweden also take the lead in employment for women and older workers, while here too Poland and Italy bring up the rear.** In the right-hand half of the chart are all the countries that, by 2006, had already met the 2010 Lisbon parameter of a female employment rate of 60%. The upper half shows the countries that in 2006 bettered the ratio of 50% targeted for the employment of older workers (aged between 55 and 64) by 2010. **The upper right quadrant thus contains the prime performers** in respect of both criteria and the **lower left quadrant no fewer than six EU members that satisfy neither of the two employment goals.** These countries need to take special action to create better possibilities for women to combine family (which also entails looking after family members in need of care as well as children) and working life and cut back on early retirement schemes or offer incentives to take later retirement. Another striking aspect of the chart is the evident positive correlation between the levels of both ratios. This suggests that the real political challenge in Europe lies in raising the rate of employment for mature women.

Employment ratios 2006

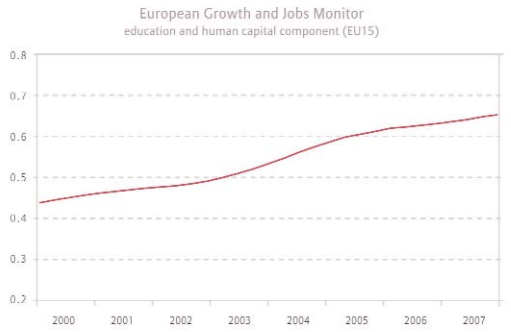


Source: Eurostat

VI. Human capital: The education imperative

The European Commission has good reason to place special emphasis in its revised Lisbon strategy on knowledge, innovation and optimising human capital (see the box on the revised Lisbon Agenda on page 12 for more on the new priorities). To date, investment in training and education has been treated largely as an expense, which it most certainly is in the beginning. But in the medium to long term, access to education and training can yield high returns by making an economy more regenerative and competitive and improving **social integration**, giving this type of spending the character of an "investment." In the field of education the Lisbon Agenda is flanked by the "Bologna Process". Signed by 30 European ministers of education, this aims to **create a European Higher Education Area** by 2010. The intention is to put in place consistent higher education systems making it easier to assess the quality of academic courses at different universities and to achieve greater readability and comparability of qualifications. It is hoped that this will facilitate the mutual recognition of university degrees and encourage student mobility. Universities are to be transformed into client-oriented service providers capable of competing globally.

current rank	one year ago
1	Finland	1
2	Belgium	2
3	Ireland	4
4	United Kingdom	7
5	Denmark	3
6	Spain	5
7	Netherlands	6
8	Sweden	8
9	France	9
	EU15	
10	Germany	10
11	Greece	11
12	Poland	12
13	Austria	13
14	Italy	14



Our measure of the knowledge base, the **proportion of employees with tertiary education**, helps us understand the level and depth of a country's human capital development. The Human Capital Sub-Indicator is based on the share of tertiary graduates in the total workforce rather than in the population as a whole, because graduates not in work represent human capital that, although available, is not being used in the formal economy. In contrast to secondary education, tertiary education focuses more on imparting the **ability to analyse and solve abstract problems.** As a prerequisite to further scientific activity, it therefore paves the way for innovations which, when implemented in practice, increase an economy's potential. But tertiary education pays off not only from a macroeconomic viewpoint. For the individual, too, a university degree confers an **employment and earnings edge** on an upper secondary level qualification.[4]

[4] Andreas Schleicher, The Economics of Knowledge, (Brussels: Lisbon Council Policy Brief, 2006).

All told, the economies of the EU-15 are **becoming more knowledge-based.** Roughly 29% of employees have tertiary qualifications. **Finland is No. 1**, with fully 40% of the workforce having graduated from universities or universities of applied science, or possessing a doctor's degree. **Belgium is No. 2**, and **Ireland is No. 3**, even though it is a newcomer to the European Growth and Jobs Monitor this year. Like Spain, Ireland is considered a country with **comparatively high equality of access to tertiary education**. Conversely, lack of overall access to tertiary education may explain why fewer than 30% of workers in the same age group in Germany have studied at the tertiary level, putting **Germany below the EU-15 average** in the No. 10 spot. The OECD 'Education at a Glance' study[1] classifies Germany as one of the countries where the social background has the greatest influence on participation in tertiary education. The likelihood of a child from a working-class family obtaining a degree is still scant.

As in past years, the laggard in the tertiary education stakes is **Italy**, home to Europe's oldest university. **Greece and Poland**, although less "modern" economies, make a better showing. Whilst throwing funds at the problem is not the only solution, the fact that **education has never been a priority of Italian spending policy** has had consequences.

Share of employment with tertiary education level attained
(age 25-64)

Source: Eurostat, own calculations

The **outlook** for a further increase in the depth of tertiary education over the medium term in the EU is **not bad.** Admittedly there are some alarming aspects, such as the high drop-out rates in some countries or the fact that in Germany only about one-fifth of 15 year olds plan to go on to university. But basically the academic changes envisaged in the Bologna Process should serve to make studying in Europe more attractive. For example, switching from the previous 5-6 year courses to a **two-stage Bachelor/Masters system should mean more flexibility for students.** These structural changes are not of course a quick fix, but they could produce solid results in the coming decade.

