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## **A measurement framework for international entrepreneurship policy research: from impossible index to malleable matrix**

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**Abstract:** The Global Entrepreneurship Monitor (GEM), a multifaceted, multinational research programme now in its seventh year of field operation, currently dominates the field of international entrepreneurship policy research but faces a crisis of credibility. Despite having created and continuing to develop a very rich database capable of addressing many of the complexities requisite for understanding entrepreneurship at the national and international levels of analysis, GEM has chosen to disguise the depths of its potential research and policy utility through a misnamed quest for unobtainable simplicity at the centre of the project and a disorganised variety of report presentations at the periphery. Subsequent to a review of the entrepreneurial definitional literature and a resolution of its many themes into six components of entrepreneurial activity, based on Penrose's (1959/1995) articulation of the practical meaning of 'entrepreneurial services', this paper suggests that a 'malleable matrix' approach can provide a practical measurement framework capable of reporting national entrepreneurial activity in a structure that is comprehensive without being overwhelming.

**Keywords:** entrepreneurship; policy; measurement; framework; Global Entrepreneurship Monitor (GEM).

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## **1 Introduction: the relevance of the *Global Entrepreneurship Monitor* (GEM) to International Entrepreneurship Policy**

Focusing on a critique of the *Global Entrepreneurship Monitor* (GEM) programme (Acs *et al.*, 2005; Reynolds *et al.*, 2004; and numerous national and executive reports spanning the years 1999 to 2005<sup>1</sup>), this paper combines general argument and specific evidence in support of the proposition that the research framework underpinning entrepreneurship policymaking should be made as simple as possible – but not more so.<sup>2</sup>

The plea in support of the proposition is made to three specialist communities – entrepreneurship researchers, public policymakers and media commentators – on behalf of a fourth constituency, the general public. The entrepreneurship research community, particularly that section of it comprising the consortium of international scholars who constitute the various national teams conducting the GEM research programme, needs to show enough leadership to tell clarity-seeking members of the policymaking and media communities that they cannot have what they may think they want: a simplistic basis for entrepreneurial comparisons and policy.<sup>3</sup> The policymaking and media communities need to develop sufficient respect for entrepreneurship as a seminal element of national economic and social life to discard any simplistic desire for magic numbers or easy formulae. For good policymaking and good journalism, there can be no ‘quick-fix’ substitute for acquiring varied and detailed knowledge of entrepreneurship. Only when the requisite levels of knowledge and respect for entrepreneurship’s complexity are in place among key actors in policymaking and the media will the general public begin to have a fair chance of recognising the vital importance of entrepreneurship and entrepreneurship policy in national life. This is why it is so vital for entrepreneurship policy researchers to be stringent in their methodology, precise in their nomenclature and lucid in the communication of their findings. In the context of these three mandates, I wish to examine selected aspects of the world’s largest entrepreneurship research programme, the GEM.

My examination of and suggestions concerning the GEM project are conducted in the hope of improving both the operation of the project itself and the credence given to it by the research, policy and media communities. I believe that lack of effective communication (rather than any inherent flaws in GEM’s emerging methodology) is jeopardising the credibility – and hence ultimately the viability – of the project. I write in the belief that GEM is a programme with very great potential. Properly developed, it can provide data which policymakers throughout the world may come, over time, to use and value as essential evidentiary inputs to the policies and programmes they create to advance the welfare of their citizens in the context of global competition. If GEM is prepared to institute a fresh approach to both its core nomenclature and structured presentation of its findings, I can foresee a time when GEM data (detailing the entrepreneurial economy, which creates the jobs of tomorrow) will be considered to be just as important for national economic policymaking as the established repositories of national accounts data (detailing the established economy, which contains the jobs of today). However, I also strongly believe that GEM is at risk of failing in this mission and imploding as a credible project unless it urgently changes the emphases it employs to present its findings to key audiences. GEM currently persists in adherence to two grave faults. First, it uses bad nomenclature for certain key measures, pandering to the belief that the project’s research findings will never capture the attention of policymakers or journalists unless GEM provides a ‘catchy’, single ‘index of everything’. In particular,

GEM unduly emphasises what it wrongly and unnecessarily calls the Total Entrepreneurial Activity (TEA) Index.<sup>4</sup> Second, though GEM ostensibly exists to permit international comparability of research findings, there is absolutely no conformity of presentation among the many national reports produced by GEM consortium teams. Crudely put, the GEM project is good research disguised by bad nomenclature, misplaced emphases and unsystematic reporting of national findings. In this paper I largely avoid discussion of detailed operational and methodological problems of the GEM project. Others are at work in that area (see, for example, Rosa *et al.*, 2005a–b). GEM, in common with every other major longitudinal research programme, is a project fraught with many detailed methodological problems in the nature and methods of its data collection techniques. These can be solved as the project evolves. My concern is that the project may not get the chance to evolve unless, at a higher level of organisation, it commits to a far more systematic regime of naming, organising and disseminating the data it collects and the insights it generates.

In presenting its most public face (summary data to media and the nonresearch community), GEM rightly seeks to capture the attention of journalists, policymakers and other audiences who are not specialists in entrepreneurship research. In pursuing this quest, GEM wrongly and disproportionately emphasises only certain aspects of the rich database that the research programme has collected and is developing. To compound the fault, GEM uses and persists in using very misleading nomenclature for certain key variables and indices. The worst offence in this regard is the use of the term ‘Total Entrepreneurial Activity Index’ for what is simply a measure of the percentage of a nation’s population participating in early-stage businesses. This may or may not be an important component of national entrepreneurial activity (I will argue that this depends on a network of factors pertaining to the particular country), but is simply not the whole story. It is a mistake to call something total when it is partial, it is a mistake to call all of a phenomenon ‘entrepreneurial’ when only part of it is, and it is a mistake to confuse ‘participation’ with ‘activity’. Finally, it is a cardinal mistake to focus disproportionate attention on a single indicator when it represents only a small proportion of the rich data that GEM collects and analyses.

Even if we allow that the most crucial ingredient in any definition of entrepreneurship is new business creation<sup>5</sup> – and it is highly controversial to do so (see Shane and Venkataraman, 2000, *passim*), there remain three issues that researchers and policymakers interested in understanding entrepreneurship and its effects at the national level simply cannot avoid. First, businesses, and the people who work in them, can display entrepreneurial behaviour – including the act of new entry into new markets – at all stages of their evolution. Though entrepreneurship is vitally concerned with ‘newness’, novelty in business is not confined to early-stage behaviour. Established firms can practice innovation, and corporate entrepreneurship is an area subject to a growing body of research. Second, the true measure of the entrepreneurial nature of any nation’s businesses is not their *quantity* – singular – but their *qualities* – plural. Entrepreneurial businesses are distinguishable from nonentrepreneurial businesses according to their display of characteristics which can be measured and which GEM does measure – albeit imperfectly. These include motivation, innovative propensity, growth orientation, adequacy of finance and the entrepreneurial capacity of the human resources of the firm. Third, it remains true that measurement of such characteristics is and will always be difficult and contentious. There will never be an absolute, universally agreed upon set of

criteria to decide the debate about what qualities, in what degree, should be used to distinguish between entrepreneurial and nonentrepreneurial business behaviour and the entrepreneurial or nonentrepreneurial classification of businesses created by that behaviour. These thorny issues create a thicket of difficulty. They may never be capable of perfect resolution but researchers, policymakers and media commentators cannot simply walk around the thicket: they have to try to hack their way through it.

The duty is especially incumbent upon entrepreneurship researchers. Even definitions that regard entrepreneurship principally as 'the act of new entry' (Lumpkin and Dess, 1996) are bound to recognise that 'acting' is not an instantaneous phenomenon: it takes place through time, and therefore the problematic issue of a business's evolution and activities at various stages of that evolution – not just its birth or the early stages of its development – must be given careful consideration. Accordingly, a purported monitor of entrepreneurship at the national level needs to pay attention to the entrepreneurial activities of established firms, not just early-stage firms. Next, in any walk of life, some actors – and the artifacts of their actions – are simply better than others. In the domain of business creation and development, some entrepreneurs are better than others and some ventures are more entrepreneurial than others. So, to measure 'entrepreneurship' – as distinct from mere 'business ownership' – one is forced to consider concepts, constructs and variables capable of distinguishing degrees of quality. One cannot unduly isolate the rate of participation in early-stage venturing as the only rose in the thorn bush, as GEM currently does. Mere counting of the number of participants engaged in early-stage venturing is a woefully inadequate measure of total entrepreneurial activity. Yet early featuring of this misleading index is about the only thing that most GEM national reports currently have in common. Naturally, the national teams go into considerable depth to explain the pattern of activity that characterises the annual and longitudinal nature of entrepreneurship in their countries. However, there is no consistent design or layout of national reports that would in any way facilitate comparisons between them.

Frustratingly, the GEM project *has* created and is continuing to develop a very rich database capable of addressing many of the complexities requisite for understanding entrepreneurship at the national and international levels of analysis, but has chosen to disguise this in a misnamed quest for unobtainable simplicity at the centre of the project and a disorganised variety of report presentations at the periphery. Many people coming to the GEM data for the first time never get beyond the early stages of scoffing incredulity when the first graph they see in a GEM national report or global executive report is labelled 'Total Entrepreneurial Activity' and shows, *inter alia*, Peru and Uganda far outstripping the USA. If they were prepared to read further, their initial misconception would be overcome. But why should they read further? What is the incentive? Among certain members of the international policy and media communities, misunderstanding about the real virtues of the full range of GEM data has reached such a point that an alternate programme is being proposed. As will be discussed subsequently, this programme is itself based on wishful thinking about all-encompassing indices. So, the result of GEM's poor project promotion based on a wrongly named index, which is the only common feature of a disarray of national reports, has led to the nascent and hazy development of an alternate programme which itself promises to provide the type of simplistic policy indicator that cannot be provided by *any* entrepreneurship research programme. Meanwhile and internationally, the level of general understanding of entrepreneurship among both the general public and policymakers is characterised by too few resources and too little research-based knowledge. The worst possible outcome

for good entrepreneurship research, good policymaking, good journalism and good public understanding would be the emergence of a battle for funding by two or more competitive international research programmes, each promising policymakers what it is impossible to have: a measure of total entrepreneurial activity focused on one simple indicator.

So much for the bad news.

The good news is that the substance of the GEM programme is methodologically strong, and capable of incremental improvement. Even better, the data generated by GEM can be presented in a way that is respectful of complex realities, without being so arcane or so overwhelmingly complex as to prevent understanding by nonspecialist audiences. Better still, it is possible to provide guidelines for a more comprehensive and systematic presentation of results that will enhance the comparability without fettering the variety of national reports. In this paper, I argue that the false quest for the impossible index can be replaced by the achievable use of a malleable matrix. The proposed matrix embraces three time-defined stages of business development (start-up, young and established) as its columns and six distinguishable components of total entrepreneurial activity as its rows (participation, motivation, growth orientation, innovative propensity, financial support and entrepreneurial capacity). The GEM project provides good (though far from perfect) data for every cell in this three-by-six matrix, and the resultant tapestry gives a good picture of the pattern of national entrepreneurial activity in a way that a mere head-count of early-stage business participants cannot. The matrix is 'malleable' in two ways. First, each country can insure that it presents the basic GEM data for each cell in the matrix. This will be sufficient to insure excellent comparability between nations. However, beyond basic coverage, each nation will be free to emphasise or de-emphasise the particular elements and relationships that matter most in its national entrepreneurial context. Second, the matrix approach is malleable in terms of constantly improving methodology. Over time, it can be shaped and developed as GEM's data collection and analysis techniques improve.

The task of re-establishing GEM on the path towards achieving its potential as an annual and seminal focus of international research and policy attention requires only incremental improvement in research operations (gradual refinement of survey instruments and other data collection techniques to improve the data contained in all cells of the matrix). However, the rehabilitation task requires radical overhaul of the key communication aspects of the project: a rethinking of focal nomenclature, data emphases and the consistency of approach used in reporting results. At present there is absolutely no consistent framework informing the presentation of national reports. While it will be wise to continue to avoid the straitjacket of stultifying conformity, it would be wiser to seek a common but flexible framework so that readers of one national report can compare its findings effectively and efficiently with another. This is currently not possible. Every national report is *sui generis*. The only common ground a reader of more than one report is likely to find is endless repetition of the chart containing that country's TEA Index score. Since, as will be shown, this index is both misnamed and uninformative (unless placed in a structured context), the consumer of GEM research gets the worst of both worlds: oversimplification *and* lack of comparability between national reports. Fortunately, it will not be difficult to overcome this problem of communication of results. To do so, the paper proceeds as follows.

A brief overview of the virtues, limitations and misunderstandings of the GEM project is followed by a summary of the inadvertent misrepresentation of GEM through poor nomenclature and distorted emphases. Then a generic conceptual framework for collecting and organising national entrepreneurship data is presented. Next, concept meets practice through a regime for specific, practical implementation of the general framework in the context of the nature and limitations of GEM data. Following a brief outline of alternative and adjunct initiatives by GEM's competitors and allies, the discussion embraces six recommendations vital for the continued relevance of GEM as an international evidentiary basis for entrepreneurship policymaking.

## **2 Virtues, limitations and misunderstandings of the *Global Entrepreneurship Monitor (GEM)***

### *2.1 The essential need: evidence-based national entrepreneurship policy*

This point is so axiomatic that it needs no amplification. Good policy in any field must be based on good evidence. Entrepreneurship policy is no different. GEM's fundamental mission was and remains the provision of an evidentiary basis for the creation of constructive entrepreneurship policy in all the countries which participate in the programme.

