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executive summary

Recent studies indicate that enterprises receive beneficial returns from their investment in training. Human resource practitioners, employers, governments and researchers also agree that more needs to be done to demonstrate the returns to enterprises from this investment. However, many enterprises appear unwilling or unable to actually evaluate these returns and most reported Australian studies have been completed by researchers, rather than enterprises.

This report provides an extensive review of recent Australian and overseas studies in order to identify

- key issues that need to be addressed to encourage increased evaluation of training benefits by enterprises
- successful approaches that may inform future 'enterprise friendly' studies of returns to enterprises from investment in training

As many of the models advocated in the literature appear more suited to large enterprises and specialist human resource researchers, the promotion and use of more practical, creative and cost effective approaches is advocated. The report concludes by identifying principles to inform future return on training approaches so that their use becomes more widespread within Australian enterprises of all sizes. These principles include:

- the need for a broad definition of training which incorporates all forms of learning and skill formation
- the merits of using the term 'return on training investment' (ROTI) when evaluating and discussing enterprise returns from training, rather than the narrower, quantitative term, return on investment (ROI)
- the importance of ROTI approaches which provide decision-makers with timely, useful and accessible qualitative and quantitative evidence of the contribution of training to the operational and strategic priorities of the enterprise, rather than always attempting to isolate absolute, quantitative proof of the impact of training on enterprise productivity and profits
- undertaking studies in which a small number of qualitative and quantitative training outcome measures are selected and used, with a focus on the use of existing enterprise data (such as personnel records and safety, quality and sales data), where feasible
- maximising the returns from training by ensuring that training decisions and initiatives complement other human resource policies and practices, together with corporate and operational priorities

Drawing from a large range of Australian and overseas training and management studies, a taxonomy of possible training outcome indicators is provided for use in future ROTI studies. Over 50 possible training outcome indicators are identified using seven headings: productivity and efficiency; sales and profitability; quality of products and services; customer service and satisfaction; occupational health and safety; organisational learning and development; and organisational climate, culture and practices. The taxonomy is designed to provide a range of possible training outcome indicators that may be selected, amended, or rejected, depending on enterprise priorities and resources, including the availability of existing enterprise data.

introduction

An increasing number of publications highlight a need for enterprises, and particularly human resource development (HRD) practitioners, to undertake studies which demonstrate the returns on investment in training. It is argued that such studies are critical for two reasons. First, these studies would enable training practitioners to justify training expenditure, especially during economic downturns (Phillips 1997; Catts et al. 1996; Mitchell 1994; Schneider et al. 1992). Second, they would inform the routine decisions of managers by demonstrating the worth of training (Beaton & Richards 1997; Carnevale & Schulz 1990). Some of these authors argue:

> *As cost pressures increase, trainers must demonstrate training's value in more substantive ways if it is to gain its rightful place among investment alternatives* (Carnevale & Schulz 1990, p.S-15).

> *Measuring the return on investment (ROI) in training and development has consistently earned a place among the critical issues in the human resource development (HRD) field. The topic appears routinely on conference agendas and at professional meetings. Journals and newsletters regularly embrace the concept with increasing print space … Even top executives have stepped up their appetite for ROI information* (Phillips 1997, p.1).

Beyond the individual enterprise, authors such as Davidson et al. (1997), Billett and Cooper (1997) and Catts et al. (1996) indicate that establishing a body of Australian evidence on the quantitative and qualitative returns to enterprises is desirable. These authors suggest that this evidence may encourage enterprises with a limited training culture to invest in training and contribute to quality and innovation, so that enterprises become or remain competitive in domestic and global markets. Billett (1998, citing Butterworth 1995) also suggests that government interest in research on enterprise returns from investment in training reflects an interest in justifying and evaluating public policy on training.

Despite these arguments, studies of return on investment in training remain 'more praised that practised' (Queensland Training Officers' Society 1994, p.10, citing Birdsall 1987), while Billett notes:

> *Significantly, government appears more interested in cost-benefit analysis (CBA) than enterprises* (1998, p.395).

In addition, many of the available studies, while initially tempting to the practitioner because they appear to provide models and approaches, frequently provide more questions and issues than answers and require considerable time and resources (see, for example, Mitchell 1994). Little appears to have changed since the following observations from Carnevale and Schulz:

> *ASTD's [the American Society for Training and Development] research revealed the actual practice of evaluation doesn't often follow the strict recommendations of evaluation literature. This is largely explained by the fact that many training practitioners haven't found the literature's advice applicable or useful to their organizations* (1990, p.S-23).

Following their review of recent research, Billett and Cooper (1997) also concluded that:

> *enterprises … in the absence of formal evaluations, appear to make judgements about the benefits of training on the basis of faith* (p.17).

This report does not seek to recover all of the terrain covered in recent reviews of the literature on enterprise returns from investment in training. Both Billett and Cooper (1997) and the Office of Training and Further Education (OTFE), Victoria (1998) have recently published such reviews. Similarly, the Employment Services Unit, Deakin University (1997) overviews the outcomes of 54 overseas studies on the links between training and benefits to enterprises, with a particular focus on improved performance. Significantly, all three studies conclude that available evidence indicates that training appears to have a beneficial impact within enterprises:

> *the overwhelming evidence is that, where attempts have been made to measure the effects, it has been beneficial. Both the quantitative and qualitative data suggests that training is important and has benefits* (Employment Services Unit, Deakin University 1997, p.16).

Consequently, this report commences from what we currently know about investment in training in enterprises:

- that research evidence suggests that enterprise investment in training results in returns to the enterprise, but
- that many enterprises appear unwilling, unable, or uninterested in evaluating these returns

It focuses on the complex factors that need to be considered by enterprises when analysing and maximising enterprise training investment decisions. Five main areas have been identified for consideration:

- conceptual and definitional issues
- practical issues
- approaches for classifying and selecting observable returns
- drawing on related management approaches: the balanced scorecard and human resource accounting (HRA) concepts
- mediating factors that inhibit and enhance enterprise returns on training investment

Working through these issues should assist enterprises to see training as a beneficial investment, rather than as a cost. This report has also underpinned the development of a practical guide designed to assist enterprises to identify, analyse and demonstrate evidence of returns on training investment.

conceptual and definitional issues

'training' or 'learning'?

