

PROMOTING QUALITY IN THE ACTUARIAL ASSESSMENT OF QUANTUM OF DAMAGES IN SOUTH AFRICA

By **MW Lowther**

ABSTRACT

This paper applies a quality framework theory to a field of actuarial practice. The paper is relevant to the professionalism of actuaries in general, and to those who assess the quantum of damages in particular. Quality framework theories propose that practitioners need to apply a range of technical and normative capabilities to provide a quality professional service. This paper suggests the various capabilities that are needed by actuaries in the field of assessment of the quantum of damages, and orders them by applying a quality framework. A methodology for practitioners to benchmark the quality of their practice is outlined. In South Africa, there is no formal curriculum, canon, or specific guidance for actuaries practising in this field. The paper therefore also contributes to the professionalisation of the field by reviewing and recording relevant literature, and provisionally filling gaps in it from personal experience of the author as practitioner in this field. The paper concludes by suggesting that this approach could also help professionalise other fields of actuarial practice.

KEYWORDS

Professionalism; professionalisation; professional practice; actuarial quality framework; assessment of quantum of damages; loss of support; loss of earnings

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1. INTRODUCTION

1.1 OVERVIEW

1.1.1 This paper applies a quality framework theory to a field of actuarial practice. The paper is relevant to the professionalism of actuaries in general, and to those who assess the quantum of damages in particular.

1.1.2 Quality framework theories propose that practitioners need to apply a range of technical and normative capabilities to provide a quality professional service. For example, the oversight body of the UK actuarial profession, the Financial Reporting Council, has produced a discussion paper,¹ which suggests various ‘drivers’ of the delivery of a service of quality.

1.1.3 This paper suggests the various capabilities that are needed by actuaries in the field of assessment of the quantum of damages, and orders them by applying a quality framework. A methodology for practitioners to benchmark the quality of their practice is outlined.

1.1.4 In South Africa there is no formal curriculum, canon, or specific guidance for actuaries practising in this field. The paper therefore also contributes to the professionalisation of the field by reviewing and recording relevant literature, and provisionally filling gaps in it from personal experience of the author as practitioner in this field.

1.1.5 The paper concludes by suggesting that this approach could also help professionalise other fields of actuarial practice.

1.2 THE NEED FOR QUALITY SERVICE

1.2.1 The Actuarial Society of South Africa (‘Actuarial Society’) can serve the public interest by encouraging quality service by members in this field.

1.2.2 Although the author is not aware of any recent complaints against South African actuaries in this field, a case was reported in the UK² where both technical and normative capabilities were reviewed. It is stated that the case report disclosed a prima-facie case of misconduct, in that the actuary:

- failed to clarify adequately the capacity in which he was instructed;
- failed to clarify adequately the purpose for which he was instructed;
- failed to clarify adequately the assumptions and considerations which he should take into account;
- took account of inappropriate or incorrect assumptions and considerations;
- failed to undertake the report with sufficient balance and fairness, having regard to the interests of both parties; and
- failed to provide sufficient information and discussion to enable the recipients to judge the appropriateness of the recommendations and the implications of accepting them.

1 Financial Reporting Council. Discussion paper – Promoting actuarial quality, 2008. www.frc.org.uk

2 Adjudication Panel of the Faculty & Institute of Actuaries. Determination Report. The Actuary, November, 2010

1.2.3 As highlighted by an Information and Assistance Note of the Faculty and Institute of Actuaries:³

Civil proceedings in which an actuary is instructed as an expert can lead to a relatively high profile being given to an actuary's opinion. It is therefore important that expert opinions prepared by actuaries are thoroughly prepared and carefully explained so that public confidence is maintained in the competence of the actuarial profession to evaluate future contingent events, even in the event of diverging opinions between actuarial experts.

1.2.4 It seems clear that it is in the public interest for a suitably skilled professional body, such as the Actuarial Society, to facilitate that sufficient competent and compliant professionals are available to facilitate the smooth operation of the process for compensation for damages. Furthermore, as discussed in ¶2.5 below, actuarial evidence may be called for by many other laws.

1.2.5 This paper has been prompted by two related developments in the Actuarial Society. First, aspects of quality theory are being incorporated into the standards of professional conduct, the education curriculum and lifelong learning. Secondly, with a view to promoting quality and community of practice in the field of assessment of damages, a practice committee has been set up in this field. It is intended that the paper will provide a theoretical framework that this committee may find useful in encouraging further professionalisation of this field in line with the goals of the Actuarial Society.