### *2.2 Summary description of the GEM project's Intentions, operations and status*

#### *2.2.1 Intentions*

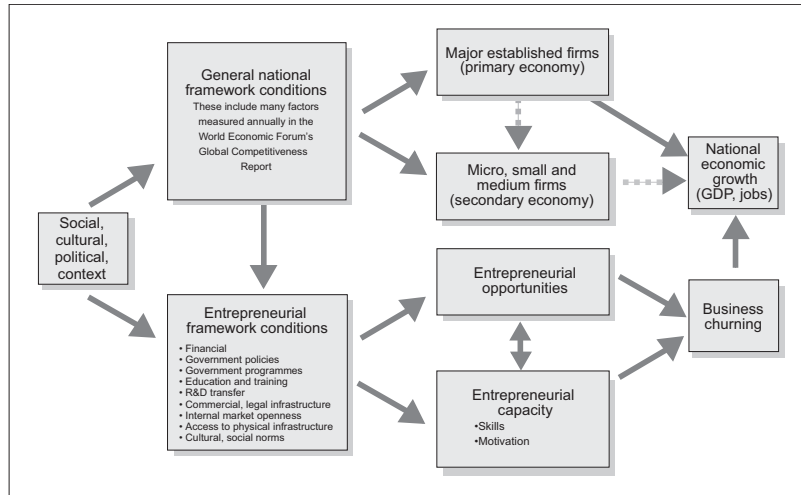
The concepts leading to the GEM project were initiated in September 1997.<sup>6</sup> The aim was to develop an international consortium to bring together specialist scholars to study the complex relationship between entrepreneurship and economic prosperity at national and international levels. In both the national and executive GEM reports (see below for the distinction), there is an avowed intent to influence public policy by providing an evidential basis, for policy and programme development purposes, to agencies which might otherwise lack a source of data and argument devoted exclusively to entrepreneurship issues.

GEM seeks to explore four fundamental questions:

- 1 Are there national differences in entrepreneurial activity?
- 2 What are the national consequences of entrepreneurial activity (scope, job creation, growth, social impact)?
- 3 Why are some countries more entrepreneurial than others?
- 4 What can be done to enhance entrepreneurial activity?

These questions are explored in the context of a theoretical model illustrated in Figure 1.

Figure 1 The GEM theoretical model



Source: Acs et al. (2005)

Before the advent of the GEM project, most studies of economic performance focused on *established* enterprise – the *status* sector of the economy. The value of emerging (as distinct from established) enterprise was missing from most attempts to measure economic performance. GEM explores a set of factors that specifically and variously influence the entrepreneurial sector. These are termed the ‘Entrepreneurial Framework Conditions’ and are the basis of questions employed in both a national population survey (minimum of 2000 respondents per country in a statistically valid random sample) and a combination of structured and unstructured interviews with ‘expert key informants’ subjectively selected on the basis of their knowledge and credibility with respect to the various conditions. In the GEM research model, the framework conditions are considered to be the main determinants of a nation’s *entrepreneurial environment*. They achieve their influence in combination with *entrepreneurial opportunity* and *entrepreneurial capacity*. These factors – environment, opportunity and capacity (the *skills* required to capitalise on an opportunity, augmented by the *motivation* to do so) – act together. Their combination determines the rate of business *participation*: birth, death and growth (business churning) which, in association with other component activities and attributes of entrepreneurs and the ventures they create, combine to affect economic growth and prosperity.

It is obvious, then, that GEM’s *research intentions* have always been multidimensional and multi-faceted. However, this paper argues that what might be called its *attention-capturing intentions* have been at odds with and detrimental to the project’s ability to convey the catholicity of its research intent, scope, power and utility. Worse, glacial pace in changing counter-productive emphases in matters of communicating its results and benefits is threatening the very survival of the project, despite the fact that the quality and utility of its research output is actually improving. Competitive projects are in the offing and will be addressed later in this paper. Worse again, GEM seems blasé about the advent of this potentially project-threatening competition.

### 2.2.2 Operations

Organisationally, GEM is a consortium of independently financed national research teams, centrally coordinated through an executive team currently based at the London Business School. From the outset, the project was designed to be a long-term multinational enterprise, with a growing number of partner research institutions and teams. GEM was launched in 1999 with teams representing ten countries and has expanded rapidly since then. Participant countries (by year of joining) are shown in Table 1.

**Table 1** GEM participant countries (accumulated)

<i>Year</i>	<i>Countries</i>
1999	Canada, Denmark, Finland, France, Germany, Israel, Italy, Japan, UK, USA
2000	Argentina, Australia, Belgium, Brazil, India, Ireland, Norway, Singapore, Spain, South Korea, Sweden
2001	Hungary, Mexico, The Netherlands, New Zealand, Poland, Portugal, Russia, South Africa
2002	Chile, China, Croatia, Hong Kong, Iceland, Slovenia, Switzerland, Taiwan, Thailand
2003	Greece, Uganda, Venezuela
2004	Ecuador, Jordan, Peru

Viewed in terms of what it does and what it produces, GEM is both a set of linked, international research projects and a set of documents that report project results. Each nationally based research team produces an independent, national report (*GEM Australia*, *GEM USA*, *GEM Japan*, etc.), which explores in detail the nature, extent and effects of entrepreneurship within the individual country, and includes selected comparisons with other nations. At the international level, a coordinating team (currently based at the London Business School) oversees data quality control and produces the *Global Entrepreneurship Monitor Executive Report* (the latest version is Acs *et al.*, 2005). This aggregate document aims to present major findings across all participating countries and to describe any emerging patterns that have global as distinct from merely national significance.

The funding for GEM research depends entirely upon the ability of each national research team to find a sponsor. Some countries have single sponsors, some a combination of several sponsors. Some sponsors come from the private sector, some from the public sector and some from the nonprofit sector. Sponsors obviously seek goodwill benefits through supporting dispassionate, public-domain research. However, GEM sponsors are and must be totally dispassionate with respect to the *conduct* and *findings* of the research. Data collection, analysis and inference from each national GEM project are conducted and controlled by the professional researchers in each team, acting as social scientists committed to the search for truth in the public interest.



As discussed, GEM's research methodology embraces three main data collection methods:

- 1 An adult population survey, randomly sampling a minimum of 2000 typical adults in each participating nation.
- 2 Face-to-face open-ended interviews with experts (called 'key informants') on various aspects of entrepreneurship. These experts (and others not necessarily subjected to the face-to-face depth interview) also complete a detailed, structured questionnaire.
- 3 The use of selected secondary national economic data, measured in standard units, from credible international sources, including the Organisation for Economic Cooperation and Development (OECD) and the World Bank.

### 2.2.3 *Status*

Frankly, the status of the GEM project is a chameleon. The respect accorded to it depends on whom you ask and where you ask. For instance, in The Netherlands, the project has direct policy credibility. It is financed by the Ministry of Economic Affairs and conducted by a team of researchers including some of the world's most highly respected econometricians. Policymakers in The Netherlands are deeply engaged and not put off by such 'petty' worries as inelegancies of nomenclature. Germany has high-level government support and respect for the work done by its GEM researchers. The UK is perhaps the country whose policy community has developed the highest level of respect for the GEM project. Policymakers seem to have transcended any problems that may result from clumsy nomenclature, oversimplifying tendencies and unsystematic modes of result presentation. Rebecca Harding, formerly Project Director of GEM UK and (at time of writing, May 2005) currently with Deloitte Research UK, reports<sup>7</sup> that the GEM UK data file has been checked through by Small Business Service statisticians and 'given the thumbs up' in terms of sampling and survey methodology. The Treasury and the Department of Trade and Industry include TEA as one of the UK competitiveness indicators under the productivity driver, 'entrepreneurship'. Female TEA rates are used nationally and regionally to measure changes in levels of start-ups amongst women. The increase in French entrepreneurial activity has triggered a series of high-level meetings between the UK and French governments (which may culminate in an Anglo-French summit), and the data for ethnic minorities underpinned announcements by the Chancellor in the 2005 UK budget. At the launch of the All-Party Parliamentary Group on Entrepreneurship, which Harding advises, three out of four of the speeches mentioned GEM data. It is also used in parliamentary questions on entrepreneurship (and is therefore in Hansard) as well as in ministerial speeches right up to Secretary of State level. So, if the UK were the only example or a typical one, there would superficially be no need for the arguments advocated in the present paper. UK policymakers do not seem to be bothered by the nomenclature of the TEA Index. For them, a rose by any other name would smell as sweet. However, the UK case is atypical.

In extreme contrast, Mexico participated only once in the GEM project (the 2001 GEM cycle). When the *Global Entrepreneurship Monitor Executive Report* was released showing Mexico leading the world in 'total entrepreneurial activity', the project was greeted with howls of derision from economists, social scientists, journalists and policymakers who did not trouble to read beyond the first graph.<sup>8</sup> Between the joy of the

UK and the misery of Mexico, in many other participant countries outside the European Union, knowledge and acceptance of GEM research credibility is substantially and unnecessarily hampered by the project's poor nomenclature and unsystematic presentation of findings. In Norway, for instance, there have been two camps from the outset: GEM attackers and GEM defenders.

Australia provides a potent illustration of the way in which overemphasis on the misnamed TEA Index has encouraged entrepreneurship policy misunderstanding, complacency and unwillingness to proceed from the first graph of a GEM report to the detail. Australia has, by world (and particularly by *developed* world) standards, a high percentage of its population participating in early-stage, owner-operated businesses. Misnaming the measure of such participation as 'total entrepreneurial activity' has provided policymakers with an excuse for complacency rather than a stimulus to action. This has occurred despite the weight of analysis in every GEM Australia report, since 2000, urging readers *not* to confuse quantity with quality when assessing the need for entrepreneurial improvement (Hindle and Rushworth, 2000; 2001; 2002; 2004). However, such warnings have been unable to transcend the oversimplifying influence of the international GEM project focusing undue attention on early-stage participation rates and misnaming the associated index. The depth and scope of the Australian project's research findings have often been over-shadowed. Impatient constituencies have rushed to judgement on the basis of a distorted impression. A case in point occurred shortly after the appearance of the first GEM Australia report (Hindle and Rushworth, 2000). A senior federal public servant from the Department of Foreign Affairs was serving on an important interdepartmental committee. This official rang the GEM Australia report's project director to ask whether it were true, as had been stated by the member of the committee who was representing the Treasury Department, that –quote: "Australia does not need to develop any specific policies with respect to entrepreneurship because the Total Entrepreneurial Activity Index of the GEM report shows us to be the fourth most entrepreneurial country in the world". In fact, Australia is desperately in need of enlightened entrepreneurship policies to overcome grave weaknesses in business motivation, growth orientation, innovative propensity, the financial support environment and the entrepreneurial capacity of a people living in a nonentrepreneurial cultural environment where the education system does not feature or encourage entrepreneurial skills (see Case study 3, below).

Hopefully, a newly adopted matrix approach for the presentation of GEM results and the renaming of the TEA Index as the Presentation of Early-stage Participation (PEP) Index (see below) may help prevent such crude misunderstandings in future, in countries whose policy communities are less advanced in their appreciation of the importance of entrepreneurship than those of the USA and the European Union. There is little doubt that the removal of grandiose and unjustifiable nomenclature would strengthen the defenders, weaken the attackers and diminish misunderstanding of the project.

Finally, it can be argued that the acceptance of poor GEM nomenclature by the policy communities even in very pro-GEM European Union countries – especially the UK – has its negative as well as its positive aspects. In particular, if any policymaker is of the opinion that the TEA Index, rather than just being a poor name for a good but limited indicator, actually *is* the last word (rather than the opening commentary) on 'total entrepreneurial activity', then that policymaker is sadly deluded and national policy will ultimately suffer as a result of the delusion.

### *2.3 The market for oversimplification versus the crisis of credibility*

It is completely unsurprising that, when it comes to entrepreneurship policymaking, there is a big market for oversimplification:

“Entrepreneurship is a multi-faceted phenomenon. This may explain why research on entrepreneurship spans so many academic fields under many disparate guises. At its best, the subject has generated a diversity of approaches and perspectives. At its worst, it has a ‘Tower of Babel’ nature, where each academic discipline speaks its own distinct language with its own methodology, impenetrable by outsiders.” (Verheul *et al.*, 2002,p.67)

Policymakers – the politicians, public servants and specialist advisors charged with the responsibility of directing the public resources of a nation for the public good – are busy, powerful people. Time-poor, subject to information overload and confronted with a mass of contending and contentious perspectives in the unfamiliar, multidimensional field of entrepreneurship, many will be highly attracted to the false promise allegedly contained in a single Total Entrepreneurial Activity Index.

The GEM consortium is seeking to raise awareness of the quality and policy utility of its research. In this vein, the second GEM Research Conference (Budapest, 25–27 May 2005)<sup>9</sup> contained rigorously refereed academic papers of a high standard and attracted participation from a number of European politicians and policymakers who are displaying a growing interest in and sophistication of approach to matters entrepreneurial. However, while this is not quantified in any formal way, it is highly likely that most policymakers in most countries are not conversant with the entrepreneurship research literature, find entrepreneurship a problematic area, and do desire simple metrics as the basis for clear decisions.

There is no shortage of international policymakers in search of the impossible index. Let the case of Singapore be the final example. At the International Planning Meeting of the GEM consortium, held at the London Business School in January 2005, the national Project Director of GEM Singapore, Professor Poh Kam Wong, addressed the national teams. He described the funding pressure to which GEM Singapore was subjected. The policymakers in that country wanted a simple index, a magic bullet to shoot through the mass of complexity, a simple guide to a complex area. They could clearly see that the TEA Index was not the answer to their prayers. They knew very well that the indicator simply did not provide what they wanted – a measure of total entrepreneurial activity in one easy number. Alarming, instead of recognising the impossibility of *any* index or indicator *ever* being able to provide such oversimplified guidance, Singapore’s policymakers were turning away from support of GEM and towards another project which seemed to promise that the holy grail – one index of absolutely everything – could be achieved. This is the International Consortium on Dynamic Entrepreneurship Benchmarking, which aims to create the Entrepreneurial Index. The challenge of this initiative to the GEM project will be discussed briefly later.

Policymakers are not the only people in the market for oversimplification. The media are enamoured of things like simple comparison charts. A bar graph showing where your country ‘ranks’ in total entrepreneurial activity has instant appeal. The likely results include vacuous, misleading headlines such as: ‘New Zealand More Entrepreneurial Than USA Study Finds’. Such headlines may grab attention and may even raise public awareness of entrepreneurship, but they will not increase public understanding. Ultimately, they will make things worse, not better.