Before practical issues on determining returns on training can be addressed, it is important to confront and untangle conceptual and definitional issues. Both the Department of Training and Education Coordination (DTEC) NSW (1996) and Sloan (1994) note that definitions of 'training' have a number of dimensions, involving 'ambiguity and overlay' (Sloan 1994, p.112).

Traditional definitions of training, such as the Australian Bureau of Statistics (ABS) definition (see box) focus on formal, structured programs, with stated intents and processes, which may or may not be credentialled.

ABS definition of training

> *All training activities which have a structured plan and format designed to develop employment related skills and competencies. Activities may consist of periods of instruction, or a combination of instruction and monitored work. This instruction may take the form of workshops, lectures, tutorials, training seminars, audio-visual presentations, demonstration sessions and/or monitored self-paced training packages. Formal training does not include unstructured on-the-job training. Formal training may be categorised as either formal training or work-based training* (Misko et al. 1996, p.124).

Sloan (1994), Misko et al. (1996), Billett and Cooper (1996) and Johanson (1998) argue that this narrow definition under-represents and undervalues the range of enterprise training and learning activities, of which training is just one component. Both Shackleton (1993) and the Employment Services Unit, Deakin University (1997) also note that competence can be developed in many ways, with Shackleton (1993, p.30) arguing that governments shouldn't be seduced by, or impose, a particular model of training.

Drake (1995) advocates the use of a broad, relevant definition which captures and integrates all training and learning activity, including:

- the integration of training, task and job rotation
- situational learning, where the worker learns from his/her work environment, including colleagues, superiors and problem-solving on the job
- critical-reflective learning, where reflection and feedback are used to improve work performance

Such an approach appears desirable within the context of learning organisations and enterprise efforts to find and use 'the most efficient ways of achieving competitiveness–enhancing competence' (Drake 1995, p.3). It should also be emphasised that training does not always result in learning and improved work performance. Conversely, learning does not always result from training. In support of this position, it is interesting to observe that in their recent study, the American Society for Training and Development (ASTD) (see Bassi & van Buren 1998) have focused on 'learning and development practices', rather than 'training' or 'training and development' practices. Similarly, Phillips (1997) notes a preference for the term 'learning solutions' which encompass training, education and development. This shift is also evident in the refocusing from training provision to performance consultancy, in which work performance and returns to organisations are improved through holistic, multi-faceted initiatives, rather than isolated training activities (see, for example, Robinson & Robinson 1995, 1998 and Stolovitch & Maurice 1998).

For the purposes of this report, the broad definition of training applied by Hayton et al. (1996) has been adopted. Training refers to:

> *all forms of skill formation activity relevant to the operation of the enterprise. It may include formal and informal and on-site and off-site training and education* (p.6).

Use of this definition is also consistent with Carnevale and Schulz's (1990, p.S-9) recommendation that what is critical is that each organisation reaches agreement on an organisation-specific definition. However, this approach has obvious implications for multi-enterprise research, where variations in definition will need to be identified. The Queensland Training Officers' Society (1994) and Drake (1995) also note that it may be extremely difficult to attribute and measure the costs and benefits of on-the-job learning when the cost of learning is an integral part of everyday work and the production cost.

what's in a name: return on investment (ROI) or return on training investment (ROTI)?

Since the early 1990s, ROI and cost-benefit studies which demonstrate the bottom-line contribution of training have received increased attention in the literature and promotion as 'the ultimate level of evaluation' (Phillips 1991, p.329). Such approaches have resulted from the inability of conventional accounting systems to provide adequate data for decision-making and planning about training resource use (see Carnevale & Schulz 1990, p.S-4 and Plott, 1998). This approach has also encouraged the view that training is an annual cost item, rather than an investment (Employment Services Unit, Deakin University 1997).

Phillips (1991) explains that the term ROI originates from the finance and accounting field. His definition and formula for calculating ROI is provided in the figure below.

Despite the promotion and application of ROI analysis to training, Mitchell (1994) notes that a set of agreed procedures does not exist for ROI studies. Various authors have also highlighted difficulties associated with measuring ROI for training and linking it with organisational performance. This issue is explored further in the next section, which addresses design and methodological issues.

Phillips himself cautions about the use of the accounting term ROI and the limitations of its application within training contexts:

> *Finance and accounting personnel may actually take issue with calculations involving the return on investment for efforts such as an HRD program. Nevertheless, the expression is fairly common and conveys an adequate meaning of financial evaluation. Some professionals suggest that a more appropriate name is return on training (ROT), or simply return on human resource development* (1991, p.338).

After definitional issues have been considered, together with design and measurement issues associated with training evaluation, use of the term 'return on training investment' (ROTI), is advocated. ROTI may be considered an HRD term, which covers the broad range of qualitative and quantitative approaches applicable in evaluating the benefits, or returns, from investment in the learning and development of employees. Use of this term appears preferable to using (or misusing) ROI, which has a narrower, quantitative meaning within business contexts. In support of this position, Thorne (1998) contends that:

> *because human resources are an intangible form of capital it is equally possible that the returns may be equally intangible in a financial sense although clearly demonstrable in other ways* (personal communication p.16).

Phillips' (1997) ROI formula

Phillips calculated ROI using program benefits and costs. The benefit / cost ratio (BCR) is the program benefits divided by cost:

$$BCR = \frac{\text{program benefits}}{\text{program costs}}$$

He suggests that the most appropriate formula for evaluating training investment is net program benefits divided by cost. The ratio is usually expressed as a percentage when the fractional values are multiplied by 100:

$$ROI\ (\%) = \frac{\text{net program benefits}}{\text{program costs}} \times 100$$

The net benefits are the program benefits minus program costs. The ROI value is related to the BCR by a factor of one. Consequently, a BCR of 22.45 is the same as an ROI value of 145 per cent. Applied to training, the investment part of the formula refers to capital expenditure for equipment, materials and facilities, plus initial development or production costs.

An ROI on a training investment of 50 per cent indicates that costs were recovered and an additional 50 per cent of the costs are reported as earnings. A training investment of 150 per cent indicates that the costs were recovered and an additional 1.5 multiplied by the costs is captured as earnings.

As an example, Phillips notes the ROI achieved by one company for an 18-week literacy program. The program cost $38 233 and benefits (productivity and quality improvements) were valued at $321 600. The ROI for this program was:

$$ROI\ (\%) = \frac{\$321\,600 - \$38\,233}{\$38\,233} \times 100 = 741\%$$

For each dollar invested, the company received $7.41 in return, after program costs had been fully recovered.