[1] OECD, Education at a Glance 2007, (Paris: OECD, 2007)

VII. Growth-related investment

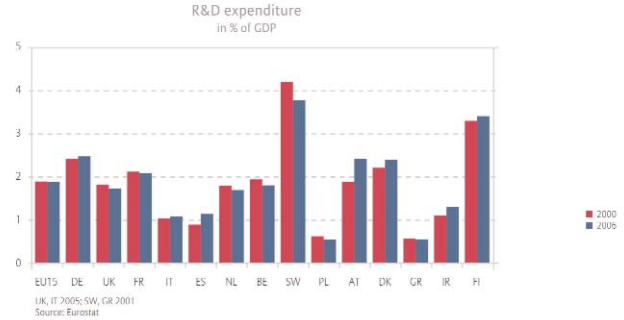
An economy can only reliably claim to be knowledge-based if the ideas that its human capital comes up with culminate in technical advances and the country's businesses **invest in improved products and processes**. That way, they increase the productivity of the factor inputs and enhance the economy's potential growth. This is a complex process differing in quality from country to country. Our measure of the implementation of technical progress, investment in machinery and equipment as a percentage of gross domestic product, is at best a rough approximation. By this calculation, the EU-15's investment ratio has clearly been **on an upward path** since its 2004 low and has now passed the indicator level of 1.

current rank		one year ago
1	Spain	1
2	Denmark	2
3	Italy	3
4	Sweden	6
5	Greece	5
6	Belgium	4
7	France	7
	EU15	
8	Poland	9
9	United Kingdom	11
10	Austria	8
11	Germany	10
12	Netherlands	12
13	Finland	13
14	Ireland	14

Spain, Denmark and Italy take the top three places. At first sight, Italy's strong performance comes as a surprise inasmuch as its economic momentum in recent years has been considerably slacker than the EU-15 average. However, this period of low growth was characterised mainly by declining competitiveness on world markets rather than by investment weakness. Almost without fail, Italy has since the mid-1990s grown its investment at double-digit rates and performs well by EU-15 standards at 10.9%. In comparison, Germany channelled only 8.8% of its GDP into investment at last count, and the Netherlands, Finland and Ireland even less. The new technologies developed in these countries would be better diffused if more were **spent on machinery and computers, patents and self-produced software.**

At any rate, it is good to see that almost all the countries analysed have raised their investment ratio since The 2007 Growth and Jobs Monitor. Less positive in respect of the Lisbon Agenda is the limited progress on meeting the prominent **research and development spending target**. According to the Lisbon Agenda, EU R&D spending should reach 3% of GDP by 2010 – an important global benchmark. But the most recent data – which, due to a time lag, is only available from 2006 – show that the public sector, the corporate sector and foreign sources commit only an average of around 1.9% of GDP to R&D in Europe. R&D intensity has remained stuck obstinately at this level since the beginning of the decade.

Most countries have **a lot of catching up** to do in this regard. Even more mature economies like the Netherlands, Belgium and France are way below the Lisbon target. On the other hand, the latest statistics for Sweden and Finland show that well over 3% of their economic output goes to R&D. Comparing relative R&D spending with the data gathered from the Community Innovation Survey, the underlying message is that most countries with high R&D spending featured quite a high proportion of companies that had implemented innovations with the launch of a new or appreciably improved product or the introduction of a more sophisticated process.[9] Countries with **low research and development expenditure** such as Poland and Greece had **far fewer innovative companies** in the period under review.



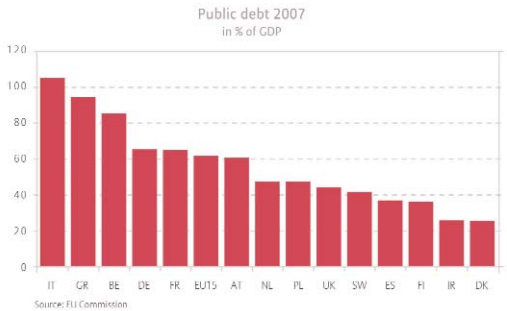
UK, IT 2005; SW, GR 2001
Source: Eurostat

Not only do the EU-15 as a whole spend a lower proportion of their output on R&D than America or Japan; at 55%, the share financed by the corporate sector is also much less than in the US (64%) and Japan (75%). The number of patent applications can be taken as a further indication of Europe's weaker innovation drive. The most recent data available for the EU-25 show far fewer patent applications per million inhabitants. If European countries are to achieve an R&D intensity of even 2.5% by 2010, they will have to commit far more actively to this aspect of the Lisbon Agenda. And the onus is increasingly on the business community.

[9] Fourth Community Innovation Survey, Eurostat, 22 February 2007.

VIII. Sustainability of public finances

Fiscal deficits do matter – especially in an age when one of the principal challenges Europe faces is the very real fact that Europe's population is ageing and shrinking. This puts a special onus on governments – and on the voters who elect them – to understand the important generational equity issues inherent in the way we finance and manage our social systems. Put simply, it is time for the generation alive today to do more to make sure the social and economic advantages we enjoy will be there for our children to enjoy tomorrow. In many countries, that means running a tighter fiscal ship, so there will be enough money to pay for and sustain our European social model in the future.