What all constituencies need is not an impossible index, a quest for unachievable oversimplification. The making of better entrepreneurship policy in any nation requires as its evidentiary basis a carefully named, research-derived, parsimonious set of reasonable measures. Credibility demands that things should be made as simple as possible – but not more so.

#### *2.4 The product of oversimplification: an impossible index*

Even in countries such as the UK where its results are well accepted, the GEM project has suffered through the inadvertent misrepresentation of its deeper significance due to poor nomenclature and distorted emphases. Worse, it is very difficult for needed changes to triumph over the operational inertia of large-scale research projects. Changes are very hard to make in an environment where representatives of some 40 multinational research teams meet once a year to debate a crowded agenda. Yet change there must be, or GEM is in severe jeopardy.

Monitor programmes – indeed, any programmes of survey-based longitudinal research – are always faced with a hard choice when it comes to changes and improvements in their methods and their nomenclature. In an ideal world, it would be wonderful if the programme had been so perfectly conceived that every method, every question on the questionnaire and every name for every index or variable could remain the same throughout the many years that it might run. After all, the virtue of longitudinal data is that we want to compare apples with apples over a long time series. However, the world is not ideal, and perfect research design has never occurred and will never occur. So it has been with GEM. As the project has progressed, so have its methodology and methods developed and improved. Every year, after detailed and careful consultation, some questions and procedures may be dropped and some new questions, procedures and project enhancements added. Where this may raise issues for comparability with previous years' data, the issues are addressed but not always fully resolved. With the GEM consortium now comprising over 40 national teams, it is difficult to get universal consensus on every issue. Some members argue along the lines that because TEA has been an established name for six years, it ought to be maintained in the interest of continuity. In contrast, the author of this paper and several colleagues believe that there is no difficulty in, for instance, retrospective referral to items previously called TEA Indices as PEP Indices: simply tell people that the name has changed, and why. Half of the battle in regaining threatened credibility for the GEM project can be won simply by changing the name of a single indicator – from TEA to PEP. The other half of the battle can be won by placing participation in correct perspective as just one of several key components constituting total entrepreneurial activity, and getting commitment from every national team to provide minimum, basic coverage of those components in their report.

In the GEM Australia 2003 Report (Hindle and Rushworth, 2004), we went some way to changing our nomenclature for the TEA Index by calling it 'Total Early-Stage Activity'. This kept the original initials intact. It had the virtue of replacing 'Entrepreneurship' with 'Early-Stage' but the vices of failing to distinguish 'Percentage' from 'Total' and continuing the fiction that 'Activity' (a multicomponent phenomenon) could be represented by 'Participation' (just one of those components). This year, as leader of the Australian team, I have gone all the way in the report (Hindle and O'Connor, 2005). I have, so to speak, drunk my last cup of TEA. I simply cannot and will not swallow the need for a bad name on the grounds that 'It's always been called that' or

‘Those policymakers who have accepted the terminology will be confused by a change’ or ‘We (that is, professional entrepreneurship researchers) cannot cater to superficial readers’. This latter argument, though *seemingly* bolstered by the fact that the TEA Index has found a sophisticated, policy-literate audience in countries such as the UK, is completely false.

A regular, survey-based monitor is a paradoxical hybrid: a *specialised* form of communication serving a *general* audience. One of the parameters of such a publication is precisely that it *cannot* assume a research-literate, patient, thorough readership capable of seeing past any nomenclature inelegancies to the fundamental issues. The vast majority of GEM readers are not sophisticated members of the European Union policymaking community. A survey based monitor must work assiduously at the hard task of minimising the risk of misunderstanding on the part of casual and rapid readers: the journalist who just ‘takes a glance’, the underresourced policymaker in a developing country who just ‘checks a figure’, the school student who just wants to ‘download a graph for an assignment’, the business owner who is ‘just interested in a bit of background’. So, when the GEM project, centrally, continues to apply bad nomenclature to a good indicator, and to place undue emphasis upon that indicator, I reserve the right to apply superior nomenclature and to adopt a more balanced perspective – so long as I keep my readers clearly informed of what I am doing and why. The risk of nonconformity with a small group of specialist colleagues and established users of the project’s output is not as important as the risk of misunderstanding by a potentially huge audience of practitioners, students, policymakers and anyone interested in understanding the vital role of entrepreneurship in national life. In the Australian GEM report, I shall henceforth refer to the valuable but partial index elsewhere called the TEA Index as the PEP Index, and advocate general adoption of this nomenclature. The index is nothing more than the percentage (‘P’) of a nation’s working-age people engaged in early-stage (‘E’) participation (‘P’) in new ventures. In the report, I will place the PEP Index in a prominent but not a dominant perspective among the matrix of stages and components that constitute entrepreneurship (see Case studies 1, 2 and 3, below).

### *2.5 The vital importance of core nomenclature*

The nomenclature issue is not a trivial matter of mere semantic quibbling. Many people associate the misnamed TEA Index with being the ‘key metric’ or ‘base figure’ or ‘flagship number’ of each year’s collection of GEM studies. I recommend renaming it the PEP Index because it is one thing to compare apples with apples, but if it turns out that you have been comparing oranges with oranges, you need to change the name of the fruit. The GEM project has traditionally placed a strong emphasis on the TEA Index. Wrong naming in this instance creates multiple problems. The index simply does not measure total entrepreneurial activity, and this mislabelling is known to have caused confusion among people trying to derive benefit from reading GEM results.

The GEM project’s crude nomenclature confuses ‘activity’ (a composite concept) with ‘participation’ (a part of the composite) and thus does a disservice to the very diverse, sophisticated and detailed data collection and investigation processes that the project actually encompasses. It is simply wrong to equate ‘entrepreneurial activity’ (everything ‘going on’ pertaining to all aspects of entrepreneurship) with ‘entrepreneurial participation’ (one aspect of entrepreneurship: the number of people, within a population, who participate in certain stages of business ownership).

GEM has compounded this problem of poor nomenclature by giving undue emphasis to the measure represented in the index, irrespective of what one calls it. Variance in level of entrepreneurial participation rates between countries is important, but not to the extent that attention to it has dominated GEM reports, executive and national, since 1999.<sup>10</sup> Moreover, though the GEM survey generates data on three stages of the entrepreneurial process (start-ups, young and established businesses), the dominant metric – currently called the TEA Index – encompasses only two. This alone is sufficient to disqualify the adjective ‘total’ from status as an appropriate label. The so-called TEA Index for each country adds the percentage of working-age people engaged in *start-up* firms, plus the percentage of working-age people engaged in *young* firms minus any people engaged simultaneously in both start-up and young firms. (*Start-up* defines people engaged in the early-stage development and operation of a firm no greater than three months old measured by the criterion of paying wages. *Young* firms<sup>11</sup> are those aged greater than three but no greater than 42 months old). This is a potentially useful indicator if conceived as merely part of a larger whole and if it were correctly named the PEP Index. This directly labels the indicator by what it measures: the PERCENTAGE (it is a measure of a particular proportion of a nation’s working-age adults) of EARLY-STAGE (it covers start-up and young, new venturing, embracing firms no more than 42 months old) PARTICIPATION (it merely tells the raw quantity of early-stage business ownership – nothing about the nature or quality of that ownership). The indicator tells nothing about the vital distinction between entrepreneurial and nonentrepreneurial businesses. This critical distinction is encapsulated succinctly by Hart (2003,p.7) in his seminal work on the emergence of entrepreneurial policy:

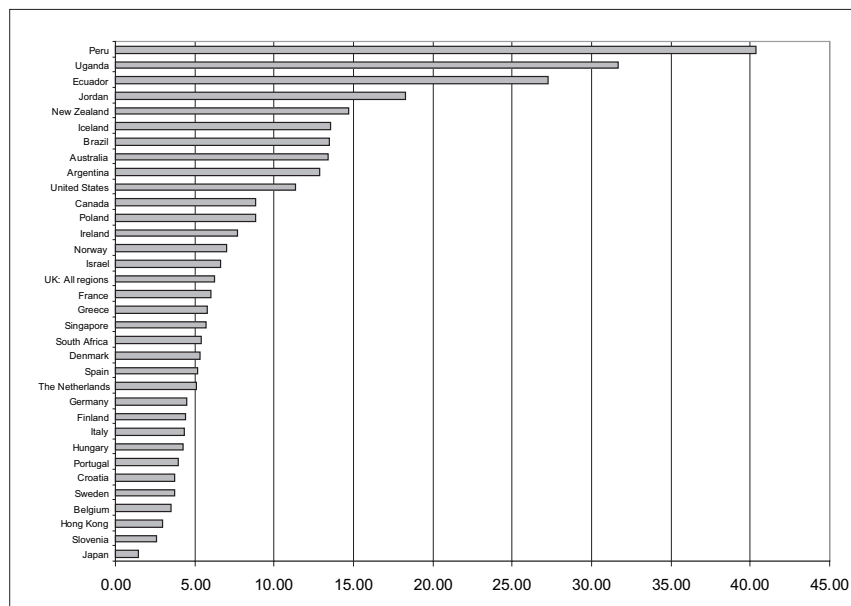
“The definition of entrepreneurship offered here embraces all businesses that are new and dynamic, regardless of size or line of business, while excluding businesses that are neither new nor dynamic as well as all nonbusiness organizations.”

The vast majority of the enterprises counted in the so-called TEA Index are not doing new things (in the sense of incorporating innovation in their processes and products) and are not dynamic (as measured by their growth orientation and other indicators). The GEM project is and should be a monitor of the distinct nature of *entrepreneurship*, not a mere counter of the generic totality of all *owner-operated businesses*. So, in selecting a label for what is admittedly one of the project’s important metrics, context and modesty must be given their due. When the word ‘percentage’ replaces the word ‘total’ and the hyphenated word ‘early-stage’ replaces the word ‘entrepreneurial’ (because some of the businesses counted in this raw percentage may not qualify as entrepreneurial ventures under many definitions), we have a modest indicator that means what it says, not a grandiose index that proclaims a falsehood. Having a measure of the percentage of self-employed early-stage venturers is a useful component of a fuller understanding of total entrepreneurial activity, but does not tell a nation’s whole entrepreneurial ‘story’ in a given year. It does not even summarise the most important part of that story. Precise nomenclature removes the indefensible implication that this indicator measures all aspects of the entrepreneurial activity of all nations. Mislabelling risks encouragement of misperception and jeopardises the credibility of the GEM project.

## 2.6 Case study 1: what's in a name?

Figure 2, below, plots the index whose name is in dispute. It illustrates the argument that the nomenclature issue is not mere semantic quibbling or cute nicknaming. Whether the index is called TEA or PEP can really matter. It matters most to people who may 'speed read' any GEM report, executive or national, for the first time.

**Figure 2** What's in a name? TEA or PEP?



To perceive, at a general level, the extreme dangers inherent in mislabelling this index, imagine a first-time reader of any GEM report performing a superficial scan and confronting this as the first diagram they encounter. Imagine it labelled as a summary representation of total entrepreneurial activity compared among nations.<sup>12</sup> The reader could be excused for dismissing the value of the report out of hand on the basis that its first and principal diagram – incidentally, the 'star' of the project's international launch press release – reports Peru as the most entrepreneurial country in the world by a margin nearly four times greater than the USA. This is palpable nonsense. So, the superficial observer might determine to dismiss the GEM report and read no further.<sup>13</sup> On the other hand, if the indicator were properly labelled, as a measure of the PEP, and placed in a well-explained context, credibility would not be jeopardised and interest in reading further might be encouraged.

In detail that is not replicable due to the space constraints imposed on this paper, the authors of the 2004 GEM Australia report amplify the virtues of renaming this important index. They employ arguments involving regression analyses and comparisons of what the index actually signifies in the context of developed versus developing countries (Hindle and O'Connor, 2005, pp.9–13). In a nutshell, self-employment in early-stage businesses is negatively correlated with national wealth in developing countries, and there is either no association or a slight positive association discernible in developed

countries (dependent upon the GDP indicators chosen for analytical purposes). To its great credit, the *Global Entrepreneurship Monitor 2004 Executive Report* (Acs *et al.*, 2005) is also at pains to demonstrate the contextual distinction between the meaning of the so-called TEA Index in developed versus developing countries. To its detriment, it persists in misnaming the index.

### 2.7 Case study 2: Uganda 'versus' Belgium

Let us now move beyond nomenclature to the actual meaning and value for international comparative purposes of this indicator – whatever one may choose to call it. As a specific, country-to-country illustration of its strictly limited value, let us refer back to Figure 2 and briefly ponder a comparison (arbitrarily chosen) between Uganda and Belgium. Belgium, with a very low participation rate in start-ups and young businesses, ought not to be thought of as a 'less entrepreneurial' nation than Uganda, which has a very high participation rate. Clearly, even cursory cross-national comparison of motivation, innovative propensity, growth orientation, financial support and entrepreneurial capacity (ingredients that I will shortly encompass in my suggested matrix approach to mapping the pattern of national entrepreneurship using GEM data) will indicate that Belgium may, possibly, be a far more entrepreneurial country than Uganda in every aspect *except* raw participation rate in early-stage ventures.

Moreover, analysis suggests a hypothesis. Belgium may simply have no *need* to create a high volume of new small ventures. Analysis beyond mere counting of early-stage ventures reveals that its *established* small ventures are among the most innovative and growth-oriented of the GEM countries and Belgium is a country of high education and low population. Perhaps existing ventures have the capacity to absorb all the 'entrepreneurial talent' that the country is able to produce? That is a question for the GEM Belgium team to answer – if they so choose. Further research could test the proposition. Meanwhile, we may suspect that Uganda has a high level of necessity-motivated self-employment because of the dearth of alternative employment in a strife-wrought, desperately poor, underdeveloped country. However, here we must be very careful. Rosa *et al.* (2005b) are scholars who study entrepreneurship in Uganda in depth. They are totally unconvinced that a simplistic assessment of 'necessity' explains the depth of entrepreneurial motivation in Uganda.<sup>14</sup> So, we would be just as foolish to claim that Belgium was more entrepreneurial than Uganda in every aspect of entrepreneurship other than early-stage participation rate, as we would be to say that Uganda was a more entrepreneurial country than Belgium solely based on its higher level of early-stage activity. The core point is simply that a meaningful comparison demands an *array* of *common* measurements in conjunction with a high degree of empathy for selected attributes of *specific* importance to the particular nation.