1.3 STRUCTURE OF THE PAPER

1.3.1 In section 2 the methodology of the paper is explained.

1.3.2 The concept of a quality framework is presented in section 3. This framework suggests groups of capabilities necessary for a quality professional service. The different groups of capabilities and values are described in the subsequent sections.

1.3.3 In sections 4 and 5 the paper identifies technical principles. The only comprehensive review of the field specifically addressed to actuaries in South Africa is Milburn-Pyle and Van der Linde (unpublished). Their principles are updated and extended from subsequent literature, and from personal experience of the author as a practitioner in this field. Some complex topics are highlighted for further development. Parameters are suggested for practitioners to assess whether their technical methods and skills are of sufficient quality.

1.3.4 In sections 6 to 8 the paper identifies normative capabilities and values, i.e. the manner in which actuaries undertake to deliver these technical capabilities, such as communication and ethics.

1.3.5 In sections 9 to 11 the paper highlights aspects of the professional, regulatory and commercial environment. Regarding the regulatory environment, court rulings play a significant role for actuaries working in this field, and a register and description of such rulings was identified as one of the areas for further research. A contemporaneous paper (Koch, 2011b) is aimed at fulfilling this need.

3 Faculty and Institute of Actuaries. Information and Assistance Note, 2009

1.3.6 The paper concludes by restating that quality theory requires that practitioners give attention to integrating all three aspects of quality delivery: technical, normative and organisational environment. It is suggested that the application, in this paper, of quality theory to the professionalisation of one field of actuarial practice might be usefully applied by practice committees in other fields, such as enterprise risk management.

2. METHODOLOGY

2.1 In this section the methodology of the project is explained. The paper applies a theoretical framework to a wide field. Accordingly, some aspects were only identified and highlighted for future research.

2.2 A quality framework was derived from the work of the Financial Reporting Council⁴ and Lowther & McMillan (2006). This framework suggests groups of capabilities necessary for a quality professional service.

2.3 A literature review was carried out. The results were used to begin populating each group of capabilities with a brief overview of each capability.

2.4 Where literature was out of date or absent, the capability was described from the personal experience of the author as a practitioner in the field for many years. These statements are identified as such (PE1, PE2, etc). It is suggested that surveys of practice, and reflection on them, form part of the work still needed to be encouraged by the practice committee so as to ensure quality in this field.

2.5 In particular, the question arose whether this field of practice needs to be more precisely defined, and if so, how. The paper leaves this question for future research, but notes the suggestion of Thomson (2006) that actuaries' contribution is to search for sound criteria for decision-making, rather than searching for truth. This resonates with the former by-line of the UK actuarial profession "making financial sense of the future". The definition of the field could therefore be related to the provision of sound criteria for the making of decisions arising from certain legislation. Although road accidents, medical negligence and other delicts quickly come to mind, there are many laws where the application of actuarial criteria could add value. These Acts are listed in the Appendix. Except where mentioned, this paper is primarily addressing the assessment of damages for loss of income or support.

3. THE ACTUARIAL QUALITY FRAMEWORK

3.1 In this section the concept of an actuarial quality framework is briefly described.

4 *supra*

3.2 Houle (1981) drew a distinction between the then traditional concept of professions as a static elite, and a more sustainable concept of professions as dynamic. Houle presented the concept of professionalisation as the continuously evolving process by which professionals group together to develop and market their skills.

3.3 An example of professionalisation was introspection and change by the UK actuarial profession, following the review by Morris.⁵ This process led to a position paper entitled ‘The Actuarial Quality Framework’ by that profession’s oversight body, the Financial Reporting Council.⁶ This framework suggests various drivers of the delivery of a service of quality. These drivers are used by the Financial Reporting Council in the quality assurance of the UK actuarial profession. In response, the UK profession now aims to “build a quality framework which promotes public confidence in the work of actuaries”.⁷

3.4 A similar framework was developed in South Africa by Lowther & McMillan (op. cit.) to cluster the various capabilities and values required for the delivery of quality professional service. Drawing on Bellis (2000), they suggest that the capabilities and values can be grouped into three strands

- cognitive: the actuary’s technical skills;
- normative: the manner in which each actuary undertakes to deliver the technical skills; and
- organisational: the professional body, which the members task with ensuring that the skills are delivered in the agreed manner.