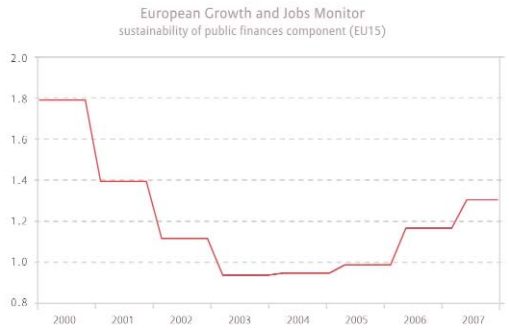


The chart above shows marked differences among countries in the public debt level as a percentage of gross domestic product, which is the first component we look at in the Sustainability of Public Finances Sub-Indicator. **Debt ratios in Italy, Greece and Belgium are well over the 60% Maastricht limit, but in Ireland and Denmark the ratio is only about 25%.** For the EU-15 as a whole, public debt is almost on the Maastricht target at 61% of GDP.

Finland, Denmark and Sweden perform best in the second of the two components we analysed, the **primary balance as a percentage of GDP** (which measures the difference between government receipts and expenditure excluding interest paid on the public debt). Those three countries weigh in with **primary-balance surpluses of 6%, 5.3% and 4.7%, respectively.** By contrast, the **UK** chalks up the worst result with a **primary deficit of 1% of GDP.** Poland is also in the red with a primary balance deficit of 0.3%. Although France's public finances are in balance and just meet our requirement, they clearly lag the EU-15 average – a primary surplus ratio of 1.7%.[1]

[1] All figures are estimates for 2007. Directorate-General Economic and Financial Affairs, European Economy No. 7/2007, (Brussels: European Commission, 2007).

But once you add the debt component to the picture, you get a slightly different view. **As a whole, the EU-15 further improved their public budget situation in 2007, but their Sustainability of Public Finances Sub-Indicator scores are not as high as in 2000 and 2001 – implying that many countries are not using economic growth to prepare us well for coming challenges.** The three Nordic countries **Denmark, Finland and Sweden** came in at Nos. 1, 2 and 3, respectively. **Spain** came in at No. 4, proving a positive exception among the countries of southern Europe (Italy and Greece bring up the rear at Nos. 13 and 14, respectively). France also does badly, coming in at No. 12, and making Europe's second largest economy one of only three to score less than one on the overall Sustainability of Public Finances Sub-Indicator (the other two are Greece and Italy). The fact that the French public sector has not sorted out its finances better despite solid economic performance should give serious pause for thought.



current rank		one year ago
1	Denmark	1
2	Finland	3
3	Sweden	5
4	Spain	4
5	Ireland	2
6	Netherlands	6
7	Germany	10
8	Austria	8
	EU15	
9	Poland	11
10	Belgium	7
11	United Kingdom	9
12	France	12
13	Italy	14
14	Greece	13

By contrast, none of the countries surveyed is likely to have come into conflict last year with the **3% Maastricht deficit ratio** (which is based on the primary balance plus interest payments). **But Poland, the UK, Greece, Italy and France have not built up much of a safety margin.** Consequently, with the advent of more challenging economic conditions these countries are in danger of running up excessive budget deficits relatively quickly. We can see from this that the preventive part of the Stability and Growth Pact is not working ideally in practice – or to put it another way, that not all countries abide by it properly, which erodes its credibility. It is the very purpose of the preventive arm to remedy budgetary imbalances in strong economic periods in order both to have room for action in case the macroeconomic environment deteriorates and also to be equipped for the demographic burdens that await the public purse further down the line.

In general, the genuine willingness to rein in spending which we saw in the middle of the decade appears to have given way to a different approach: many countries now show a strong tendency to cut direct taxes and social security contributions, and to finance these cuts through surplus revenues and indirect taxes. This is not a strong long-term – or even medium-term – strategy. The result: **In contrast to the two previous years, we do not expect any serious progress in 2008 on the sustainability of public finances** (partly because tax revenues will not flow so freely owing to the economic situation). This is particularly unfortunate in that some countries have not yet achieved solid fiscal positions.

IX. Conclusion

The worst response to the global downturn would be to abandon the policies that made Europe successful again at precisely the moment when they have begun to work.

The European Growth and Jobs Monitor has captured a remarkable trend: Despite a disappointing first half of the Lisbon process, generating much criticism and doubt, since the beginning of 2007 Europe has proven that it is possible to meet its Lisbon targets, especially if current policy can be strengthened and deepened. The economic recovery must not be interpreted as an invitation to sit back and relax. Governments must stay on the ball with reforms if they do not want to see the progress achieved so far frittered away in the future. The 2008 European Growth and Jobs Monitor shows that many countries still have their work cut out for them, especially on the economic growth and employment rate front. In particular, Europe needs to **come to terms with the idea of an ongoing reform process.** Particularly at the microeconomic level, the reforms involved cannot always be big-ticket items or spectacular milestones. Often, they will be smaller coordinated measures whose individual contribution to the big picture cannot be measured in isolation but which, in total, have an appreciably positive impact on potential growth.