When we subscribe to the definition of entrepreneurship provided by one of the world's leading scholars of entrepreneurship policy (Hart, 2003,p.7), the key ingredients distinguishing entrepreneurial from non-entrepreneurial business activity are *novelty* and *dynamism*. Despite all the caveats so far expressed, it still seems fair to say that, by the criteria of novelty and dynamism, Uganda does not display more 'total entrepreneurial activity' than Belgium. If the GEM chart (Figure 1) suggests (due to bad nomenclature) that it does, the chart lies.



This single example should be sufficient to destroy the ludicrous proposition that countries high on the PEP Index chart should be regarded as ‘more entrepreneurial’ than countries low on the chart. No country, in determining its entrepreneurial character or framing its entrepreneurial policies, can take any undue satisfaction (or dissatisfaction) from the raw, quantitative fact that the nation has a relatively high rate of early-stage business participation when that fact is considered in isolation. On the one hand, is the creation of ten thousand ‘me-too’ roadside food-stall businesses in a developing country more entrepreneurial than the creation of one, sophisticated, software business in a developed country? On the other hand, is there not something strongly paternalistic about assuming that most ventures started in developing countries are likely to be less innovative, growth oriented and well funded than those in developed countries? These are simple and reasonable questions, but the answers demand a multifaceted evaluation. No single-index approach could ever answer them. A matrix approach, involving a structured array of variables, stands a chance of giving a contextually rich response that is not overly difficult for a nonexpert to comprehend. For entrepreneurship, the contextually understood nature and qualities of new ventures are more important than their mere quantity.

So, the question now arises: what constitutes a ‘sufficient’ or ‘justifiable’ or even ‘adequate’ context of national entrepreneurial *activity* into which the necessary but insufficient component of *participation* in owner-operated businesses can be set?<sup>15</sup>

### *2.8 Reasonable approximation through the creation of a ‘malleable matrix’*

The remainder of this paper will argue that it is necessary and possible to transcend misplaced faith in oversimplification. Not only can we never achieve an impossible index, we do not need one. A golden mean can be found between oversimplification and too much complexity. I shall call it, in due course, a ‘malleable matrix’ approach. However, before proceeding – in the context of the data generated by the GEM project – to a delineation of the cells of the matrix (and the way those cells can be expanded or contracted according to contingencies), it will be fruitful to consider some generic issues involved in the measurement of entrepreneurship.

## **3 Towards a generic conceptual framework for collecting and organising entrepreneurship data at the national level**

### *3.1 Previous work on building frameworks for classifying entrepreneurship*

The earliest systematic attempt to create a framework for classifying entrepreneurial firms belongs to Gartner (1985,p.696):

“The present paper suggests that the differences among entrepreneurs and their ventures are much greater than one might expect: in fact the diversity may be larger than the differences between entrepreneurs and non-entrepreneurs and between entrepreneurial firms and non-entrepreneurial firms. Once the diversity among entrepreneurial firms is recognized, the necessity for finding a way to classify them becomes apparent...This paper attempts to organize the many variables that have been used in past research to describe entrepreneurs and their ventures into a comprehensive framework.”

Gartner went on to classify entrepreneurial firm diversity in light of four major perspectives: characteristics of the individual(s) who start the venture, the organisation which they create, the environment surrounding the new venture and the process by which the new venture is started. His work is grounded in a deep and justifiable suspicion that, at the levels of analysis of the individual and the firm, overconcentration on the attempt to differentiate entrepreneurial from nonentrepreneurial people, firms and variables is problematic. Unfortunately, this kind of differentiation is precisely *the* problem one faces when the nation is the unit of analysis and an annual, aggregate monitor of entrepreneurship (as distinct from all things nonentrepreneurial) is the task. Gartner's work is so seminal and so justifiably often cited that it seems almost churlish to say that his classification system simply does not work as the basis for measuring entrepreneurship at the national level. Yet it must be said. There is a deeply practical distinction between conceptual *classification* and empirical *measurement*. To 'measure' is to 'limit'. When the nation is the unit of analysis, we face very severe limitations upon the degree of detail we can feasibly attempt to measure. Because at the national level of analysis we are painting with a very broad brush, we are not permitted the fine detail prescribed by the Gartner classification system. We need to distinguish, albeit crudely, those activities in the national agenda that are entrepreneurial from those that are not, and say some broad but meaningful things about the activities so distinguished. In a nation of millions of people starting thousands of ventures, we simply cannot get down to intricate distinctions of individual characteristics, organisational detail or organisational process. At the national level, we can say some useful things about the entrepreneurial (or otherwise) aspects of the *macroenvironment* (cultural, social and economic) surrounding *all* ventures. So we thank Professor Gartner and move on.

Remarkably, there is not a very large body of extant work available toward which we can move. If anything shows the continuing immaturity of entrepreneurship as a social science discipline in its own right, it is the dearth of established measurement instruments and frameworks that have been developed and are in wide currency. There are very few systematic measurement frameworks posited in the literature and it is fair to say that none of them is widely used as the basis for a cumulative body of compatible studies. Empirical research in the entrepreneurship field is still largely *ad hoc*. This is the very reason that the GEM project is so important. For all its weaknesses, it is at least striving toward a consistent regime for measuring defined variables of national and international importance. Compared with GEM's attempt to mount a major campaign of systematic study of entrepreneurship, virtually all other empirical studies in the field begin to look like sporadic guerilla attacks on isolated outposts of the knowledge frontier. So, it is crucial for GEM to develop and promote an adequate rather than an inadequate measurement framework in order to strengthen its wide-scale endeavour. Unfortunately, the very few existing frameworks that exist and might be capable of providing constructive guidance fail to help.

Starting from an interest in better classification of corporate entrepreneurship, Stevenson and Jarillo (1990) developed an influential paradigm that pertains to entrepreneurship generically. The field is deeply indebted to them for their unequivocal evocation of three fundamental points vital for understanding and measuring entrepreneurship. I arrange what I regard as their three key revelations in this sequence:

- 1 distinguish high-potential from low-potential ventures
- 2 recognise that entrepreneurial initiatives can arise within established businesses
- 3 stress that the distinguishing essence of entrepreneurial activity is the management of opportunity.

First, Stevenson and Jarillo (1990,p.22) argue that entrepreneurship's fundamental concern is with the creation and development of high-potential ventures. They demonstrate that not everybody who merely starts a business is an entrepreneur and most start-ups are not entrepreneurial. Only a few...researchers interested in entrepreneurial studies would consider the opening of a typical 'mom and pop' store an entrepreneurial act worthy of study.

Paul Reynolds was, more than any single person, the methodological founder of GEM. He was lead author on its executive reports covering the calendar years 1999 to 2003. Without him there would be no GEM, and the world of entrepreneurship scholarship owes him an immeasurable debt. However, Reynolds' research interests have been far more focused on the nature of the start-up process than on distinctions between high- and low-potential enterprise or on the fact that new ventures can be initiated from within existing businesses. It is time that GEM transcended its bias toward over-emphasising early-stage participation in the absence of critical evaluation of the quality (high versus low potential) of the enterprises that are started. GEM's greatest weakness is that its basic definition of entrepreneurship begins by letting everyone who opens a 'mom and pop' store be classified as an entrepreneur. If it persists in this fallacy, GEM will fail to achieve its potential as an international project: "The work of Reynolds, Van de Ven, Vesper, Cooper among others, has provided insights into the start-up process; however they have not always focused on the difference between high potential ventures and others" (Stevenson and Jarillo, 1990,pp.22–23).

The notion of 'high potential ventures' fits perfectly with Hart's (2003,p.7) insistence that, for policy purposes, entrepreneurship has to be concerned with the two key concepts of novelty and dynamism. The example, *in extremis*, of not focusing on 'the difference between high potential ventures and others' has been the central concern of this paper. It is GEM's mislabelling of the quantity of early-stage business participation as a measure of total entrepreneurial activity. The work of Stevenson and Jarillo tells us why this is such a grievous error.

Second, Stevenson and Jarillo emphasise that entrepreneurial initiatives can arise within established businesses. There is no need to restate here the six propositions that they advocate as the guidelines likely to inform constructive corporate entrepreneurship. It is sufficient simply to state the importance to the future of the GEM project of their demonstration that established firms are capable of entrepreneurial thought and action. Any survey of national entrepreneurship must include the activities of established as well as early-stage firms.

Third (harking back to the 1989 work of Stevenson *et al.* and an earlier co-authored paper of 1986), Stevenson and Jarillo (1990,p.24) stress that the distinguishing essence of entrepreneurial activity is the management of opportunity: Entrepreneurship is a process by which individuals – either on their own or inside organisations – pursue opportunities without regard to the resources they currently control.

At this point, we part company from Stevenson and Jarillo with profound respect for their seminal insights into the *definition* of entrepreneurship (distinguishing it thoroughly from mere business ownership) but with considerable regret that their ‘paradigm of entrepreneurial management’ does not readily translate to a set of easily measured variables. They give us a framework for understanding, not a framework for measuring. Presently, I will invoke the work of other scholars to provide more detailed examination of the centrality of opportunity management as a guiding principle for GEM’s enhanced approach to measuring entrepreneurship. I conclude this section of the paper with the unhappy observation that the literature offers virtually no extant framework for *measuring* the key generic components of entrepreneurship.

Howorth *et al.* (2005) offer the promising title ‘Rethinking Entrepreneurship Methodology and Definitions of the Entrepreneur’. They deliver interesting insights on the potential of multiple paradigm research but little constructive guidance in the practical mechanics of how these insights might be implemented through applied measurement in empirical studies. Acs and Varga (2005) use GEM data to test a model that endogenises both entrepreneurial activity and agglomeration effects on knowledge spillovers within a Romerian framework. However, the model itself is not suitable as a generic framework for encapsulating the broad range of issues contributing to a viable portrait of entrepreneurship throughout an economy. Zerbinati and Souitaris (2005), interested in policy and the public sector, offer a ‘framework of analysis’ which yet again offers productive insights but no practical measurement categories or guidelines. Wren (2004, pp.33–38), in his article entitled, *Entrepreneurship and economic development: a framework for policy*, provides a thought-provoking approach to structuring the policymaking *process* but his categorisation is not particularly germane as a system for measuring the inputs that might inform that process. His policymaking framework distinguishes three stages:

- 1 encouraging entrepreneurship
- 2 the dissemination and take-up of new innovations
- 3 the exploitation of new organisational forms.

This is a categorisation regime that may be useful to entrepreneurship policymakers, *post facto*, once they are in possession of evidence upon which to base their decisions, but it does not constitute a system suitable to the generation, through research, of the evidence itself.

In fact, extensive literature searching in most of the public citation indices, followed by pursuit of every title that seemed remotely capable of offering practical categorisation in the quest for a measurement framework for the broad sweep of entrepreneurship, produced only one potential candidate: Verheul *et al.* (2002). Their ‘An Eclectic Theory of Entrepreneurship: Policies, Institutions and Culture’ includes a very promising ‘framework of the determinants of entrepreneurship’. This model is truly comprehensive. It provides an elegant and eloquent encapsulation of the entrepreneurial process at the national level, from both demand and supply sides. However, practical operationalisation of this model would require a huge budget and great econometric sophistication. The chapter containing the theory and its exposition is 72 pages long. If I revert to the principle that things should be made as simple as possible – but not more so, my critique, in the GEM context, of the great work of Verheul *et al.* is that it is not simple enough.

### 3.1 Constriction and avoidance in GEM's approach to defining entrepreneurship

Given the range and diversity of the data it actually collects, the GEM project unnecessarily hampers itself. Instead of starting with an all-embracing definition of entrepreneurship as a network of behavioural components involved in the act of *conceiving, creating and developing* a new, dynamic business (or taking an entrepreneurial initiative within an established business), GEM adopts a ludicrously and unnecessarily narrow definition of entrepreneurship.<sup>16</sup> Mere business ownership or the unadorned act of self-employment is not an adequate proxy for entrepreneurship. One can see straight away by comparing the restricted definition with the unbounded title of the project that GEM has been a study fraught with definitional problems and nomenclature inconsistencies *ab initio*. Given the emphasis and circumscription of core focus implied in the definition, it might be argued that the project should have been called the *Global Start-up Monitor* or the *Global Early-Stage Business Monitor* or the *Global Self-Employment Monitor*.

So, we have a nice paradox. The literature of entrepreneurship provides us with good definitional guidelines but very little practical guidance for measurement. GEM gives us a bad fundamental definition but a range of quite useful measurements – if only we could fit them into a constructive framework. Since, regretfully, my search for a measurement framework that can transcend GEM's current oversimplification has failed to find a preexisting candidate suitable to the task, there is no help for it. I am forced to revisit the contentious definitional literature of entrepreneurship to build and justify a measurement framework that might serve GEM's needs. The next two sections of this paper endeavour to develop such a framework, after due consideration of the definitional difficulties involved in specifying entrepreneurship as a process involving more than mere self-employment or creation and/or ownership of a business.

### 3.2 Stepping into the definitional minefield

Every author on any aspect of entrepreneurship is always caught between the 'rock' of having to say *something* about the definition of entrepreneurship and the 'hard place' where so many conflicting definitions exist. An attempt to justify choice among conflicting definitions and perspectives risks taking up so much print that, in a journal article, little space may remain for the specific, substantive issues the author wishes to examine. In this paper, the risk must be run, because one cannot argue for a measurement framework in the absence of defining what is to be measured. And one cannot criticise GEM for shirking the definitional issue by shirking it oneself.