This approach to calculating ROI is advocated by Phillips because the same formula and concepts are used for other business investment decisions. He advocates an ROI minimum of 25 per cent for training initiatives.

source: Phillips (1997), pp.33, 152–154

links between training, performance and profits: the issue of causation

Sloan (1994), Shackleton (1993) and the Employment Services Unit, Deakin University (1997) raise the issue of causation when reviewing research on the impact of training on enterprise performance. Shackleton (1993) contends that:

> *Correlation does not imply causation, and there is a distinct possibility that the underlying cause of both high commitment to training and higher productivity may be different managerial cultures* (p.36).

The Employment Services Unit, Deakin University (1997) suggests that profitable enterprises may be more inclined to invest in training because they can afford to, rather than training resulting in profits. This issue is also identified by Guest (1997), though his concerns relate to links between human resource management (HRM) generally and organisational performance:

> *At present the studies report a promising association between HRM and outcomes, but we are not yet in a position to assert cause and effect* (p.274).

The issue of cause and effect requires further exploration in future ROTI studies.

practical issues

Much can be learnt from the body of research available on the evaluation of returns from training. Findings and observations relevant to future ROTI practices are highlighted below.

who undertakes ROI and ROTI research?

Most published Australian studies, such as Pearson (1996), Catts et al. (1996) and Misko et al. (1996) have been designed and undertaken by researchers. Other studies have involved collaboration between researchers and enterprises (Davidson et al. 1997; Queensland Training Officers' Society 1994). Where enterprise research approaches are documented, they are usually undertaken by large enterprises with training or HRD functions (Phillips 1994; Mitchell 1994; Bartel 1995; Schneider et al. 1992). As a result, this leads to questions concerning the widespread applicability of these approaches, especially amongst small- and medium-sized enterprises (SMEs).

designing and undertaking ROTI studies

The difficulties and complexities of undertaking ROTI studies are highlighted repeatedly by researchers and human resources practitioners. Challenges include:

- difficulties in designing experimental studies involving control groups, which may be viewed as more rigorous in an academic sense, but are rare in practice (OTFE 1998)
- problems of time and resources, including the prospect that benefits may accrue after the evaluation has concluded (Mitchell 1994; Selby Smith 1996; Shackleton 1993)
- data access and collection issues including sample selection, access to data (such as personnel records which may be confidential and access to data held by other functional units within the enterprise), response rates and respondent subjectivity (Mitchell 1994; Queensland Training Officers' Society 1994)
- the lack of standardised approaches for evaluating ROTI (Bassi & van Buren 1998; Johanson 1998)

In addition, the authors' review of various studies suggests that the right evaluation questions are not always asked of the right people and evaluation plans are not always able to deliver the required answers.

selecting output measures and analysing and interpreting results

Of all the issues surrounding ROTI, measurement issues are most frequently identified as a disincentive for ROTI evaluation. Researchers note the following concerns:

- the impracticality or impossibility of controlling for all variables (Mitchell 1994; Billett 1998)
- difficulties in isolating the benefits of training and quantifying all costs and benefits (OTFE 1998)
- naive efforts to apply quantitative approaches, such as ROI in contexts which are unrealistic and impractical, such as when training benefits cannot be clearly documented and substantiated (Phillips 1991, 1997)

- differences in expectations about what can be measured, judged and appraised (McDonald 1995)
- unqualified statistical benchmarking and misplaced aggregation (Drake 1995)

Catts et al. (1996) also caution that:

> *business indicators, especially over the medium term, are affected by many factors and training cannot be isolated as a factor, at least in single study research* (p.78).

On the basis of their research findings, Catts et al. recommend that business indicators, such as measures of productivity, should be used in conjunction with indirect measures of the effects of training on staff performance provided through approaches such as measures of customer satisfaction with service. This approach is also advocated by Mitchell (1994):

> *A HRD approach to calculating ROI must acknowledge that a cost-benefit model alone cannot measure and assess the value of training. Many phenomena connected with training and organisations can leave even the highest-quality training disconnected from the planned outcomes. A cost-benefit study improperly applied might show success when there is none or show failure when successful outcomes are still developing* (p.201).

Finally, Carnevale and Schulz (1990) and the Queensland Training Officers' Society (1994) suggest that the evaluation design and measurement issues identified above should be acknowledged and more practical, credible and relevant approaches to ROTI should be applied. This direction is also advocated by Barrett and Hovels (1998) who note the desirability of using existing enterprise data, such as employee turnover rates, and Billett (1998) who recommends approaches which identify returns to enterprises by focusing on a small number of variables of interest to enterprises.

classifying, selecting and evaluating enterprise returns on training investment

This section overviews significant information from recent studies and theoretical papers. As noted earlier, it does not attempt to review all ROTI literature. Rather the focus is highlighting and consolidating methodologies and findings of relevance to enterprise-driven ROTI research.

Table 1 provides an overview of literature that presents advice and information on 'how to' conduct various types of studies. Further discussion on key aspects of these studies is provided after the table.

table 1: literature on how to evaluate enterprise returns on training

author/s	overview of approach
Davidson et al. (1997)	Davidson et al. (1997) present enterprise frameworks to assist Australian enterprises in evaluating returns from their investment in training.
Beaton and Richards (1997)	A guide and toolkit developed to promote an understanding of the benefits to UK organisations of investing in training.
Phillips (1997)	Presents an ROI process which focuses on measurement and the assignment of monetary values to training costs and benefits, together with general advice on ROI and the use of qualitative approaches.
Williams (1996)	A short but comprehensive article focusing on ROTI measurement issues from a practitioner perspective.
Kirkpatrick (1994)	Provides information, tools and examples based on the application of the four-level Kirkpatrick model.
Carnevale and Schulz (1990)	Two evaluation frameworks are presented: the consensus accounting model and the Kirkpatrick model, together with a range of practical approaches used by large, innovative US companies.
Leimbach (1994)	Outlines an approach called utility analysis, marketed by Wilson Learning.
Drake (1995)	Advocates the identification and development of 'a spectrum of outcome measures' (p.24) from immediate to more distant outcomes.
Shelton and Alliger (1993)	Present a series of steps for calculating enterprise returns on training investment. They focus on identifying, obtaining, organising, and analysing already available data.