The 2008 Growth and Jobs Monitor presents a snapshot of Europe taken against a backdrop of relatively benign global economic developments. **Simply maintaining current achievements will be more difficult in a less favourable economic environment.** In addition, the EU-15 average does not apply to all countries. Indeed, it is striking that **some small countries are turning in exemplary performance as top-rankers** while, in contrast, the **EU heavyweights like France and above all Italy have some serious weaknesses to address.** And Germany, the biggest European economy, only managed in the course of last year to edge its way up from the bottom third of the list to the middle ranking – a welcome development, but hardly one which should encourage Germans to drop their ongoing effort to reform and modernise their country.

In order to ensure that Europe remains at the forefront of the global economy and preserve our social model for generations to come, EU countries need to commit constantly to active reform. Those who fail to fight permanently on all fronts and merely mark time will be overtaken by others and fall behind, as this survey clearly demonstrates. **As the emerging markets continue their rapid advance, the industrial countries must keep on the go to remain one step ahead.** Put simply, if we want to live better than the rest of the world, our economy has to be better than the rest of the world's.

X. Lisbon Indicator tables

European Growth and Jobs Monitor
current scoring (2007 Q3)

Current Ranking overall	Country	Overall score	Economic growth	Labour productivity	Employment ratio	Employment by tertiary education level	Investment activity (equipment)	Public finance
1	Finland	1.69	1.53	3.05	1.05	1.17	0.71	2.64
2	Ireland	1.44	1.88	2.13	1.03	0.99	0.60	2.04
3	Denmark	1.41	0.73	1.73	1.08	0.91	1.29	2.72
4	Sweden	1.40	1.06	2.02	1.08	0.86	1.12	2.28
5	Poland	1.38	2.18	2.60	0.88	0.40	1.00	1.21
6	United Kingdom	1.25	1.05	2.44	1.02	0.94	0.91	1.12
7	Greece	1.23	1.38	2.87	0.94	0.52	1.12	0.52
8	Germany	1.19	1.05	2.14	1.02	0.60	0.91	1.44
9	Netherlands	1.10	1.02	1.13	1.09	0.90	0.87	1.61
10	Spain	1.10	1.33	-0.12	1.01	0.90	1.35	2.13
11	Belgium	1.08	0.92	1.23	0.93	1.13	1.11	1.18
	EU15	1.05	0.98	1.35	0.99	0.66	1.03	1.31
12	France	0.94	0.63	1.35	0.97	0.74	1.05	0.91
13	Austria	0.88	1.13	0.65	1.05	0.23	0.90	1.33
14	Italy	0.66	0.74	0.53	0.92	0.04	1.14	0.60

European Growth and Jobs Monitor
one year ago (2006 Q3)

Ranking overall	Country	Overall score	Economic growth	Labour productivity	Employment ratio	Employment by tertiary education level	Investment activity (equipment)	Public finance
1	Denmark	1.46	1.09	1.53	1.08	1.07	1.22	2.78
2	Sweden	1.45	1.45	2.26	1.06	0.81	1.07	2.07
3	Finland	1.45	1.51	1.83	1.04	1.15	0.74	2.43
4	Ireland	1.27	1.97	0.72	1.03	0.92	0.57	2.44
5	Netherlands	1.11	0.95	1.17	1.06	0.88	0.84	1.78
6	Poland	1.07	1.82	1.41	0.88	0.38	0.92	1.04
7	Greece	1.07	1.35	1.92	0.95	0.50	1.07	0.60
8	Belgium	1.04	0.96	0.85	0.92	1.10	1.12	1.26
9	United Kingdom	0.97	0.84	1.01	1.02	0.88	0.88	1.20
10	Spain	0.93	1.26	-0.93	1.02	0.89	1.28	2.08
11	Germany	0.91	0.83	1.03	1.00	0.60	0.89	1.08
12	France	0.90	0.68	1.12	0.97	0.69	1.04	0.92
	EU15	0.89	0.86	0.67	0.99	0.63	1.00	1.17
13	Austria	0.83	1.00	0.51	1.04	0.24	0.93	1.23
14	Italy	0.39	0.47	-0.26	0.93	0.01	1.12	0.09

Special Report: Energy efficiency – A key driver of growth

Building on the Lisbon Agenda's commitment to "sustainable economic growth," the European Commission put forward an integrated package of energy and climate-change proposals in January, 2007. Two months later, the proposal was approved by the European Council. Among the programme's key commitments:

- A 20% increase in energy efficiency by 2020,
- A 20% reduction in greenhouse gas emissions by 2020 (and an offer to go to 30% if other countries will follow suit),
- A 20% share of renewables in overall EU energy consumption,
- A 10% biofuel component in vehicle fuel by 2020.