My reading of the entrepreneurship literature indicates an emerging consensus around the concept of entrepreneurship as a process of opportunity realisation through a creative approach to resource control.<sup>17</sup> This is the essence of entrepreneurial capacity. There are (Shane and Venkataraman, 2000, *passim*) three key aspects of entrepreneurial capacity: the ability of firms (or other entrepreneurial actors)<sup>18</sup> – especially smaller firms lacking abundant resources and strategic sophistication – to discover, evaluate and exploit entrepreneurial opportunities: Entrepreneurial opportunities are those situations in which new goods, services, raw materials, and organising methods can be introduced and sold at greater than their cost of production (Casson, 1982).

There is an essential distinction between specifically *entrepreneurial* opportunities and the larger set of all opportunities for profit – especially those concerned with enhancing the efficiency of *existing* goods, services, raw materials and organising methods. The key difference is that entrepreneurial opportunities involve the discovery and evaluation of *new* relationships between means and ends. This is quite distinct from improvement or optimisation within existing means-ends relationships. Most *management* textbook tools, techniques and guidelines aim to help managers to do existing things better. *Entrepreneurial* (as distinct from managerial) opportunities are not about doing existing things better: they are about doing entirely new and different things and/or achieving outcomes in entirely new ways. This novelty is often associated with dynamism (often most obviously expressed as a high growth rate for the venture perpetrating the novelty). This brings us again to Hart's (2003,p.7) focus: 'The definition of entrepreneurship offered here embraces all businesses that are new and dynamic'.

Meanwhile, opportunity assessment (see the discussion of Stevenson and Jarillo's work, above) is so much at the heart of entrepreneurship that many entrepreneurship researchers, worldwide, now accept the opportunity-based definition provided by Shane and Venkataraman (2000,p.218): We define the field of entrepreneurship as the scholarly examination of how, by whom and with what effects opportunities to create future goods and services are discovered, evaluated and exploited.

Unfortunately, when it comes to developing a framework for *measuring* entrepreneurship in practical ways given limited resources, this definition is just too broad to provide a practical basis. Many other definitions are too narrow. Nevertheless, despair can be avoided.

What is more important than the precise wording of any summary definition of entrepreneurship is its intent to convey the phenomenon as a complex, plural and interactive network of behaviours comporting with established scholarship (Jennings, 1994). It would be nice for the entrepreneurship researcher – especially the policy-focused entrepreneurship researcher – to have permission to limit the definition of entrepreneurship to one area, such as 'the act of new entry' (Lumpkin and Dess, 1996) or 'the creation of a new organisation' (Gartner, 1989)<sup>19</sup> or the act of 'creative destruction' (Schumpeter, 1942/1979), but the need for scholarship to have at least some practical utility forbids unrealistic oversimplification. The concept of entrepreneurship cannot be arbitrarily limited merely to suit the particular and varying conveniences of researchers. It must be respected as a real-world, complex phenomenon. Research conceptualisation of that phenomenon must be prepared to try to embrace as much as is feasible of the scope, span and diversity of entrepreneurship. Accordingly, a framework for measuring entrepreneurship must be prepared to observe the phenomenon wherever and whenever it occurs: prior to start-up, during start-up, and for as long as the organisational environment is characterised by innovation and growth. This implies that, while entrepreneurship is intimately involved with novelty – doing new things – the doer of the new things (say, an established firm) need not itself be new. Innovative venturing can occur at all stages of business development, not just the early stages.

So much for *where* and *when* we should measure. The next problem concerns *what* we should measure.

Fortunately, the expanding quantum of entrepreneurship research provides considerable consensus on the importance of many pertinent ingredients of the entrepreneurial process. These include:

- Alertness to opportunity (leading to arbitrage) (Kirzner, 1973)
- Decision making in an uncertain environment (Knight, 1921)
- Innovation management (Schumpeter, 1942/1979)
- Speculation and risk bearing (Cantillon, 1775, quoted in Jennings, 1994)
- Coordination of disparate elements (Say, 1828, quoted in Koolman, 1971)
- Leadership (Marshall, 1920/1949)
- Product development and ownership (discussed in Jennings, 1994)
- Creation of a new organisation to pursue an opportunity (Bygrave and Hofer, 1991; Gartner, 1989)
- Focus on managing rapid growth in a volatile environment (Legge and Hindle, 2004)
- Ambition – there is a clear distinction between ‘real entrepreneurs’, who are opportunity-evaluating, growth-oriented risk managers, and ‘just SME owners’ (Katz and Peters, 2001).

Entrepreneurs have been seen as participating in a complex, plural and interactive network (Jennings, 1994), embracing all or most<sup>19</sup> of the above concepts in complex interrelationships. The proportions of these ingredients will vary from case to case and context to context. One entrepreneurial situation may, for instance, involve a high level of risk management and a low degree of organisation building. Another may involve high levels of leadership and low levels of arbitrage. And so on. The same fundamental ingredients, mixed according to different recipes, can be used to bake many dishes.

### *3.3 The conceptual building blocks of a practical framework: applying Penrose’s description of entrepreneurial services’ to the stages of firm development*

A question now arises concerning the sheer complexity of the phenomenon of entrepreneurship. Is it possible to achieve sufficient, tangible focus to move from an abstract list of conceptual ingredients to a *practical* list of measurable variables? Can we come to measurable grips with what an entrepreneur – as distinct from a manager – actually *does*? There is one definition in the literature that really helps us make the transition. In *The Theory of the Growth of the Firm*, Penrose (1959/1995) wrote that the term ‘entrepreneur’ referred to:

“...individuals or groups within the firm providing entrepreneurial services, whatever their position or occupational classification may be. Entrepreneurial services are those contributions to the operations of a firm which relate to the introduction and acceptance on behalf of the firm of new ideas, particularly with respect to products, location, and significant changes in technology, to the acquisition of new managerial personnel, to fundamental changes in the administrative organisation of the firm, to the raising of capital, and to the making of plans for expansion, including the choice of method for expansion. Entrepreneurial services are contrasted with managerial services, which relate to the execution of entrepreneurial ideas and proposals and to the supervision of existing operations. The same individuals may, and more often than not probably do, provide both types of services to the firm.”

Penrose's definition of 'entrepreneurial services' embraces four key components.

- *Innovative propensity* (*inter alia*, 'the introduction and acceptance of new ideas')
- *Growth orientation* (*inter alia*, 'the making of plans for expansion')
- *Financing orientation* (*inter alia*, 'the raising of capital')
- *Entrepreneurial capacity* (the skills that distinguish 'entrepreneurial services' from managerial services. Entrepreneurial capacity is, essentially, the ability of individuals, acting in combination within firms, to create economic value by doing new, dynamic things).

To adopt Penrose's definition as the basis of a measurement framework, the entrepreneurial scholar need only note that it is not restricted to existing firms as a superficial reading may indicate. It encompasses organisational emergence (Gartner, 1985; Katz and Gartner, 1988), that is, the creation of new firms, as a particular case of the general proposition. In a volume devoted to multiple scrutiny of the importance of Penrose's theoretical work (Pitelis, 2002; Garnsey, 2002) has discussed the application of Penrosian ideas to new venture creation. To use the Penrosian perspective as a practical framework for measuring entrepreneurship with respect to old and new firms, it only remains to make two things explicit which are currently implicit in her definition:

- 1 *Participation* – one has to be in a firm or in the process of creating one as a predicate to being able to provide entrepreneurial services to a firm
- 2 *Motivation* – there has to be some driver or set of drivers impelling a person toward entrepreneurship or the process will not occur.

So, we now have at hand the building blocks of a framework for measuring entrepreneurship as a national aggregation of specific types of firm-based activity. We can think in terms of the generic stages of the life cycle of all businesses and use selected stages as putative 'columns' of a 'matrix'. The 'rows' of this matrix will contain carefully chosen, measurable constructs representing various aspects of the six key components of entrepreneurial activity identified above. In this schema, 'entrepreneurial activity' equates to 'the provision of entrepreneurial services to a firm', as articulated in the six-point summary of the Penrosian perspective, outlined above. Let me restate these six ingredients in an order that flows more logically for the purpose of developing an array of measurements. The essential predicates of entrepreneurship are (1) *participation* (axiomatically, unless you are *in* a firm or you create one, you cannot do *anything* – entrepreneurial or otherwise – concerning it) and (2) *motivation* (unless you *want* to or you *have* to do something, you will not act irrespective of your possession of the skill to perform an act). The three hallmark activities of entrepreneurship are (3) *innovation* (implementing *new* things) (4) *growth* (actively planning and pursuing expansion) and (5) *financing* (ensuring adequate capital is available to enable plans to be successfully executed). Finally, it is vital to have (6) *entrepreneurial capacity* (requisite knowledge, skills and resources to perform entrepreneurial acts), or your participation, motivation, innovative propensities, growth orientation and attempts to finance your venture are likely to fail through lack of capacity to carry them out.



If we could measure a range of variables pertaining to each of these six key components throughout the life of a single firm, we would have a very practical framework for measuring entrepreneurship at the level of the firm and, by aggregation, of the nation. Of course, in reality, the life of a business from gestation, through birth and on to death is a continuum. However, for purposes of abstraction and analysis, researchers and research programmes studying businesses permit themselves the luxury of conceptual division into artificially but usefully distinct periods – in the same way that it can be useful to divide human life into such seemingly clear but contentious phases as ‘infancy’, ‘childhood’, ‘adolescence’, ‘adulthood’ and so on. Stemming from the influential paper by Churchill and Lewis (1983), so-called ‘stage models’ of the entrepreneurial process abound. Useful extensions of their explanatory power are found in Moore (1986) as amended by Bygrave (1989). Stage models have their critics and their weaknesses, but their utility for studying entrepreneurship is well established. If we accept the utility of such models as credible approximations of stages in the life of *all* firms, we can move to a very practical framework for measuring entrepreneurship at the national level.

GEM data, as currently collected, permit us to do precisely this.

#### **4 Concept meets practice: implementing the framework given GEM data**

##### *4.1 Matrix columns: three business stages*

Historically, the GEM national population survey in each country has collected and continues to collect data on three stages in the evolution of a new business: start-ups, young firms and established firms.

- Start-ups

After a set of filtering questions, respondents can be classified as to whether they meet three criteria:

- a Are they, alone or with others, *exploring various possibilities* for creating a new venture?
- b Do they intend to assume partial or complete *ownership* of any possible or proposed new venture?
- c If a new venture has actually commenced operations, has it been paying wages (or equivalent) to any participants in the venture for no more than *three months*?

If the answer to questions (1) and/or (2) and/or (3) is ‘yes’, then the respondent is classified in the start-up category. Effectively, therefore, GEM’s start-up category includes both nascent and active entrepreneurs: people engaged in contemplated or actual ventures that have not been operating for more than three months.

- Young businesses

The young<sup>12</sup> business stage embraces businesses still in the hands of at least one of their founders, and greater than three but no more than 42 months old.

- Established businesses

GEM’s established business category embraces businesses still in the hands of at least one of their founders and greater than 42 months old.

For purposes of international comparison and in most of the analysis contained in individual national reports over the years, the entrepreneurial relevance and contribution of established firms to an understanding of national entrepreneurship has been inappropriately and unnecessarily neglected<sup>20</sup> in GEM's reporting at national and international levels. The matrix approach developed and advocated here incorporates all three stages. Of course, it must be remembered that GEM's 'established businesses' are only those still containing at least one foundation owner-operator. Eventually (bearing in mind that the matrix is malleable), it would be desirable (see Stevenson and Jarillo, 1990, *passim*) to find a way to monitor the 'new and dynamic' entrepreneurial activities of all established businesses, including those whose corporatisation has proceeded well beyond the involvement of founders.

#### 4.2 Matrix rows: six selected components of national entrepreneurial activity

Given the array of data currently captured by GEM, the components constituting 'entrepreneurial activity' can be productively and parsimoniously organised under the six categorical headings discussed above. These components (conceptually considered to be the rows of a matrix) can be combined with and applied to each of GEM's three stages of business evolution (conceptually considered to be the columns of a matrix). The resultant schema can provide a systematic approximation of national entrepreneurial activity in the year under study. The approach can be summarised first by a notional equation and second by a tabular matrix.

The very basic 'equation analogy' (applicable equally to each of the three business stages described above) is that: Total entrepreneurial activity = Participation + Motivation + Innovation + Growth + Finance + Capacity.

##### 1 Participation

It is entirely legitimate to regard the participation rate (the percentage of a population engaged in the various stages of owner-operated business involvement) as a primary and foundational component of national entrepreneurial activity. If no one engages in start-up or later-stage business, then clearly there can be no entrepreneurial activity other than the sale of discovered opportunities to existing market operators (see Shane and Venkataraman, 2000, *passim*). However, as this paper has argued in detail, it must be stressed that *participation* (in owner-operated business involvement) is a necessary, not a sufficient, condition for describing the entrepreneurial activity of a given nation in a given year.

##### 2 Motivation

It is not only important to know the quantitative fact *that* people start businesses, it is also helpful to know the qualitative reasons *why* they do so. Accordingly, a second component in building up a picture of total entrepreneurial activity is *motivation*. Unless people are motivated or driven to create a new business they will not do so (even if they possess all the requisite skills). GEM research reports, at a very broad and basic level, the type of motivations driving business creators and owners. Their business involvement motivation is classified as being either *necessity based* or *opportunity based*.

It must be unequivocally stated that GEM's current measurement of motivation is both woefully inadequate and highly problematic. Rosa *et al.*, (2005b, pp.15, 21) wrote:

“This paper argues that to distinguish between different forms of entrepreneurship in this way and to link them to economic development stages is premature...A further problem with the concept of ‘necessity’ versus ‘opportunity’ is that GEM does not measure them rigorously in the questionnaire. This paper demonstrated how the basic question in the GEM questionnaire separating the two modes of entrepreneurship is a leading question, of debateable rigor.”