Davidson et al. (1997) provide one of the most recent Australian contributions in advising enterprises on how to conduct return on investment in training studies. Four stages of training evaluation are presented: budget evaluation; skills evaluation; project evaluation; and strategic evaluation. In addition, six groups of evaluation techniques are presented and related to Kirkpatrick's four levels of evaluation.[1] Each evaluation technique is presented, together with enterprise examples.

1 A number of these studies apply Kirkpatrick's training evaluation Model, which was developed in 1959 and has been refined over the years (see, for example, Kirkpatrick 1994). The model consists of a four-level evaluation framework for workplace learning:

Level 1 – learner reaction to the training program

Level 2 – evaluation of learning which resulted from the training

Level 3 – changes in job behaviour resulting from application of knowledge and skills on the job

Level 4 – observable business results produced by the training, such as reduced costs, or improved work quality or quantity.

As Level 4 of the evaluation framework focuses on business results and the organisational impact of training, the model has been applied in several recent ROI and ROTI studies.

Sponsored by Investors in People UK and the Institute of Personnel and Development, Beaton and Richards (1997) have developed a three-part resource which provides advice, guidance and tools for trainers, training managers, line managers and consultants. Section 1 overviews issues associated with training, training evaluation and the assessment of training benefits. Section 2 provides a toolkit which includes advice on training and evaluation, together with guidance on a range of methodologies, clustered using Kirkpatrick's four evaluation levels. However, the toolkit focuses on level 3 *Measuring the effect on individual work performance* and level 4 *Evaluating the impact on organisational performance.* Users are advised to select and use only those approaches which suit their organisation. Section 3 provides templates of some of the tools for ready use by enterprises.

Phillips' (1997) book presents 'a proven ROI process based on almost 20 years of development and refinement' (p.xiv) and incorporates much of his earlier work, including Phillips (1991). His ROI process is overviewed in a model, which is complemented by comprehensive advice and a detailed case study to explain the model. Phillips suggests that his ROI process 'adds a fifth level to the four levels of evaluation' (p.9) identified by Kirkpatrick. Unlike Beaton and Richards (1997), he advocates the development of evaluation plans that address all five levels of evaluation. He also recommends that ROI studies be conducted only for programs that are based on a comprehensive needs assessment. Consequently, Phillips' model appears more applicable to large, well-resourced organisations. However, other aspects of the advice and information he provides, such as taxonomies for identifying and using hard and soft data, converting data to monetary benefits, and calculating program costs and returns, may be applied more widely.

Williams (1996) focuses on providing practitioners with advice and reassurance on measuring training results. The article highlights the importance of linking the measurement of training effectiveness with business goals and outlines the concept of using a 'stairstep connection'. Questions are identified to assist practitioners in making connections between training and results and in grappling with measurement issues within their organisations.

As noted earlier, the Kirkpatrick model has been influential in training evaluation for some time. Kirkpatrick (1994) provides detailed information on the model, together with a range of examples and sample tools for evaluating training at each of the four levels. Sample interview schedules, questionnaires, gap analysis tools and performance appraisal instruments are a useful resource for researchers and practitioners planning ROTI studies.

Although it was produced some time ago, the work of Carnevale and Schulz (1990) remains relevant and useful. An overview of theoretical ROI models is provided, together with examples of practical and innovative approaches adopted by a number of enterprises. Examples of enterprise approaches for assessing returns from training include:

- behavioural change evident via annual employee opinion surveys (used at Johnson & Johnson)
- designing all training to address five key operational objectives: zero production defects; reduced total cycle time; integration of production and manufacturing; becoming a customer-driven company; and developing a participative management culture (used at Motorola)
- production units per hour per employee (used at Polaroid)

Leimbach (1994) promotes an approach to ROI called 'utility analysis', which focuses on identifying and quantifying training costs and benefits. Identified benefits focus on the number of people trained, the duration of the training effect and performance differences due to training. In contrast, Drake (1995) questions the appropriateness of some of the narrower, more qualitative approaches to ROI, favouring a reconceptualisation which captures evaluative data on the full range of learning and performance enhancing activities used within enterprises.

Finally, Shelton and Alliger (1993) advocate and explain a practical approach to calculating ROI. They suggest that enterprises should base their analysis on the use of existing data. Suggested data include: accidents rates; absenteeism; number of processing errors; units produced; unit and operating costs; and frequency of safety violations.

Table 2 focuses on recent research studies that explored issues associated with evaluating the return (or benefits) from enterprise investment in training. Within table 2, Australian and overseas studies are distinguished. Both the tools developed during these studies and the research findings are useful in informing future approaches that may assist enterprises in undertaking ROTI studies.

The first three studies included in table 2 focus on efforts to determine ROI in training within single enterprises and particular categories of employees or training programs. Schneider et al. (1992) present a seven-step process to predict and measure the ROI on training, based on an approach used to demonstrate the cost effectiveness of supervisory and management development training at a US naval ordnance station. The approach is promoted as relevant for highly paid employees but requires the use of a comprehensive, valid and reliable needs survey.

Pine and Tingley (1993) report the application of the Kirkpatrick model in evaluating a two-day team building course for intact groups comprising maintenance teams from one enterprise. Experimental and control groups were used to determine investment return focusing on three measures: decreased down time for equipment; response time to service calls and completion time for equipment repair. This study has considerable potential for replication in other enterprises.

table 2: recent Australian and international studies of enterprise returns from investment in training

author/s	study overview
overseas studies	
Schneider et al. (1992)	Presents a seven-step process to predict and measure the ROI on supervisory and management training.
Pine and Tingley (1993)	Provides detailed information on the application of the Kirkpatrick model to evaluate a two-day team building course for maintenance teams from one enterprise.
Bartel (1995)	Demonstrates how the personnel records from an enterprise database can be used to demonstrate the positive impact of training on job performance and wage growth.
Stolovitch and Maurice (1998)	Outlines a training ROI model and details its application in a banking case study.
Mitchell (1994)	Reports on a study by the Human Resource Development Group at the US Office of Personnel Management to determine whether ROI was a viable method for measuring training impact.
National Association of Manufacturers (1994)	This study identifies tangible returns from investment in training reported by enterprises.
Phillips (1994)	Presents 18 case studies of ROI practices in US organisations.
Hollenbeck (1996)	Provides a benefit–cost framework and examples for assessing workplace literacy training.
Bassi and van Buren (1998)	Report the results of the ASTD Human Performance Practices Survey, noting the links between enterprise performance and its workplace learning and development practices. Six organisational performance measures are used to evaluate enterprise performance over time and when compared with business competitors.
Australian studies	
Queensland Training Officers' Society (1994)	Steven Billett worked with training practitioners from seven large organisations to develop and use a research tool in this study on the costs and benefits of training at the enterprise level.
Pearson et al. (1996)	Provides qualitative and quantitative evidence of the benefits of workplace language and literacy training.
Catts et al. (1996)	Replicates aspects of the Pine and Tingly (1993) study in research on ROT to four small retailing enterprises. Identifies mediating factors which may influence potential benefits, plus limitations of ROI-type studies.
Misko et al. (1996)	Study included research on the costs and benefits of work-based training. While companies did not evaluate training formally, most companies did judge the effectiveness of their training. Identifies the benefits noted most frequently by enterprises.
Department of Training and Education Coordination (DTEC) NSW (1996)	Documents the approaches used by 59 enterprises to identify returns on enterprise investment on training. Six qualitative and quantitative measures are identified as those used most frequently.