Inventing and deploying environmental technologies and eco-innovations will be key to achieving the targets set out. Ambitious climate protection will require a massive refocus of the entire global economy. But this refocus, in turn, can serve as an important driver of growth, bringing productivity increases in its wake and spurring demand for better, cleaner technologies in new markets. New materials, better technologies, improved production processes and intelligent products can help solve global environmental problems and keep the consequences of climate change in check. And, while success will come easiest to the countries that make the most efficient use of natural resources (raw materials, energy and water), the real winners will be the companies, countries and regions that take the lead in developing and deploying the new technologies.

To be sure, sustained global economic and population growth outside of Europe is increasing long-term pressure to adjust to more economical use of natural resources. Rising prices on the energy and commodity markets in the past few years pose ever more challenge to industry's natural resource management. In short, permanently sustainable economic and environmental development is inconceivable without radical progress on resource productivity. **Just as development of the industrial society during the last century led to a massive increase in labour productivity, so the key to Europe's future economic development now lies in boosting resource and energy productivity.**

Specifically, this means developing and deploying innovative energy- and material-saving technologies, employing new environmentally-friendly technologies and products, optimising work and production processes and tapping recycling potential. **More efficient use of energy sources** is vital to increasing resource productivity. What we need are technologies that minimise not only energy conversion losses (more efficient power plants) but also the emissions produced (e.g. clean coal technologies). Fossil fuel-based power plant technology still holds enormous potential here, if and when additional technologies can be developed and deployed to capture and sequester the carbon produced. The development of new energy technologies not reliant on fossil fuels – which therefore generate no or reduced greenhouse gases – is another central plank of climate protection. Technologies using **renewable energy sources** – water, wind, solar, biomass and geothermal power – to reduce demand for energy as a result of more efficient energy consumption offer particularly good prospects.

Empirical research suggests that overall productivity in an economy grows more rapidly when conditions are conducive to innovation and the rapid dissemination of new knowledge. This is crucial to the development of environmental engineering. Most important in this respect is the problem-adequate utilisation of R&D results, the optimum (usually interdisciplinary) combination of technologies and the consistent translation of technical knowledge into application-oriented environmental protection and management solutions. Economies with a strong science and research environment – such as Europe enjoys – can play a prominent role in these fields. In view of the foreseeable ecological demands, the extremely good growth prospects for "environmental markets" and the discernible technological trends, environmental engineering will be pivotal to economic development as an interdisciplinary cross-sectional technology. Of course, **environmental protection is not a free ride; but we can also see from the empirical data that countries with innovative environmental technologies register positive development in total factor productivity and hence dynamic economic growth** (see the box on page 31 for more on the growth-enhancing effects of improving energy efficiency).

Moving forward, interest will rise in **integrated environmental protection**, which kicks in at the production stage through recycling and more efficient use of energy, water and other raw materials. Economically speaking, as a rule it is much cheaper to avoid environmental pollution from the outset rather than having to remedy the consequences with end-of-pipe technologies in the final stages of the production process. In addition, companies often benefit directly from the cost-saving potential of production-integrated environmental protection techniques, which can be quite considerable. Consequently, production-integrated environmental protection is set to gain enormously in importance worldwide.

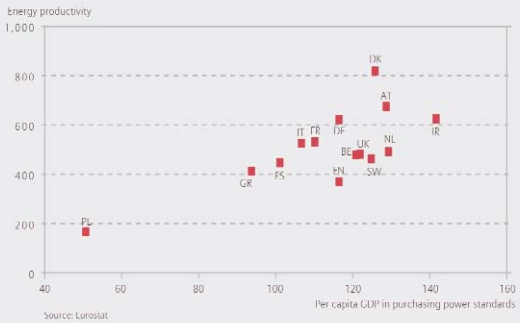
But the question remains, do we have the right regulatory framework for driving forward this change? Under market conditions, technological progress generally focuses only on enhancing the productivity of resources or factors of production that generate costs for the private sector. Given that environmental pollutants are not priced by the market since no "ownership rights" to them exist, emitters do not cost them out adequately, or indeed at all, in their accounting. Where no expenses are incurred, there is no reason to rationalise. Consequently, greater energy productivity and resource productivity in general can only be achieved by **internalising the external costs of environmental pollution.** Only if the tax and subsidy regime is redesigned and prices tell the "ecological truth" will companies and consumers be motivated to alter their production and consumption behaviour. This means incentivising desirable types of production and clamping down on undesirable polluters. **Quality growth must be the objective.**

The state must set the framework conditions for the "internalisation" of environmental costs. Apart from environmental requirements in the form of bans and regulations, market-based instruments also belong prominently in the toolkit. The **introduction of emission rights trading** in Europe is an important way of successfully counteracting climate change, although the system is still suffering from teething troubles. Many of the present shortcomings could be remedied by ceasing to allocate emission permits free of charge and auctioning them instead (in rising proportions), as the European Commission plans to do from 2013. Not until certificates are auctioned will power plant operators be obliged to rethink their investment policies. Once bidding for allowances becomes too expensive they will mothball old plants and replace them with new, lower-emission technologies. And moving beyond climate protection policy, the state also must help kick-start the ecological modernisation of industry with a package of different measures: by speeding up the rollout of innovative technologies, developing a resources strategy, with a sustainable transport policy, and by offering the right fiscal incentives to husband natural resources.