I totally agree. Eventually, because the matrix approach is malleable, I hope that GEM will improve its methodology to provide a much more rigorous and sophisticated range of measures on the vitally important motivational component of entrepreneurial activity. As with every issue in this paper, the structural measurement principle is the focus of attention, rather than detailed critique of the way GEM currently captures specific data elements. So, until a better set of measures are instituted, we accept with great caution the limitations involved in the current crude measures and report them in the relevant cells of the matrix. Historically, GEM has reported only motivation with respect to start-up and young businesses. There is nothing impeding the extension of the analysis of motivation across all three stages of business involvement to reveal a comparison between them.

### 3 Innovation

The third component required for understanding the entrepreneurial (or otherwise) nature of business activity in a given nation (as compared to other nations) is the *innovative propensity* of the entrepreneurs and the ventures they establish and develop. In many definitions of entrepreneurship (most having close affiliations with the work of Joseph Schumpeter), innovation – broadly meaning, the act of giving commercial application to any new idea (see Schumpeter, 1911/2004, pp.57–95) is the essential feature that distinguishes a genuinely entrepreneurial venture from ‘just another business’. This is the ‘novelty’ component insisted on by Hart (2003, p.7) in his policy-oriented distinction between entrepreneurial and nonentrepreneurial businesses. It is half of the distinction between high-potential and low-potential ventures discussed by Stevenson and Jarillo (1990). A major flaw in the GEM project is that it has not insisted on systematic *reporting* of innovative propensity, especially since relevant data is actually *collected*. Reporting would be easy. Ignoring innovation data when discussing total entrepreneurial activity is an unnecessary mistake. GEM allows us to look at three aspects of innovative propensity: product novelty, competitor differentiation and use of technology. Regular, systematic reporting of these measures of ‘novelty’, combined with the growth-oriented measures of ‘dynamism’ (see next paragraph), have the power to vastly increase the utility of GEM as a facilitator of international comparisons and a provider of insights relevant to policymaking. No new data collection need be done. The only requirement is for simple standardisation of the *need to report the innovation and growth data* (see next paragraph) in every national report and for the comparisons to receive overt attention in the global executive (international) report every year.

## 4 Growth

A fourth component in building a picture of 'total entrepreneurial activity' concerns the growth and expansion orientation of firms, the 'dynamism' component insisted on by Hart (2003,p.7) in his policy-oriented distinction between entrepreneurial and nonentrepreneurial businesses. Many definitions of and approaches to entrepreneurship – stretching back to Birch's (1987) characterisation of abnormally high-growth potential ventures as 'gazelles' – stress the importance of commitment to high growth as a distinguishing feature of a truly dynamic, entrepreneurial venture. GEM provides three measures of growth, as we shall shortly see (Case study 3, below). Reporting of them should be a standard mandate for every national report.

## 5 Finance

A fifth critical component of creating and developing an entrepreneurial venture is the ability to finance it. The GEM population survey provides a range of information pertinent to this important aspect. Nearly every national GEM report has historically included presentation and discussion of financial matters. However, there has been no system in the contextual setting of the various national analyses of financial support available to business creators and developers.

## 6 Entrepreneurial capacity

Finally, there can be no pretence that 'total' or 'national' entrepreneurial activity has been even summarily covered without addressing the issue of *entrepreneurial capacity*. In this paper, I have referred to entrepreneurial capacity on three separate occasions.

First, basing my argument on the opportunity-focused concept of entrepreneurship presented by Shane and Venkataraman (2000, *passim*), I stated that the three key aspects of entrepreneurial capacity are the ability of firms (or other entrepreneurial actors) – especially smaller firms lacking abundant resources and strategic sophistication – to discover, evaluate and exploit entrepreneurial opportunities. Second, embracing Hart's (2003,p.7) definition of entrepreneurship, I summarised entrepreneurial capacity as the ability of individuals, in combination, through firms, to create economic value by doing new, dynamic things. Third, I presented 'entrepreneurial capacity' as that array of skills and knowledge which Edith Penrose meant by 'entrepreneurial services' resident in the human resources of a firm *plus* any physical resources whose principal utility is their contribution to people's ability to deliver such services. In discussing Penrose's contribution I argued that *entrepreneurial capacity* (in the sense of requisite knowledge, skills and resources) was critical for success to result from the combination of participation, motivation, innovation, growth and financing that the firm might try to undertake. Searching for the essence of the concept, I now attempt to synthesise these into a few succinct, focused statements. Entrepreneurial capacity is the ability of the people involved in a new or established venture to do what is required to make that venture an entrepreneurial success.<sup>21</sup> In other words, entrepreneurial capacity is the ability to recognise and realise the potential of a high-potential venture. It is the practical, executory capacity that is the empirical essence of the theoretical definitions of entrepreneurship provided by Stevenson and Jarillo (1990), Shane and Venkataraman (2000), Fiet (2002) and Hart (2003).

Though entrepreneurial capacity is a multi-faceted and difficult concept, GEM data permits some insights into national entrepreneurial capacity to be presented in reasonably assimilable fashion. Since the whole point of national entrepreneurship policy is presumably to enhance national entrepreneurial capacity, and entrepreneurial capacity is an overt component of the very research model upon which GEM bases its insights (see Figure 1, above), this is a component of entrepreneurship that GEM simply must address overtly and systematically. I argue that the general heading of 'entrepreneurial capacity' is the proper location under which to present the core demographic information pertaining to the participants in owner-operated businesses. This includes the data and discussion on gender, age, region, education and skills. The 2004 GEM Australia report (Hindle and O'Connor, 2005, pp.17–21) illustrates the way that constructive presentation of demographic data can inform understanding of national entrepreneurial capacity.

### 4.3 Synthesis: the 'malleable matrix'

Table 2 illustrates how combining these six components of entrepreneurial activity (as generic matrix rows) across GEM's three stages of business (used as column headings) permits us to build up a comprehensive assessment of national entrepreneurial activity for any nation in any year.

**Table 2** The national entrepreneurial activity matrix

	<i>Start-ups</i>	<i>Young firms</i>	<i>Established businesses</i>
Participation rate	✓	✓	✓
Motivation	✓	✓	✓
Innovation propensity	✓	✓	✓
Growth orientation	✓	✓	✓
Financial support	✓	✗	✗
Entrepreneurial capacity	✗	✗	✗

How much data and analysis, how many distinct variables should be fed into each cell in the matrix? The answer, of course, will always be contingent on a range of circumstances. This matrix approach is truly malleable. One can use it for everything, from a very curt overview of dominant, salient features in a very broad-brush picture to an array of information laden with diverse details. There is infinite potential to expand or contract the matrix. It will be up to members of the GEM consortium to agree upon a *minimum* set of mandatory measures that all countries will agree to include each year in their national reports. I simply make the point that the matrix approach should be standardised in lieu of the current overemphasis on the so-called TEA Index. I do not intend to prescribe the mechanics of that standardisation, but the following case study illustrates the point that, even at the level of very broad generalisation, the malleable matrix approach provides a degree of genuine insight into the annual activity of a nation that is both rich and easily assimilated.

#### 4.4 Case study 3: Australian entrepreneurship – a malleable matrix sketch

##### 4.4.1 Section overview

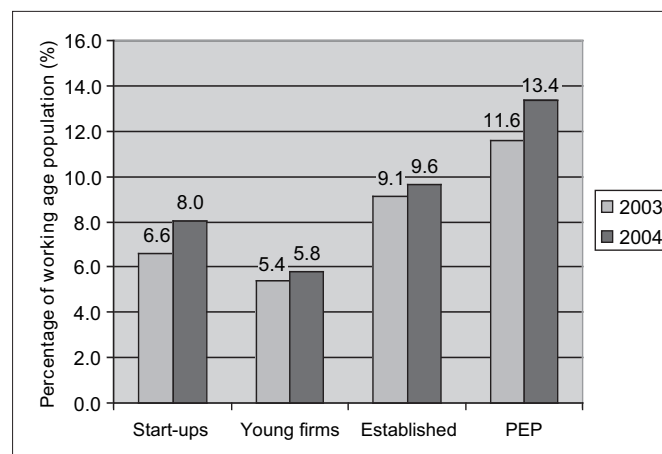
The following sketch of national entrepreneurial activity in Australia in 2004 is circumscribed by space constraints and, accordingly, based on the cliché that a picture is worth a thousand words. Readers interested in seeing a far more detailed application of the malleable matrix approach – in both words and pictures – are referred to Hindle and O'Connor (2005), *Westpac GEM Australia: A Study of Australian Entrepreneurship in 2004*.<sup>22</sup> The very brief illustration that follows is obviously intended to be indicative, not prescriptive, of the possibilities and utilities inherent in the malleable matrix approach. The prime aims are, first, to make the point that the approach is immeasurably more productive of understanding and insight than is the 'impossible index' approach, and second, to demonstrate that the matrix approach need not be overwhelmingly daunting in its complexity. Good graphical representation of six measured results is easily assimilated and presents an integrated pattern that is comprehensive enough to provide readers with a substantial overview of total entrepreneurial activity in a given country in a given year. If all countries involved in GEM were to produce something similar, the project would certainly achieve what it currently lacks: an adequate basis for the beginnings of sophisticated, cross-national comparison of the varied *patterns* of entrepreneurial activity displayed by different nations.

So, let us look at the broad outline of the Australian entrepreneurial matrix for the year 2004.

##### 4.4.2 Participation (2004 was high; trend is consistent)

Figure 3 shows the percentage of Australia's working-age population involved in three stages of owner-operated businesses. Combined early-stage activity (*i.e.*, the percentage of a nation's working-age adults involved as proprietors in either start-ups or young businesses, but not double-counting those involved in both) is measured by the PEP Index. The full report (Hindle and O'Connor, 2005) indicates that Australia's relatively high rate of business participation compared to other high-GDP nations provides no grounds for complacency because a high quantity of venturing does not compensate for low aggregate quality.

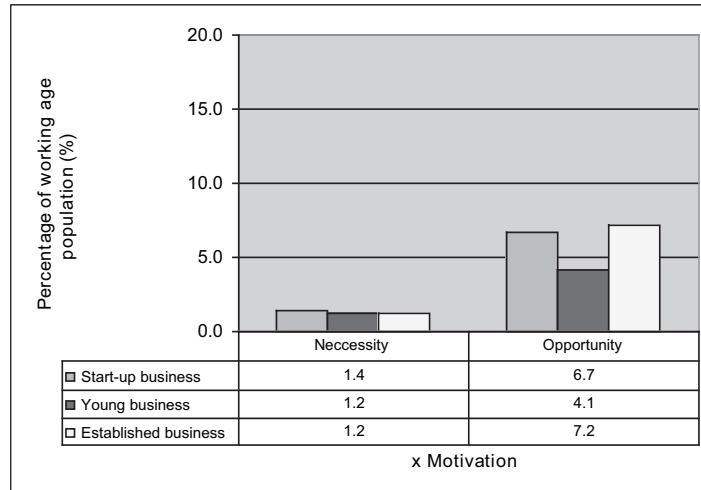
**Figure 3** Participation by business ownership stage



4.4.3 Motivation (2004 was high; trend is declining)

Figure 4 compares the motivation (necessity versus opportunity) behind all three stages of business. The full report reveals that the proportion of necessity to opportunity motivation has regressed below the 2002 level.

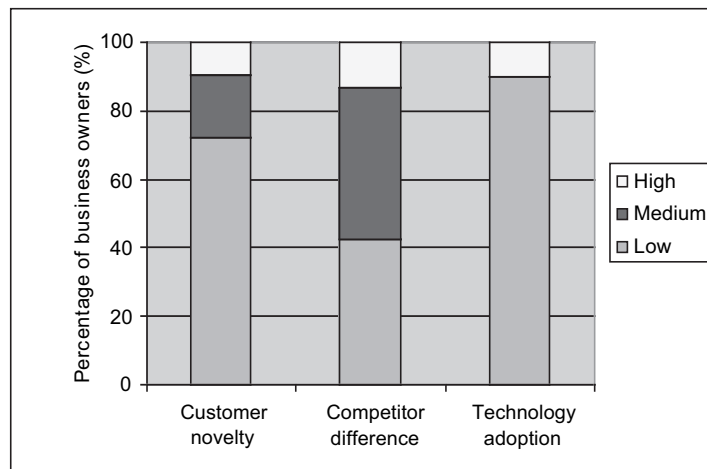
Figure 4 Motivation – opportunity versus necessity



4.4.4 Innovation (2004 was low; trend is unchanged)

GEM allows us to look at three aspects of innovative propensity: *novelty to customer*, *competitor difference* and *adoption of new technology*. Figure 5 shows that Australian enterprise is very poor at providing customer novelty and embodying new technology in its offerings. The full report deals extensively with the implications of this low innovative propensity.

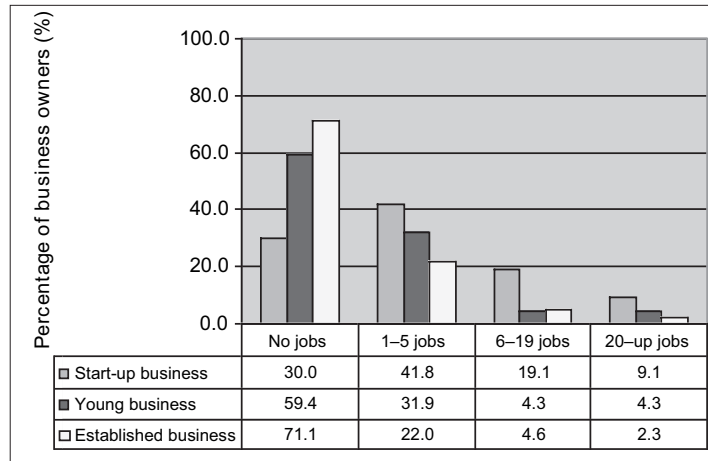
Figure 5 Innovation – three innovation categories



4.4.5 Growth orientation (2004 was low; trend is unchanged)

Figure 6 shows (for all three stages of business) the growth aspirations of Australian entrepreneurs with respect to employment. The full report deals with other growth measures and indicators, revealing that Australian enterprise in aggregate displays low growth propensity.