3.5 On consideration, these two frameworks may be merged to provide an even more useful framework, as set out in Table 1.

Table 1: An actuarial quality framework

Technical Methods & Skills	Normative Capabilities & Values	Environment
— the reliability and usefulness of actuarial methods; and	— ethics and professionalism of actuaries;	— professional;
— technical skills of actuaries	— communication of actuarial information and advice; and	— regulatory; and
	— other normative capabilities	— commercial

3.6 It is noted that the Actuarial Society has begun to use a quality framework concept in its structures.

5 D. Morris. Final report on the Actuarial Profession. HMSO, 2005

6 supra

7 C. Instance. Letter from the [UK] Profession’s Chief Executive [to the Professional Oversight Board], 2009. www.frc.org.uk

- CPD should include non-technical development. A summary of the quality framework is set out in the CPD requirements.⁸
- The education programme includes stand-alone courses and seminars on non-technical areas. The Actuarial Society has recently approved a proposal to align the education programme more closely to the quality framework.⁹
- The Professional Conduct Standards are being reviewed, and a proposal has been made by the Professional Matters Board to align the new Code to the quality framework.¹⁰

3.7 The following sections lay the groundwork for practitioners and the practice committee to promote actuarial quality in each of the three strands. A quality service requires the integration of all three groups of capabilities and values.

4. RELIABILITY AND USEFULNESS OF ACTUARIAL METHODS

4.1 INTRODUCTION

4.1.1 In this section technical principles and methods from the literature are discussed. Some items of new or revised practice are included as personal experience of the author, and identified as such (PE1, PE2, etc). Certain complex topics are highlighted for further development.

4.1.2 The field is not specifically covered in the education curriculum of the Actuarial Society, nor has the Society issued any mandatory guidance in the field. Practitioners are however subject to the general Professional Conduct Standards,¹¹ including the requirement therein to be competent in any work they undertake.

4.1.3 For the purposes of this paper, the author has designated as ‘technical’ only those aspects of the capital-value exercise which are predominantly up to the actuary to select. The aspects required because of legal precedent have been designated as ‘regulatory environment’ and are discussed in section 10 below.

4.1.4 One of the main items in the literature is Milburn-Pyle & Van der Linde (op. cit.). For ease of reading, this work is referred to as ‘MPVL74’. This paper is still relevant, as is the accompanying record of discussions at two contemporary meetings of the Actuarial Society. The basic capital-value technique in general use has not changed since 1974. Reasons may be advanced for an alternative system that compensates through periodic payments or structured settlement, and a white paper¹² suggests a move in that direction. That topic is outside the scope of this paper—but it

8 Actuarial Society. Continuing Professional Development Requirements, 2008, www.actuarialsociety.co.za

9 Actuarial Society. Normative and Organisational Education Proposal – Practical Implementation in the South African Education Curriculum, Education Board, 2011

10 Actuarial Society. Revised Draft Code of Conduct, Professional Matters Board, 2010

11 Actuarial Society. Professional Conduct Standards South Africa, 2004, www.actuarialsociety.co.za

12 Department of Transport. Draft policy on the restructuring of the Road Accident Fund as compulsory social insurance in relation to the comprehensive social security system. *Government Gazette* 32940, 2010

should be noted that, as pointed out by Martin et al. (unpublished), periodic payments may require similar actuarial expertise to establish and maintain reserves at the defendant.

4.2 *RESTITUTIO IN INTEGRUM*

4.2.1 Furstom (2001) defines *restitutio in integrum* as follows: “If the plaintiff has suffered damage that is not too remote, he must, as far as money can do it, be restored to the position he would have been in had that particular damage not occurred.” However, as observed above (Thomson, op. cit.), the actuary’s contribution is to search for sound criteria for decision-making, rather than searching for truth. After all, an actuarial model cannot have, as one of its inputs, certain knowledge of future events.

4.2.2 Actuaries use discounted values for a variety of purposes, and different purposes may require different assumptions. The discounting in a damages assessment will usually lead to a final cash settlement. It is not a budgeting exercise that can be revisited with experience. Nor does it seem to be a pricing exercise, as if between willing buyers and sellers. The term ‘capital value’ is used here, and could be interpreted as the amount of assets required to replicate the cash flows specified in the actuary’s report if the assets earn the returns assumed in the determination of that value.