Bartel (1995) also reports the results of a large study conducted within one enterprise, using the personnel records from the database of a large manufacturing company. The positive impact of training on job performance and wage growth is demonstrated through the use of data for the period 1986–90, for an average of 3800 professional employees per year.

In addition to examining the role of training in performance improvement, Stolovitch and Maurice (1998) propose a model for calculating ROI and detail its application to a training program for 320 account managers employed by one bank. The model has seven main steps:

- calculate potential for improved performance
- calculate estimated training costs
- verify the worth of the training by comparing costs against potential outcomes
- conduct training
- calculate the true cost of training
- calculate organisational return on investment
- calculate individual increased value of human capital

Stolovitch and Maurice provide detailed examples for calculating tangible and intangible returns which use a range of data sources and methods, including some innovative approaches for financial measurement of performance improvements.

The studies by Mitchell (1994), National Association of Manufacturers (1994) and Hollenbeck (1996) demonstrate some of the more complex issues confronting those undertaking ROI or ROTI studies. Mitchell (1994) provides a frank account of a study by the Human Resource Development Group at the US Office of Personnel Management. Three pilot projects were initiated to study whether ROI was a viable method for measuring training impact. This study highlights the 'numerous hindrances and sobering realities' (p.215) of attempting ROI studies. As a result, it provides a valuable introduction for those considering a ROI study within a large enterprise and counterbalances some of the more unquestioningly positive accounts evident in the literature.

Hollenbeck (1996) also reflects on some of the difficulties and limitations of determining enterprise returns on training. He explains how data from published studies may be used to demonstrate training benefits to employees, society and employers, but notes that the bottom-line benefits for employers are not 'clear cut' (p.23) and that more quantitative evidence on the productivity of workers before and after training are required to inform decision-makers.

While the National Association of Manufacturers (1994) found little evidence of formal training evaluation, this study notes that measures relevant to the enterprise were being used to identify tangible returns from investment in training. Those measures included: reduced scrap rates; reduced time cycles; reduced defect rates; decreased workers' compensation costs; reduced accident rates; and higher morale.

Phillips (1994) resulted from a request by ASTD for members to submit case studies of their ROI practices. Eighteen case studies are presented, from a range of industries and environments, demonstrating the range of approaches used and issues addressed by the case study organisations. All demonstrate impressive results, with returns on training investment from 150 per cent to 2000 per cent, together with other documented benefits.

Finally, Bassi and van Buren (1998) report on the state of learning and development practice within the US, based on results of the ASTD Human Performance Practices Survey of 500 private sector firms with over 50 employees. Firms responded to items on 25 workplace learning and development practices. Data from ASTD benchmarking forums undertaken in 1995 and 1996 are used also. This study is significant in its focus on learning and development, rather than a narrower focus on training, and for the emphasis placed on the inter-relationship between these practices and other enterprise practices. The study found a 'solid relationship' (p.25) exists between a company's performance and its workplace learning and development practices. The importance of training and human resource practices which are 'coherent and reinforcing' (p.37) is noted. The study is also of interest as a result of its innovative approach to data analysis, using six clusters of human resource practices (or indexes) and questionnaire

items which provide respondent perceptions on six organisational performance measures, over time and when compared with business competitors. The six performance measures are: retention of essential employees; employee satisfaction; quality of products and services; customer satisfaction; sales and profitability.

Other Australian researchers, including Billett and Cooper (1997) and OTFE (1998), have also identified a range of returns from training as a result of reviews of the literature. Miller (1996) also outlines an approach in which practitioners identify key performance indicators that demonstrate change and success over time. The indicators identified by Miller for training and education at the Ford Motor Company were: customer satisfaction levels; productivity improvement; absenteeism; achievement of quality rating; quality awards; and training awards. Similarly, in their study of enterprise training, Hayton et al. (1996) found that training is viewed primarily as supporting and facilitating strategic organisational shifts (such as new work practices, quality initiatives, team approaches and improved customer service) as links with the bottom line are indirect and may not be measurable.

A number of US studies (Gollan 1997; Ernst & Young 1995; Kochan & Osterman 1994) focus on establishing links between enterprise investment in training and various business indicators. For example, Kochan and Osterman surveyed 694 US businesses undergoing workplace transformation to implement high road business strategies, where competition was based on quality, variety and service, rather than price. He found that training was a key feature in companies that had adopted new work practices. In fact, training was identified as a more significant factor than other human resource practices in achieving workplace transformation.

All of the Australian studies included in table 2 were undertaken by external researchers involved in multi-enterprise studies. While the overseas studies tend to focus on large enterprises, the Australian research includes enterprises of various sizes. However, there is less evidence of formal, quantitative ROTI studies having been completed by enterprises.

The Queensland Training Officers' Society (1994) reports the development and use of a tool to determine the costs and benefits of training to seven large organisations. Four main elements were identified: production, staff, equipment and work practice. These elements were used to cluster 38 benefits from training. While the research tool appeared to have great promise, the results of the research assist in explaining why training is valued and sponsored within enterprises, rather than providing evidence of bottom line profit from training investment. The study found that:

> *it might be useful to reconceptualise the cost benefit proposition … rather than seeking to make equations between expenditure and productivity outcomes it might be considered in terms of how it assists the achievement of strategic goals* (p.42).