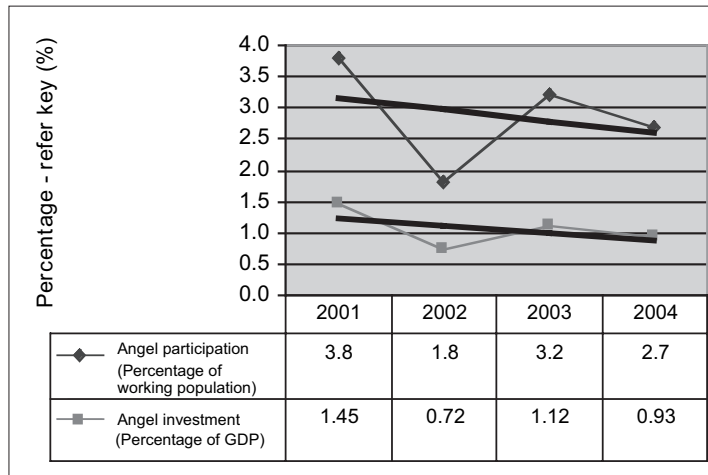
Figure 6 Growth orientation – five year employee growth ambitions



4.4.6 Financing (2004 was inadequate for high-aspiration businesses; trend is declining)

Figure 7 gives a portrait of the trend in Australian angel financing. Rates and volume of investment both appear to be in decline. Beyond attention to the angel market, the full report deals with formal venture capital and the state of early-stage financing in Australia. Funding sources are adequate for low aspiration ventures but inadequate for the needs of high-aspiration, high-potential businesses.

Figure 7 Financing – angel participation and investment trend lines

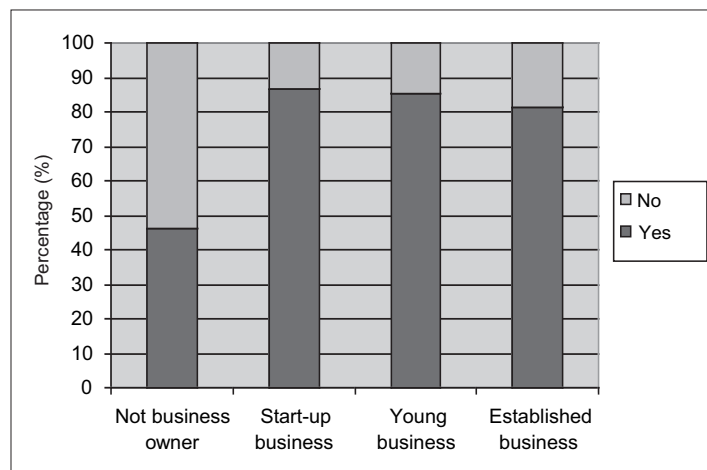




#### 4.4.7 Entrepreneurial capacity (2004 was mediocre; trend is static)

As previously discussed, at length, entrepreneurial capacity comprises the characteristics, experience, knowledge, skills and resources to successfully create and develop a new, high potential venture. The full report presents a detailed range of demographics as they pertain to entrepreneurship. It reveals that in Australia, innovative potential is unlikely to be fulfilled owing to the population's low level of the skills and knowledge needed for high performance entrepreneurship. Perhaps the most telling and alarming feature of the national lack of entrepreneurial capacity, as illustrated in Figure 8, is that less than half of Australia's nonbusiness owners believe that they have the skills to start even a 'mom and pop' business, let alone possessing the skills to conceive and execute a high-potential venture.

**Figure 8** Entrepreneurial capacity – belief in skills to start a business



## 5 Key issues for Australian entrepreneurship

The full Australian 2004 GEM report (Hindle and O'Connor, 2005) raises and discusses a wide range of issues and implications for the general public, the research and political communities and the active entrepreneur. It includes two major policy recommendations and an 'Action Focus' providing guidelines on how to realise the full value of a business by making it 'exit ready'. These are details. In overall summary, the malleable matrix approach provides clear evidence that Australia needs to face a very unpalatable fact. The relatively high *overall quantity* of low-aspiration, owner-operated businesses is less important than the low *entrepreneurial quality* of the nation's new venturing activity and environment. When the other components of entrepreneurship, beyond mere participation, are factored in (motivation, growth orientation, innovation, financing and entrepreneurial capacity), Australia's national entrepreneurial performance is mediocre. In aggregate, its educational institutions and policymaking apparatus are not helping to raise the standards. National media and national commentary machinery are not voicing

sufficient concern. When it comes to entrepreneurship, Australia is a nation of ‘quiet under-achievers’ (Hindle and O’Connor, 2005,p.40), and the population seems complacent about this fact. This may be a short-term recipe for long-term national failure. The good news is that it would not be difficult to significantly raise national entrepreneurial performance with relatively small efforts. The challenge is that, without a greater sense of national urgency, the effort is unlikely to be made.

*Comparing the malleable matrix with the impossible index.*

The portrait of Australian entrepreneurship provided by the matrix approach, even at the level of broad-brush sketch portrayed in the preceding sections of the present paper, is rich enough to serve as the basis for quite detailed policy consideration. Compare that portrait with the alternative approach that has hitherto dominated GEM reporting (see Figure 9).

**Figure 9** The ‘comparison’ that tells you nothing at all

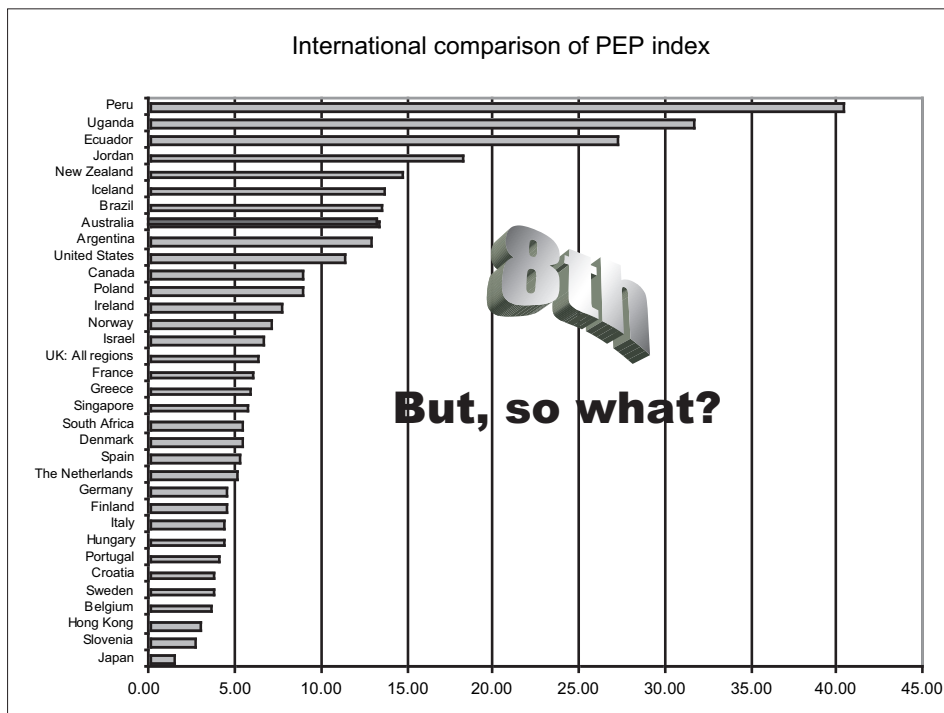


Figure 9 charts the PEP Index (previously called the TEA Index) for all 34 countries participating in the 2004 GEM project. We see in this alleged ‘comparison’ that Australia ‘ranked’ eighth of all the countries on this measure. Suppose we agree, as this paper has so comprehensively argued, that this measure is not a satisfactory proxy for total entrepreneurial activity. We are then in a position to ask: ‘Well, what does this comparison of the Percentage of Early-Stage Participation rates between countries actually tell us that is useful to policymakers?’ And the answer comes back: ‘By itself,

the PEP index tells us nothing useful'. One need only refer back to Case study 2 to know that the PEP Index considered in isolation is a blunt tool. For policymaking or for any useful understanding of national entrepreneurship, it is an impossible index. In the malleable matrix approach, even the fullest consideration of early-stage participation fills only two cells of an 18-cell array of data and commentary. Intelligent readers of this paper who may have no particular interest in, or prior knowledge of, Australia or its economic destiny would have no difficulty in beginning to postulate some issues for entrepreneurship policy consideration on the basis of the portrait provided by the malleable matrix approach. They would have no possibility whatsoever of making such postulations on the basis that Australia is ranked eighth in Figure 9.

Here rests the case of the impossible index versus the malleable matrix.

## **6 Discussion**

### *6.1 The stark choice: wrong-headed competition or right-minded cooperation*

The evidence and arguments presented in the present paper indicate that the GEM project faces a crisis of credibility with multiple audiences, but especially the policy communities in non-EU countries, unless it substantially overhauls its misplaced faith in a badly named index and the unsystematic manner in which national teams report their findings. The most patent evidence of dissatisfaction with the inability of GEM's 'impossible index' approach to serve the needs of the policy community is the emergence of a would-be competitor to the project. The irony is that the challenger comes to the fray, not with a more diverse array of research initiatives, but with renewed zeal for its own version of the impossible index approach. The nascent competitive project even calls itself the Entrepreneurial Index. At the time of writing, the project was very nascent indeed.<sup>23</sup> Its 'latest newsletter' was dated December 2003 – 15 months behind the times. Perhaps it will be a case of the slower the gestation, the bigger the elephant, or perhaps the initiative will wither away. For the future of GEM, the specific details of the proposed alternative are far less important than the two generic points it raises. First, GEM simply cannot rely on the inertia it has built up over the last six years. Dissatisfaction and confusion concerning its outputs are rife. If GEM does not rapidly amend its methodology, nomenclature of key terms and reporting systems, alternative programmes will arise to challenge it. Second, and this is the really vital and frightening point, it is highly likely that the challenger programmes will not be better but worse.

Given the massive 'market' for oversimplification that exists among key audiences with respect to entrepreneurship policy (argued at length earlier), we might then see the worst of both worlds, with the old incumbent arguing that 'my index is better than yours' in strident hostility to a new challenger which still offers a confused policy community the promise of what it cannot have. The community simply cannot have a single index or a suite of indices that make life easy. Fundamentally, this is what the Entrepreneurial Index project offers them (see Figure 10).

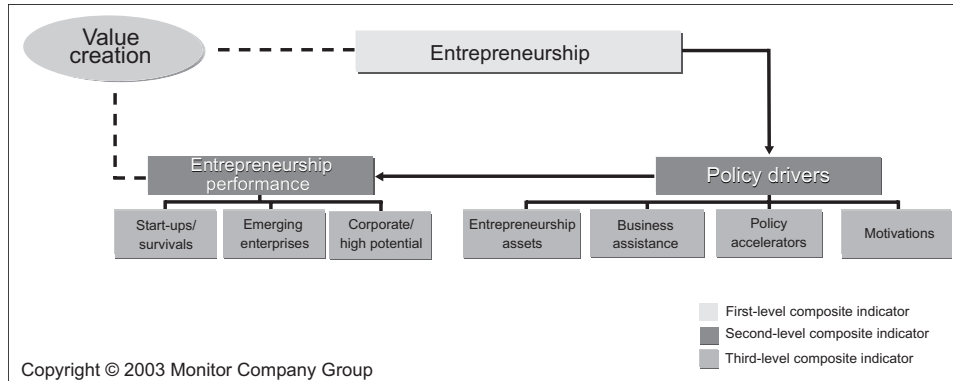
**Figure 10** The proposed entrepreneurial index research model

Figure 10 illustrates the ‘index faith’ run amok. There is to be a first-level ‘composite indicator’ summarising absolutely everything: the Entrepreneurship Index. Underneath it come a battery of second- and third-level composite indicators. The first impression of how this plethora of indices might be used by number-hungry bureaucrats, squirreled away from the cut and thrust of business life in various well-padded policy departments, conjures the image of a Monty-Pythesque comedy sketch. Good entrepreneurship policy demands close, knowledgeable empathy for a multifaceted process, not remote, mechanistic quantification of platitudes. National communities need policymakers who understand that entrepreneurship is the engine of wealth creation and the future jobs of the nation’s children. Entrepreneurship is the pacemaker implanted in a nation’s economic heart. The electric jolts it gives to the economy are at once staccato and rhythmic. Without the shock of the new, the old economy would wheeze, lumber and stall. Entrepreneurial activity is a function of participation, motivation, innovation, growth, financing and entrepreneurial capacity. Entrepreneurship policy consists of the steps that public agencies might take to address market failures with respect to a nation’s entrepreneurial capacity: the ability of its citizens to perform the activities needed to create and develop high-potential as against low-potential ventures (Birch, 1987; Stevenson and Jarillo, 1990; Hart, 2003). Entrepreneurship is how innovators create a dynamic future state of affairs (Legge and Hindle, 1997; 2004). Overreliance upon indices is often how bureaucrats make assumptions about a future equilibrium state.

The nightmare scenario now emerging is that, lacking genuine empathy with the complex components of entrepreneurship and believing that GEM does not offer them what they want, a set of policymakers in one country will ‘buy into’ a competitive programme. Those in another country – or even in a different agency or department within the same country – may ‘dig into’ GEM. In the absence of genuine understanding of entrepreneurship, the programmes will compete on the basis of money spent and egos involved, rather than in a genuine attempt to create a continually improving evidential basis for useful policy. At the time of writing, some GEM actors are promoting a city-based implementation of the project: an attempt to compare the entrepreneurial capacity and performance of city with city rather than country with country. In one sense, this initiative should be warmly welcomed. However, if the exercise is to feature a comparison of misnamed TEA Indices, it is to be condemned. Exactly what the GEM project and the entrepreneurial policy community does *not* need is a bevy of misinformed

municipal bureaucrats adding to the misinformed national bureaucrats who take pride or pains in the mindless ranking of their city or country in a 'league table' of alleged 'total entrepreneurial activity' that is, in fact, nothing of the kind. This would be a recipe for a type of petty, shallow boosterism that would reflect no credit on ill-informed public officials and convey no benefits to the citizens they represent.