Energy efficiency and economic growth

Can economic growth and prosperity be enhanced by more efficient energy use, or does the reduced consumption of natural resources and energy automatically mean slower growth and less output? From a theoretical perspective, the answer depends on the type of environmental protection and energy policies put in place to achieve these objectives. A cross-sectional analysis of economic performance in EU-15 countries for the year 2004 reveals **a positive correlation between energy efficiency and prosperity levels**. The following chart depicts each country's energy productivity (the ratio of gross domestic product to energy inputs) as a measure of energy efficiency relative to that country's overall prosperity (per capita GDP adjusted for purchasing power parity). The comparison shows that countries with high energy productivity in general also exhibit high levels of prosperity.

Energy productivity and prosperity



Source: Eurostat

In a subsequent analysis of the five biggest EU countries (Germany, UK, France, Italy and Spain), we examined the impact of energy inputs on total factor productivity (TFP) and through TFP on economic growth. In particular, we looked at the contribution to economic growth measured by factors of production and by total factor productivity, computing the percentage change in the real input of capital, labour and energy weighted with the respective (nominal) income shares of value added for a specific period, and

including energy inputs as an additional factor of production alongside capital and labour. This approach is also known as "Solow growth decomposition," a technique for measuring factor inputs developed by US economist Robert Solow.[1] The change in TFP was obtained by subtracting the contributions to growth by the factors of production from GDP growth.

The result also points to a positive correlation between energy productivity, economic growth and overall prosperity. In other words, viewed from the medium to long term, investing in more productive and hence more economical use of energy is not only good for the environment, it also promotes economic growth and prosperity.

Contributions to growth
average annual change in %

	GDP	energy	labour	capital	TFP
Germany					
80-84	1.1	0.3	-0.3	0.6	0.5
85-89	2.7	0.0	0.5	0.8	1.4
90-94	2.7	-0.2	0.0	1.2	1.6
95-99	1.7	-0.2	-0.2	1.3	0.8
00-04	1.2	0.3	-0.1	0.8	0.2
France					
80-84	2.0	0.7	0.6	0.7	2.6
85-89	2.8	-0.2	0.5	1.0	1.5
90-94	1.2	0.1	0.3	0.8	0.1
95-99	2.3	0.1	0.8	0.8	0.6
00-04	1.9	0.0	0.3	0.9	0.8
Italy					
80-84	1.8	-0.6	0.6	1.0	0.9
85-89	3.0	0.2	0.6	0.9	1.5
90-94	1.1	0.0	-0.3	0.7	0.7
95-99	1.6	0.1	0.5	0.9	0.3
00-04	1.4	0.1	0.5	0.9	-0.1
Spain					
80-84	1.1	-0.3	-0.9	0.9	1.4
85-89	4.1	-0.2	1.7	1.6	0.9
90-94	2.1	0.1	0.6	1.3	0.1
95-99	3.4	0.3	2.2	1.6	-0.6
00-04	3.3	0.8	2.0	1.7	-1.2
United Kingdom					
80-84	0.4	-0.2	-1.0	1.1	0.5
85-89	3.5	0.8	1.2	1.4	0.1
90-94	1.5	0.0	-0.6	0.9	1.2
95-99	3.1	0.5	1.1	1.6	0.1
00-04	2.6	-0.1	1.0	1.2	0.5

The table above uses the Solow growth decomposition model to break apart and chart factors of production and total factor productivity for five-year periods from 1980 to 2004 at the industry level in the EU's five largest economies (France, Germany, Italy, Spain and the UK). The calculations were based on the EU KLEMS database. The income weighting is between 50% and 66% for labour, between 20% and 35% for capital and between 5% and 20% for energy.

[1] Neuhaus, Marco: The Impact of FDI on Economic Growth, 2006.

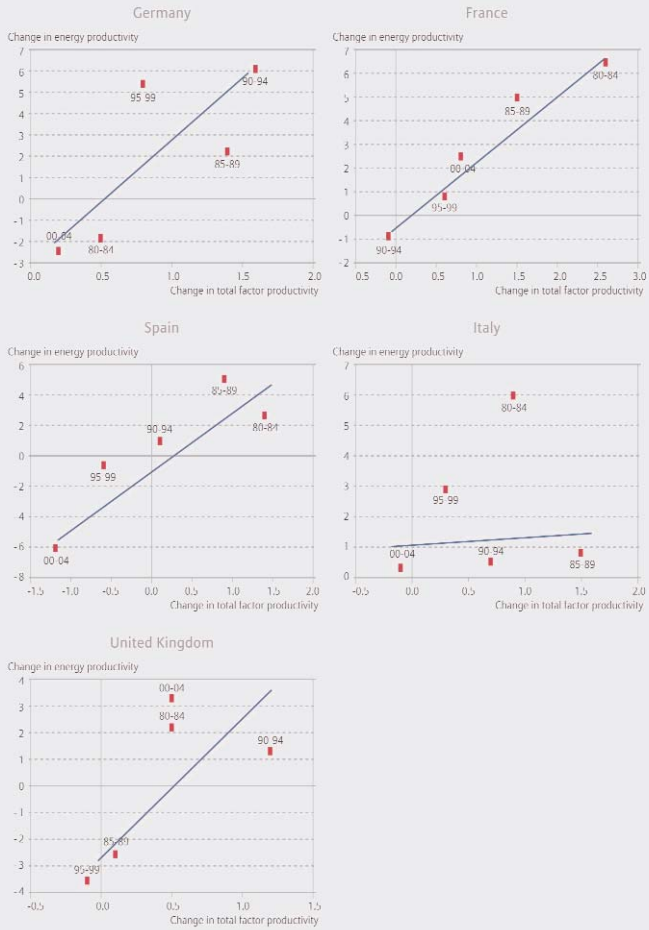
The outcomes from this growth decomposition show total factor productivity generally delivering a notable contribution to economic growth, particularly in the case of Germany, where half the value added in the years from 1985 to 1994 was accounted for by an increase in total factor productivity. One exception is Spain, where total factor productivity shrank between 1995 and 2004 even though real economic growth over the same period averaged more than 3% per year. This is partly a reflection of strong economic growth in Spain in areas of low productivity, such as housing construction and the services sector.