In a study of the benefits of workplace language and literacy training Pearson (1996) surveyed 30 enterprises and completed case studies of nine enterprises. Questionnaires used in this study cluster 42 benefits into five categories: direct cost savings; access to and acceptability of further training; participation in teams and meetings; promotion and job flexibility; the value of training (other, less tangible, personal and interpersonal benefits). The study provides qualitative and quantitative evidence of the value of training, including a small number of quantitative examples that may be applied by enterprises in other contexts.

Catts et al. (1996) sought to replicate aspects of the Pine and Tingly (1993) study, such as applying and linking the four levels of evaluation proposed by Kirkpatrick, to four small retailing enterprises in Queensland. Catts et al. identified mediating factors which impact on the effectiveness of workplace training and note various limitations of ROI-type studies, especially the dangers of using measures of productivity benefits in isolation from other primary evidence on the effectiveness of training.

Misko et al. (1996) undertook a study which included research on the costs and benefits of work-based training. While companies did not evaluate training formally, most judged the effectiveness of their training through improvements in work performance and feedback from internal and external clients. Benefits identified most frequently by enterprises surveyed were improvements in productivity, employer-employee relationships, safety, technical competence and quality, cost efficiency and effectiveness. Amongst the 12 enterprises case studied (see Moy et al. 1996), the benefits of training were demonstrated most frequently through: customer

satisfaction; occupational health and safety records; trainee success (measured through placement and organisational retention); employee satisfaction; and improved productivity, rather than by other methods which may have involved meticulous recording and reporting of training-related data.

Similar findings are evident in DTEC (1996). This study was undertaken by Louise Marcroft, resulting in a four-volume report. Three volumes of case studies indicate how returns on enterprise investment are identified in small and medium enterprises, high growth enterprises and enterprises undertaking major restructuring. Interviews with individuals from 59 enterprises resulted in the identification of the following measures most frequently used by these enterprises: employee perceptions; informal observation of employee performance; impact on customer service; impact on quality assurance statistics; impact on occupational health and safety statistics; review (rather than measurement) of training to evaluate the contribution to business performance indicators.

This section demonstrates that there are significant benefits in adopting an approach which integrates worthwhile features of previous ROTI studies and applies the lessons learnt concerning enterprise needs and priorities. As a result, this review has informed the principles presented in the final section of the report. However, as shown in the next section, it has also been useful to look beyond the training literature for relevant models and lessons.

drawing on related management approaches: the balanced scorecard and HRA concepts

Many of the studies discussed in the previous section identify key training outcome indicators or measures used by enterprises to assess the returns resulting from investment in training. Others highlight the importance of focusing on a small number of indicators identified as critical to enterprise decision-makers. These approaches exhibit some similarities with the balanced scorecard approach developed by Kaplan and Norton (1992, 1996).

As current enterprise operating environments are characterised by a need for continuous improvement, innovation and competitive advantage, Kaplan and Norton argue that executives require business performance measurement systems that include, but extend beyond, traditional financial accounting models such as ROI. They identify a need for a more comprehensive valuation of company assets, including:

> *the valuation of a company's intangible and intellectual assets, such as high-quality products and services, motivated and skilled employees, responsive and predictable internal processes, and satisfied and loyal customers* (1996, p.7).

Based on research with twelve companies 'at the leading edge of performance measurement' (1992, p.71), they initially devised a measurement system to provide senior executives with a rapid, but comprehensive, assessment of the current and future performance of their business. The balanced scorecard provides holistic information from four perspectives and answers to four key questions:

- financial perspective: How do we look to our shareholders?
- customer perspective: How do customers see us?
- internal business perspective: What must we excel at?
- innovation and learning perspective: Can we continue to improve and create value?

To minimise information overload, companies are encouraged to select a limited number of goals and critical measures for each perspective. Table 3 provides some examples.

Resulting in a single report, the approach encourages executives to consider and balance improvements, so that results in one area are not achieved at the expense of another area, or long-term results are not sacrificed to achieve short-term results.

Since the original work, the balanced scorecard concept has evolved from a measurement system to a strategic management tool, used to organise, clarify, communicate, manage and evaluate business strategy.

table 3: examples of goals and measures which may be used by companies applying Kaplan and Norton's balanced scorecard

goals	measures
financial perspective	
succeed	quarterly sales growth and operating income
improve returns	return on investment
customer perspective	
responsive supply	on-time delivery
new products	per cent of sales from new products
quality	defect rates
internal business perspective	
manufacturing excellence	cycle time, unit cost by department
minimise operational problems	service error rate
innovation and learning perspective	
time to market	time to introduce new product compared with competition
upgrade staff competencies	staff development (vs staff development plan)

source: Kaplan & Norton (1992, 1996)

Aspects of the balanced scorecard approach, such as the linking of training initiatives with business goals and the selection and use of a small number of critical measures, appear readily applicable to ROTI studies. However, the application of the four perspectives used to assess the overall performance of a company appears less relevant to the evaluation of specific training programs, which may actually focus on one or two of those perspectives. Importantly, Kaplan and Norton indicate that the balanced scorecard should not be considered 'a template, nor a straightjacket' (1996, p.34) and that, depending on the circumstances of business units, the number and range of perspectives may require modification. Finally, given similar themes in the training evaluation literature, it is interesting to note Kaplan and Norton's disappointment and frustration that amongst the companies implementing the balanced scorecard concept, measurement approaches for the learning and growth perspective were frequently missing or poorly linked with strategic objectives (1996, pp.144–145, pp.231–232).

The need to address the importance of investment in training and other intangible enterprise activities which impact on enterprise growth and productivity has also been promoted by the OECD (Johanson 1998). While noting that 'the importance of intangibles exceeds the current ability to recognise and measure them' (p.47) and the limited progress made during the last thirty years, the author provides examples of practical applications of HRA, used mainly by Swedish companies to evaluate organisational learning. While the application of HRA was viewed positively by case study participants as a means of including information on human resource investment in company financial statements, Johanson indicates that 'the integration of HRA in the management control process seems to fade away' (p.52) due to management ambivalence towards HRA.