Fortunately, there is hope that this nightmare scenario can be avoided. The GEM project needs to overhaul its measurement system before it rushes to expand its offerings to the world, but this will not be particularly difficult.

## *6.2 Recommendations*

### *6.2.1 Defeat inertia through better project governance*

The GEM project has recently undergone a substantial organisational transformation,<sup>24</sup> including the creation and funding of an executive research committee that can move and improve changes far faster than was possible prior to the reorganisation.

### *6.2.2 Institute a thorough review of nomenclature*

This point does not need labouring. The hopelessly misnamed TEA Index is but one of many GEM variables that is poorly or hazily named. The taxonomy of the project is in disarray. The production and public promotion of a glossary of all terms used in GEM and the methodology governing their production is an urgent requirement.

### *6.2.3 Adopt the malleable matrix approach as the baseline of national reports*

Every country producing a national GEM report should be required to commit to the inclusion of an agreed minimum array of data using a common measurement set describing national entrepreneurial activity. The global executive report should utilise the same array for its overview of international entrepreneurship. This paper has suggested that the initial, agreed, minimum array of data might be a matrix whose columns are the three stages of owner-operated business (start-ups, young firms and established firms) and whose rows contain measures of entrepreneurial activity arranged under six activity-component categories: participation, motivation, innovation, growth, financing and entrepreneurial capacity. All this data is currently collected. The problem is that there is no mandatory or systematic requirement to present it. Someone looking to several GEM national reports in quest of detailed national comparisons of many components of entrepreneurship will be sorely disappointed. Currently, the seeker will be fobbed off with a chart showing rankings of the percentage of the working-age populations of the various nations under scrutiny who are participating in early-stage venturing, and will be told that this chart is a proxy for ranking them on total entrepreneurial activity. Depending on the report design decisions of individual national GEM teams, the seeker may or may not find reported information on the entrepreneurial activities of established firms as well as early-stage firms and of components of entrepreneurial activity other than mere participation in early-stage venturing. So, the seeker will have to work painstakingly and for many hours to piece together a meaningful array of data capable of providing a useful pattern for comparative purposes.

The current state of report design and integration in the GEM project is analogous to a hand grenade thrown into a bucket of water. The central initiative (a powerful regime of data collection charged with the energy of enthusiastic research teams) results in a dissipated and fragmented outcome flung in many directions. It is time to agree upon a reporting matrix that can provide international comparisons that are as simple as possible – but not more so. I advocate replacement of the impossible index by the malleable matrix.

#### *6.2.4 Adopt a regime of constant methodological critique*

In two papers, Rosa *et al.* (2005a–b) have demonstrated that GEM is far too complacent about its fundamental methodological assumptions and procedures. This must and can change through the simple expedient of devolving the specific task of methodological critique and development to a specialist research committee, whose executive powers do not require them to submit every change and development to the time-consuming scrutiny of every member of every team participating in the GEM consortium and the requirement that every proposed change receive a majority vote at an annual planning meeting. Particular executive powers so devolved to the research committee may range from the power to change particular questions in the national population survey instrument, to commissioning and execution of a comprehensive evaluation of the GEM research model itself, employing such techniques as structural equation modelling.

#### *6.2.5 Engage multiple constituencies as partners in the report production process*

With few exceptions,<sup>25</sup> most GEM national research teams have tended to huddle together, collect their data, write their annual report and foist it on their various audiences, *deus ex machina*. It is recommended that the report production cycle, in every participating country, be designed to include iterative dialogue with multiple communities and stakeholders: policymakers, members of the press, statistical agencies, specialist scholars in various disciplines, market analysts and whoever there is time to productively include in discussions, informing the production of a rich and informative annual national report on the state of entrepreneurship. The old GEM philosophy has been to keep every aspect of emerging data embargoed until the volcanic impact of the international press release (launching the annual global executive report) erupts upon the world. While it is desirable to have in place a regime that prevents completely random release of data without any central quality controls, it is also desirable and feasible to keep a range of stakeholders abreast of progress on the project in each country as the research cycle progresses. Some of the initiatives proposed by the instigators of the nascent competitive programme, the Entrepreneurial Index, are highly desirable, especially those that propose a closer liaison with the national producers of existing statistics that might enhance and complement the independent findings of GEM. The general recommendation is that GEM must be in constant, direct communication with both the entrepreneurship research communities and the entrepreneurship policy communities of every country (or entity, such as a region or city) that joins the consortium. The core recommendation is involvement. GEM must not isolate its researchers from the potential users of the data and insights generated by the research.

### *6.2.6 Promote the wider power of the database through 'spin-out' studies of varying sophistication*

Active pursuit of involvement by multiple stakeholders leads to a final recommendation. Most audiences who have become familiar with the project associate it most closely with a single output: the annual national GEM report. They are simply unaware of the huge power, potential, accessibility and catholicity of the emerging GEM database. GEM teams should be active in promoting the use of that database to researchers from many academic disciplines. Open up the database. Encourage multiple users and uses. GEM data is a national resource. Include more of the nation as users of the resource. Throughout the year, the national GEM team – not necessarily itself, but as a catalyst for other researchers and commentators – should encourage 'spin-out' studies of varying sophistication. For instance, a range of focused primers on various aspects of entrepreneurial activity could be placed on special subsets of the national GEM website designed to provide informative materials to specialist audiences, ranging from kindergarten children to sophisticated industry associations. The project should be constantly promoted as living research in the national interest.

### *6.3 Conclusion*

The GEM project is at a crossroads in its history. If it persists in cavalier adherence to misplaced emphasis on a misnamed index as its principal promotional vehicle to multiple audiences, particularly policy audiences, the vehicle will crash and burn in collision with multiple misunderstandings, or tumble into the abyss of a widening credibility gap. This paper has argued that there is absolutely no need for GEM to continue on a collision course with credibility. Its basic methodology, though in need of constant critical scrutiny, is sound and can be constructively developed. Recent organisational changes bode well for the ability to overcome the understandable inertial impediments to change that affect a very large, multistakeholder research project. To insure a productive and constructive future for the project, two things are required.

First, the GEM project, at its core, must accept that, as Stevenson and Jarillo (1990,p.22) state: "Only a few...researchers interested in entrepreneurial studies would consider the opening of a typical 'mom and pop' store an entrepreneurial act worthy of study." GEM cannot continue to base itself on a definition that equates entrepreneurship with mere business ownership and places undue emphasis on the mere *processes* of start-up, as distinct from their *results*. Entrepreneurship is about high-potential venturing and its outcomes wherever and whenever they occur. It is not about low-potential or 'me-too' venturing exclusively in early-stage firms (Birch, 1987; Stevenson and Jarillo, 1990; Shane and Venkataraman, 2000; Hart, 2003; Legge and Hindle, 2004). Accordingly, GEM must abandon its undue emphasis on early-stage participation rates and their mislabelling as indicators of 'total entrepreneurial activity'. Changing the name of this index from TEA to PEP is not a mere semantic quibble. It is the harbinger of a fundamental redirection of the project away from the mere *counting* of the number of *all* new ventures, towards genuine, multi-faceted *understanding* of those distinct new ventures and initiatives that are genuinely entrepreneurial.

Second, the GEM project must have the courage to tell potential audiences, especially policy and media audiences who love items as simple as ranking charts that purport to provide ‘total’ answers to complex questions, that things should be made as simple as possible – but not more so. Subsequent to a review of the entrepreneurial definitional literature and a resolution of its many themes into six components of entrepreneurial activity, based on Penrose’s (1959/1995) articulation of the practical meaning of ‘entrepreneurial services’, I have suggested that a ‘malleable matrix’ approach can provide a portrait of national entrepreneurial activity that is comprehensive without being overwhelming.

If GEM embraces the first point as its philosophy and the second as its action regime, it will institute a strong but flexible framework for international entrepreneurship policy research. This will insure that the project has a bright future.

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## Notes

- 1 Available at <http://www.gemconsortium.org/>.
- 2 There are numerous paraphrases of the great Albert Einstein, the man attributed with authoring this principle which cautions against careless slashing when using Occam's razor.
- 3 There are, of course many policymakers – particularly in Europe and the United States – who are very sophisticated in their knowledge of the entrepreneurship literature and their approach to the issue. However, the argument in this paper will illustrate that it is reasonable to claim that, for the majority of national policymakers in the majority of the world's countries, entrepreneurship is a confusing and confused policy area for which they seek a 'quick fix' and simple metrics for international comparisons and national guidance.
- 4 Owing to space constraints, this paper will refrain altogether from semantic, historical and logical critique of GEM's misuse of the word 'index' itself. With reluctance based on respect for the great work of Irving Fisher, who distinguished the specific nature of indices from other forms of indicator, in this paper, the terms 'index' and 'indicators' will be treated as virtual synonyms.
- 5 This is the highly regarded argument of Lumpkin and Dess (1996): 'the act of new entry' is the essence of the entrepreneurial act and the foundation of the definition of entrepreneurship used by GEM.
- 6 The seminal revelation was that of Professor Michael Hay of the London Business School, who recognised that the World Economic Forum's annual comparison of the competitiveness of nations contained absolutely no reference to or measurement of entrepreneurship.
- 7 E-mail communication to members of the GEM consortium.
- 8 Author's personal correspondence (August 2004) with Carlos Dumois (CEO of CEDEM, the largest entrepreneurship consultancy in Mexico) and Sergio Garcia de Alba (Vice-Minister of Economics, Estados Unidos de Mexico).
- 9 See <http://www.gemconference.hu>
- 10 Evidence of this proposition is found by simply going to <http://www.gemconsortium.org/> and accessing any national report or global executive report covering the calendar years 1999 to 2003. The *GEM 2004 Executive Report* (Acs *et al.*, 2005) has made a welcome departure from an inferior tradition by its early and prominent featuring of a graph which embraces participation in early-stage activity, stage of development and national wealth. It is heartening to see early-stage participation beginning to be considered in context rather than in isolation. It is depressing to see the index still wrongly labelled. Most national GEM reports (other than the Australian) still use the incorrect label TEA and feature an a-contextual graph of TEA comparisons as the first and most prominent figure in the document.

- 11 Here, another nomenclature distinction arises. The GEM Australia team uses the term ‘young’ for firms in the age range greater than three but no greater than 42 months old, whereas the ‘standard’ GEM classification for these firms is ‘new’. The Australian experience was that many readers of our first two reports found that, because a start-up was by definition ‘new’ in common parlance, the attempt to limit ‘newness’ to a specific timeframe after creation of the business was confusing. Confusion disappeared when we used the term ‘young’ instead.
- 12 Of course, you don’t have to imagine this (see note 11, above). It is historically an accurate description of exactly what most readers do encounter in most GEM reports (executive or national) up to and including the 2004 cycle.
- 13 As reported anecdotally by numerous international GEM research team members, just such ‘instant dismissal’ of GEM’s valuable insights has occurred among influential individuals and constituencies due to the faulty labelling of this otherwise useful index. The Mexican case was cited above.
- 14 A subsequent section of the paper, specifically dealing with the place of motivation in the ‘malleable matrix’ approach I am developing, will look more deeply at the insights of Rosa, Walter and Balunywa.
- 15 I prefer to refer to ‘owner-operated businesses’ rather than ‘self-employment’ because the former term is both broader in scope and less ambiguous. When a person starts or owns a business there is at least the potential to employ others. In some contexts, the notion of self-employment is limited to the situation where a person employs him or herself but no one else. GEM is concerned with the former category of behaviour. Indeed, one of the key drivers for studying unemployment is to understand its implications for job growth in the economy at large.
- 16 Interestingly, no executive report from 2000 to 2004 actually states what the project’s definition of entrepreneurship is. You can seek but you will not find. You will have to go to the procedures manual to discover that GEM basically counts anyone who starts or owns a business as an entrepreneur. This obfuscation of the basic definition is symptomatic of the fact that GEM realises that its core definition is flawed.
- 17 This is the best ‘one liner’ definition of entrepreneurship currently in my lexicon. I do not believe it is original but, unfortunately, I have completely lost the reference identifying the originator of this useful encapsulation.
- 18 Shane and Venkataraman are at pains to stress that entrepreneurial activity is not, in their definition, confined to or circumscribed by the creation of new business entities.
- 19 The area of highest consensus among entrepreneurship scholars is that ‘newness’ – in the sense of founding and developing a new organisation – is at the heart of the matter. The area of least consensus concerns the issue of growth. There remains considerable disagreement about the need for a founder of a new organisation to have conscious intentions in favor of high growth in order to qualify entrepreneurship as a category distinct from mere new business ownership. The would-be designer of a *generic* methodological framework must, of necessity, accommodate the full range of views on the growth issue irrespective of personal belief as to whether growth or growth intention is a necessary condition of entrepreneurship.
- 20 GEM 2003 made some initial attempts to broaden analysis through the creation of a Firm Entrepreneurial Activity (FEA) Index. This was an attempt to combine the growth and innovation propensities of established firms into a single number. Though a step in the right direction, the FEA initiative still betrayed undue fascination with single indices for complex phenomena and was so convoluted in its derivation that the meaning of the resultant number was entirely unclear.
- 21 One must, of course, always remember that ‘established firms’ (one of the three GEM business stage classifications) can embark on ‘new ventures’ (ranging from in-house projects to the creation of entirely new spin-out enterprises).

- 22 See <http://www.gemaustralia.com.au>
- 23 For the confusing details of this confusing project, see the confusing website [http://www.globus.camcom.it/intranet/Aree-Temat/Altre-Iniz/Comunicazi/Entrepreneurship-Index-Project1.doc\\_cvt.htm](http://www.globus.camcom.it/intranet/Aree-Temat/Altre-Iniz/Comunicazi/Entrepreneurship-Index-Project1.doc_cvt.htm).
- 24 See <http://www.gemconsortium.org/> for an overview of the governance structures now prevailing.
- 25 The Netherlands, Germany and the UK provide shining examples of close liaison between the GEM national research team and the policy communities who work on entrepreneurship policy.