To shed further light, we also looked at the correlation between energy productivity and total factor productivity. Following the logic of the Solow decomposition model, the deployment of more energy-efficient technologies could increase the efficiency of production on given capital and labour inputs. In that case, total factor productivity would rise. However, it is also conceivable that energy efficiency increases as a result of the use of certain types of energy, possibly because their use has been administratively decreed, so that output on given capital and labour inputs – and with it total factor productivity – falls.

The results were tentatively positive, indicating that countries which adopt environmental technologies quickly do reap some benefit in overall productivity performance (though a direct correlation is not possible to demonstrate on available data). The charts on page 34 show the change in total factor productivity for the individual countries and the five periods in comparison to the change in energy productivity. The trend lines all show a positive correlation between energy productivity and total factor productivity in each of the countries surveyed (though, at five, the number of observations is relatively small). Nonetheless, it can arguably be concluded that **the more efficient use a country makes of energy as a production input, the greater the increase will tend to be in total factor productivity and therefore in economic growth and prosperity.**

In four of the five countries surveyed, the analysis also shows a positive connection between changes in energy productivity and labour productivity. Only in Italy, where the correlation between energy productivity and total factor productivity is the least pronounced of the countries analysed, can no clear reciprocal relationship be identified. The positive correlation established between energy productivity and labour productivity/total factor productivity corresponds with the findings of several other studies, which also conclude that as a rule high rates of increase in labour productivity are accompanied by similarly strong increases in total factor productivity.[2]

[2] Crafts, Nicholas: What Creates Multi-Factor Productivity? Paper prepared for the joint ECB, Bank de France and The Conference Board conference "The Creation of Economic and Corporate Wealth in a Dynamic Economy", Frankfurt 2008


Germany
Change in energy productivity
90-94
95-99
85-89
00-04
80-84
Change in total factor productivity
France
Change in energy productivity
80-84
85-89
00-04
95-99
90-94
Change in total factor productivity
Spain
Change in energy productivity
85-89
80-84
90-94
95-99
00-04
Change in total factor productivity
Italy
Change in energy productivity
80-84
95-99
00-04
90-94
85-89
Change in total factor productivity
United Kingdom
Change in energy productivity
00-04
80-84
90-94
85-89
95-99
Change in total factor productivity

Of course, pushing ahead with climate protection will entail some economic burden – which will likely have to be shared worldwide. We are, after all, talking about reducing the carbon footprint of traditional patterns of production and consumption by an average of at least 50%, and in the industrial countries by fully 80%, with very tough timelines. Ultimately customers will have to pick up much of the bill. The European Commission calculates that the new climate protection targets will push up the price of a new car by an average of EUR 1,300. The total **cost of an effective climate protection policy** is estimated at roughly 1% of global economic output a year. But the potential damage from doing nothing is put far higher. Moreover, in the course of ecologically driven structural change, central **markets with powerful growth momentum** are emerging, particularly markets for energy technologies, sustainable mobility and transport technologies, efficiency technologies, recycling technologies and water supply and waste water technologies.

The pace of this environmentally driven structural change will hinge on how quickly innovations to avoid greenhouse gases can gain ground on the global market. Their impact so far is marginal because the market has not yet put a price on carbon emissions. This kind of pricing would come about with the **introduction of a global emission rights trading system** – which, however, requires international agreements. It would be extremely helpful if Europe could show that its own permit trading system was working. Only then will it be able to persuade the rest of the world whose carbon footprint today accounts for 85% of the total – to take part in global emission rights trading. Otherwise there is little prospect of the world coming round to a regime of lower greenhouse gas emissions.