Before further work is completed, using either the HRA or the balanced scorecard approaches, Johanson argues that little will be achieved until more is known about the way intangible factors and processes are recognised, measured, reported and valued within companies and externally, by capital markets.

mediating factors that inhibit and enhance enterprise returns on training

factors that enhance returns on training

Recent studies (Bassi & van Buren 1998; Barrett & Hovels 1998; Billett & Cooper 1997; Guest 1997; Kochan & Osterman 1994; Pfeffer 1998; Ernst & Young 1995) consistently highlight the need to consider training decisions and practices as a unified cluster of activities in a highly inter-related set of enterprise activities. As a result of a review of over 100 papers on the business practices of thousands of enterprises, Ernst and Young (1995) found that the economic benefits to companies were greatest when innovations in management practices were integrated with employee training and empowerment programs. Similarly, all 59 interviewees in the DTEC (1996) study indicated that:

> *the productivity benefits of training would be enhanced, and in many cases can* only *be achieved, when training is integrated with other aspects of their organisations and/or when the organisations made use of other sustainable competitive advantages* (p.51).

In summary, authors including Bassi and van Buren (1998), Curtain (1998), Robinson and Robinson (1995, 1998), Lesler (1998), Gollan (1997), DTEC (1996), Kaplan and Norton (1996) and Smith (1993) advise that enterprise returns on training are greatest when training provision aligns with:

- enterprise approaches to technology, given the interdependence between training and technological change
- reinforcing human resource policies and practices (especially incentives such as promotion, profit sharing, team-based pay, performance pay and bonuses), together with recruitment policies and practices and feedback systems
- work organisation and work practices, such as the scope of the workers' activities, their decision-making roles, and access to accurate and timely information
- corporate objectives and operating requirements, including production strategies
- low employee turnover
- senior management commitment, including the business philosophy, skills and experience of owners / managers
- supervisory support and involvement

In addition to addressing the connection between the training system and other enterprise systems, research evidence (see Catts et al. 1996; Sloan 1994; DTEC 1996; Bassi & van Buren 1998; Drake 1995; Pearson 1996) indicates that the benefits of training may be maximised by:

- ensuring that appropriate employees participate in training
- using a wide, but integrated and reinforcing, range of skill formation approaches, including individual development plans and the provision of learner support via mentoring, coaching, training information systems and training resource centres
- integrating language, literacy and numeracy training with other training
- ensuring close and effective links between on- and off-the-job training and other skill development opportunities
- providing a mix of general and specific training
- providing training at a time and in a form which addresses business and employee needs
- completion of train the trainer programs by supervisors
- ensuring employee access to effective recognition of prior learning programs

- ensuring that training programs deliver a consistent message
- planning for training implementation through personal action planning (to develop commitment to transfer) and provision of support systems (such as buddying, feedback systems and performance guides) to facilitate training transfer

factors that inhibit returns on training

If training innovations aren't complemented by changes in technology, work organisation and human resources practices, then training may have little impact on individual and organisational performance. Wolf (1996), Wooden and Baker (1996), Catts et al. (1996), Robinson and Robinson (1995, 1989), Rummler and Brache (1995), Mitchell (1994) and Billett (1998) all identify critical factors which impact negatively on training investment. These factors include:

- lack of employee incentive to apply learning on-the-job
- lack of appropriate job design and work experience opportunities to complement training
- training which is not up-to-date, relevant and appropriate
- lack of complementary training for senior and middle managers
- a weak training support and performance monitoring capability within the enterprise, resulting from a lack of supervisor involvement and lack of management commitment

To overcome these inhibiting factors, Mitchell (1994) advocates the use of an instrument to assess the organisation's ability to foster the application and use of training in the workplace.

Stolovitch and Maurice (1998) also highlight the waste of training expenditure that may result from the inappropriate selection of training as a solution, or insufficient consideration of complementary and mutually reinforcing interventions:

> *training is often the cure of choice for a range of performance gaps whose causes have little, if anything, to do with skill/knowledge deficiencies. Its implementation, consequently, yields little to no effective results. It follows, then, that there should be no expectations of a positive ROI from training* (p.10).

Citing a number of research findings (Baldwin & Ford 1998; Broad & Newstrom 1992; Ford & Weissbein 1997), Stolovitch and Maurice (1998, p.11) highlight that less than 20 per cent of training is actually transferred to workplace performance.

conclusions: towards a framework for analysing enterprise returns on training investment

This report has identified the challenges confronting those who undertake studies on enterprise returns on training. Mitchell (1994) notes that the experience can be frustrating:

> *Measured outcomes are possible, but not without anxiety, time and the acceptance of suboptimization* (p.214).

As a result, formal studies while promoted in the literature, are less evident in practice. Most of the available studies have been completed by researchers rather than enterprises and usually achieve less than the intended outcomes.

Despite this situation, however, a substantial body of evidence does exist to suggest that training adds value to enterprise productivity and performance (Plott 1998; Gollan 1997; DTEC 1996; OTFE 1998). Drake suggests that while many training investment decisions continue to be taken on the basis of 'casual, intuitive estimates' (1995, p.31), it is now possible to provide more information relevant to these decisions.

However, in advancing approaches to enterprise returns on training there is a need to reorient and reconceptualise our approach if it is to be applied by enterprises. It appears that the observations of Carnevale and Schulz (1990) remain relevant today:

> *Up-to-date organizations use only as much and as complex measurement and evaluation as is necessary. And their training and development efforts are planned and assessed in the broader context of human resource and general business strategies* (p.S-3).

> *Many well-publicized measurement and evaluation methods often are prohibitively expensive and time consuming. Meanwhile, the growing number of more convenient, exemplary evaluation practices have, for the most part, remained unknown outside the organizations that use them* (p.S-4).

More practical, creative and cost efficient approaches are required. On the basis of the research evidence to date, a set of twelve principles has been identified to inform and guide the development of future ROTI approaches. These principles are described under the following headings:

- addressing definitional and conceptual issues
- designing returns on training investment (ROTI) studies
- accessing and using data
- considering broader contextual issues

addressing definitional and conceptual issues

Ambiguity and uncertainty are evident when the term 'training' is used. Use of a broad definition is advocated, which incorporates all forms of learning and skill formation, whether formal or informal, on- or off-the-job. Given variations in the meaning of enterprise training, it is essential that enterprises define the use of the term within the enterprise. This approach ensures that the definition is relevant and meaningful within the enterprise. When researchers conduct studies involving more than one enterprise, it is necessary to explore and explain uses of the term.

Increasingly, the term ROI has been in the Australian literature on training. However, this term is used in finance and accounting contexts to determine the quantitative returns, in dollar terms, which result from investment decisions. Training practitioners and researchers should use the

term with caution and in appropriate contexts. Use of a different term, such as ROTI is advocated to convey the range of qualitative and quantitative approaches that may be used to assess and demonstrate the value of training to an enterprise.

In addition, there is a need for further exploration of the issue of causation when examining links between training, performance and profits. Do profitable Australian enterprises invest in training because they can afford to, or does training result in improved performance and increased profits?

designing ROTI studies

Most enterprises, and particularly small- and medium-sized enterprises, do not have the need, resources or expertise to use rigorous, highly technical approaches for evaluating returns on training. As a result, there is a general lack of enterprise interest in detailed investigation of returns from investment in training. While researchers and some practitioners have struggled with the dilemma of rigor versus practicality in designing and undertaking ROTI studies, the research evidence demonstrates the importance of focusing on approaches which provide timely, useful and accessible information, rather than focusing on traditional notions of rigor. Future activities should focus on providing enterprise decision-makers with qualitative and quantitative evidence of the returns from training, rather than attempting to provide absolute proof of the impact of training on enterprise productivity and profits. In particular, enterprise decision-makers appear more interested in evidence of the contribution of training to organisational change (such as enterprise repositioning as a high road, or high performance competitor) and business strategy, than in efforts to isolate direct, quantitative links with profits and productivity. Consequently, at the training program design stage, designers and evaluators should explain how the program addresses the operational and strategic priorities of the enterprise and how evidence of ROTI will be demonstrated.

There is merit in extending on previous research to create a taxonomy that assists enterprises to select and use a small number of key training outcome indicators which are relevant to the enterprise, encourage the use of available data and can be evaluated by enterprise personnel without the assistance of external researchers or consultants. The taxonomy provided in table 4 identifies over 50 possible training outcome indicators, presented in seven clusters: productivity and efficiency; sales and profitability; quality of products and services; customer service and satisfaction; occupational health and safety; organisational learning and development; and organisational climate, culture and practices. This list is not intended to be exhaustive. Rather, it provides a range of possible training outcome indicators which may be selected, amended or rejected in favour of indicators which align more closely with enterprise priorities. Such an approach may facilitate more realistic and widespread approaches to evaluating ROTI.

Rather than attempting to apply a particular ROTI model or methodology, it is also important to promote the selection and use of approaches that are appropriate and feasible for the training activity and management expectations concerning training evaluation.

accessing and using data

To obtain as complete a picture as possible, a number of qualitative and quantitative data sources and both financial and non-financial indicators should be used. Sources of evidence may include: participants; participant's supervisors; subordinates; customers; expert opinion. Data collection methods may include: existing data sources (information already collected by the enterprise, such as employee surveys, personnel records, sales data, etc.); surveys; focus groups; interviews; and observations of employee work performance.

Information should be collected at appropriate times, such as before the training, immediately after the training, after three and after six months.

In larger enterprises human resources, training, finance and line managers need to work together to determine effective strategies for collecting or accessing information which will demonstrate returns on training.

table 4: a taxonomy of possible training outcome indicators for ROTI studies

Productivity and efficiency
production costs per unit
productivity targets met/exceeded
production/completion time per unit (e.g. forms, loans, clients, projects)
output (per worked hour, per shift, per machine, or per annum)
equipment/facility/asset utilisation (e.g. down time due to machine stoppages, shift changeover time)
equipment maintenance (costs or repair time), or replacement costs
response time (e.g. to service calls or orders)
capacity of staff to solve routine and non-routine problems (e.g. supervision time required)
staffing requirements and workforce flexibility (e.g. dependence on casual/contract labour)
overtime (quantity, cost)
improved innovation in products/services
induction time for new employees
productivity of new employees
sales and profitability
overhead costs
operating costs
operating costs as a percentage of total costs/revenue
value of contracts won, loans processed
revenue/income/sales (monthly, annually, per employee, per team, per branch or store)
market share (number of customers, dollars spent, unit volume sold)
sales to new customers
group operating profit
profit per employee
stock market performance (i.e. shareholder return)
quality of products and services
on-time provision of products/services
wastage, reject, error or rework rates
conformance record with quality specifications (e.g. batch yields, throughput of invoices)
achievement/maintenance of quality rating
compliance with quality, legal and/or ethical requirements
achievement of quality award
company image and reputation
compliance with the investors in people national quality standard
customer service and satisfaction
customer satisfaction levels (with timeliness, availability, quality and price of goods and services)
customer relationships and experiences
repeat business (customer retention or loyalty)
new business resulting from client referrals
more/new customers or markets (e.g. contracts won, loans processed, funding awarded)
lost business
number of complaints

occupational health and safety

accidents or injuries (number, time lost, compensation costs, premium cost/rating)

safety critical incidents (number, cost)

compliance with safety and health requirements (e.g. hygiene testing results)

violation of safety rules

improved response to crises

organisational learning and development

performance appraisal ratings

achievement of organisational competency profile requirements (e.g. to meet accreditation or licensing requirements, new operating environments or facilitate organisational expansion)

number /percentage of employees with nationally recognised qualifications

internal promotions resulting from employee competence and performance

training awards received

employee perceptions of training and development opportunities

alignment with human resources, business and strategic planning

organisational climate, culture and practices

employee retention/turnover/recruitment (e.g. numbers, costs)

absenteeism

disputes/grievances (number, cost or time lost)

number of employee suggestions (submitted or implemented)

employee satisfaction and motivation

interpersonal relationships and commitment to team goals

participation in teams and committees

team performance

internal communication and information systems

implementation of new work practices

standardisation of work practices

implementation/maintenance of a service culture

contribution to re-engineering and refocusing of enterprise

considering broader contextual issues

Training cannot be planned, conducted or evaluated in isolation from other enterprise activities and initiatives. Research evidence suggests that training decisions and practices are more effective when they reinforce and complement other human resource policies and practices, corporate objectives and operating requirements.

Training designers and evaluators should ask the following questions before and after training occurs:

- What would happen if the training were not provided?
- Could a different approach or solution be substituted for all or part of the training?
- How will I disseminate information on the impact of training and to whom?

After the training, evaluators should also ask:

- Are there alternative explanations for the benefits or improvements that appear to have resulted from training?

Application of the guidelines outlined in this report may assist enterprises and researchers to rethink training evaluation and refocus on practical approaches which inform and improve the training decisions made within enterprises. As a result, training evaluation focusing on returns to the enterprise may become more widespread, rather than just being praised in the training literature and practised in a small number of large, innovative enterprises.

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