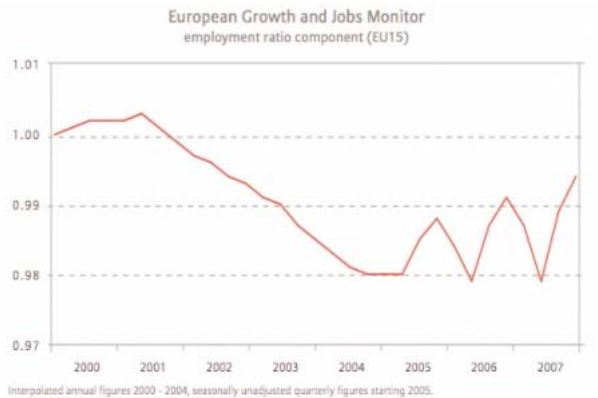
The contribution that Europe can make towards solving the world climate problem lies in creating a functioning market for emission rights and initiating a competitive European market for renewable energies. Both will ultimately lead to the development of efficient technologies helping to reduce CO_2 emissions. In creating these markets, Europe will prove that economic growth and carbon restraint are not only compatible, but ultimately mutually self re-enforcing. If it can deliver on this promise, countries like China and India should also be prepared to come on board. For Europe's economy, this could mean tapping into new export markets for low-carbon technologies. Taking the global view, Europe therefore has a chance to seize the initiative in creating energy supplies with low environmental impact and adopting cost-effective solutions that will help our economy grow and prosper in the future.

Is 2008 a watershed for Europe's 'Lisbon Agenda'?
March 6, 2008 by edslr

It's all really good news for the EC, according to the report European Growth and Jobs Monitor: Indicators of Success in the Knowledge Economy 2008 released today by Allianz SE, one of Europe's leading financial service providers and the Brussels-based think tank The Lisbon Council. Indeed the report goes on to claim that 2008 marks a watershed for Europe (see our earlier report on the EC's assessment of Lisbon in 2007). When some parts of the world are reeling from more and more bad news stories about economic slow-downs and rising debt, this claim surely needs to be looked at more closely. According to Allianz SE, despite earlier set backs and significant policy reorientations and renovations (see Kok Review 2004) as a consequence since 2005, the Lisbon strategy is now believed to be achieving its goals.

The report notes:

…at the time of writing, Europe outpaces the United States in economic growth. And, for the first time in more than 10 years, productivity is growing faster on a quarterly average basis than in the US - an intriguing trend which, if it proves sustainable, could signal a real turning point in Europe's decade long effort to establish itself as truly "the most competitive and dynamic knowledge-based economy in the world", as the original Lisbon Agenda proposed. In other words… …Lisbon is working.



However as Financial Times reporter, Tony Barber, notes:

It sounds almost too good to be true. The report's tone would certainly surprise many political leaders and businessmen in the US and Asia, where Europe is often portrayed as a continent in relative economic decline. In fact, when you read the Lisbon Council report in full, you begin to suspect that its real message is that the European economy, though strong in many respects, has obvious weaknesses as well. For example, on research and development spending, there has been "limited progress" and "most countries have a lot of catching up to do".

current rank		one year ago
1	Netherlands	3
2	Sweden	2
3	Denmark	1
4	Austria	4
5	Finland	5
6	Ireland	6
7	Germany	9
8	United Kingdom	7
9	Spain	8
	EU15	
10	France	10
11	Greece	11
12	Belgium	13
13	Italy	12
14	Poland	14

Looked at more closely, it is clear this up-beat report hides what might be regarded as more disturbing facts.

For instance, spending on R&D, one of the big targets for Europe in realizing a knowledge-based economy, is still a long way off target. Add to this that a number of education systems in Europe are also off target with high-drop out rates of young learners whilst in countries like Germany only about one-fifth of 15-year-olds plan to go on to university and the picture becomes less rosy.

Leaving aside for the moment the contentious matter of whether greater levels of participation in higher education automatically lead to a knowledge-based economy, it is evident that there are several ways of reading this 'good news'.

As we can see from the table of current ranking and one year ago, it is not so much a question of Lisbon now being realised–if we view this as a regional strategy, but some economies across Europe currently performing much stronger than others.

In other words, we are seeing the effects of the strong performance of

some countries (Denmark, Finland, Ireland and Sweden) and the weak performance of others, especially Italy.

What is certain from the report is that higher education will continue to be a center piece of European policy and that the 2007 agenda - to keep up the pace of change - is likely to continue to 'shake up' the sector in continuing radical ways.

Susan Robertson
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Nel 2008 la Fondazione Adriano Olivetti ha inaugurato la Collana Intangibili con l'obiettivo di consentire una più ampia e tempestiva divulgazione dei risultati delle sue attività attraverso gli strumenti dell'editoria digitale. I volumi della collana sono disponibili online e si distinguono dalle consuete pubblicazioni della Fondazione grazie a due essenziali novità: puntuali annotazioni a margine del testo che rimandano ai temi dei paragrafi, e un'appendice dove sono resi disponibili alcuni documenti di approfondimento. Nella Collana Intangibili vengono presentati gli atti dei seminari promossi dalla Fondazione e i risultati di ricerche ritenute di significativa importanza scientifica, anticipando la loro eventuale pubblicazione all'interno della tradizionale serie dei Quaderni della Fondazione Adriano Olivetti. La Collana Intangibili aderisce alla licenza Creative Commons che concede di mantenere i diritti d'autore permettendo allo stesso tempo, di copiare e di distribuire l'opera purché se ne riconosca la paternità originaria.

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