4.3 THE CAPITAL-VALUE MODEL OF MPVL74

4.3.1 MPVL74 describes a capital-value model with six technical steps: establishing the amount of lost support in each relevant year, and then calculating a capital value allowing for inflation, mortality, discount, other contingencies and accelerated benefits. The MPVL74 model and each technical step are discussed in the following paragraphs. Martin et al. (op. cit.) describe a similar process in the UK at the time. With the advent of spreadsheets, it is now common to value separate streams of ‘lost’ and ‘replacement’ income, and difference the results—whereas MPVL74 differenced first, and then valued a single stream of net lost income.

4.3.2 MPVL74 reports that “the actuary applies a technical process to information provided and reports therefrom on the value of the loss of financial support.” The paper does not justify the method, which is basically a discounted-value calculation with single deterministic assumptions for each variable, including the probability of survival in each future year. It does however include a concluding remark that:

many of the misunderstandings of actuarial techniques result from attempts to apply the concept of ‘expectation of life’, which has no real meaning for an individual life and which is better defined as ‘the average future lifetime of a very large number of individuals of the same age’.

4.3.3 As pointed out by Koch (2011b), the principle of value of a chance is a legally approved method for dealing with uncertain past and future events (*Blyth v Van den Heever* 1907 1 SA 191 (A)).

The principle states that if there is a 30% chance of surgery costing R100000 then the compensation to be awarded is R30000, 30% of R100000. ... The original actuarial evidence back in the 19th century was directed at the cost of purchasing a life annuity that

would provide an income equal to that which had been lost, a very practical approach ... From the late 1920's we start to find actuaries explaining their calculations to the courts as being the means to reproduce what is lost by consuming income and capital over the relevant life expectancy, a simple but misleading approach. The affirmation in 1980 of the value of a chance as a legally acceptable method of calculation allows actuaries now to explain their calculations correctly as a year-by-year (or month-by-month) application of the values of the chances of death in each period.

It is important for actuaries to be able to justify their methodology, and to do so in a manner that may be understood and used by the lawyers. This is an area for future research. Clearly, the Blyth principle provides criteria for courts to make decisions, rather than specifying how the claimant's financial position may be restored.

4.4 ADEQUACY OF THE DATA

4.4.1 The Actuarial Society held a series of sessional meetings in 2004 on the adequacy of data. A case study was discussed in the light of the requirement in the professional conduct standards for the actuary to confirm or qualify the reasonability of the data used in any actuarial report. The author recalls delegates noting that, on the one hand, the actuary should not be giving credence to inappropriate estimates, but on the other hand, complete information is rarely available. There was consensus that a report should highlight the extent to which the actuary had been able to confirm the data (for example from salary slips) or indicate that they had been instructed to use certain data. In the latter case, the actuary should at least have considered the data reasonable from general principles. It is noted that the draft new Code of Conduct and Values of the Actuarial Society¹³ requires the actuary to act with 'care and integrity' and has moved data-adequacy issues to field-specific practice standards.

4.4.2 An Information and Assistance Note by the Faculty and Institute of Actuaries for actuaries instructed as expert witnesses¹⁴ states that it is the responsibility of the actuary to identify the necessary data, and that:

Whilst an actuary would not normally be personally responsible for verifying the data, where practical, taking into account the costs involved, they should be satisfied of its validity and reasonableness. An actuary ... should identify any limitations or shortcomings in the data used that might have an effect or have implications for the conclusions set out in their report.

The note allows that actuaries may make alternative calculations on other data (or assumptions) suggested by the parties, as long as they make it clear to the court that they do not believe the data or assumptions to be appropriate. An anonymous reviewer noted, from experience, the difficulty of putting a monetary value on benefits received in kind.

13 Draft Code of Conduct and Values. Actuarial Society. 2010

14 Faculty and Institute of Actuaries. Information and Assistance Note, 2009

4.4.3 The Information and Assistance Note¹⁵ also suggests that costs should be proportionate to the nature of the case. Thus:

...whilst some investigations may be desirable when preparing a report, it may be that they are unjustifiable on the grounds of cost. An actuary ... should discuss the implications of carrying out, or omitting to carry out, certain investigations ...

4.4.4 An attorney may instruct an actuary to prepare an alternative report using assumptions that the actuary considers unsound. Whilst this is acceptable as an illustration, the actuary's report may be seen as lending credibility to such assumptions. It is most important that the actuary's report clearly states that the unsound assumptions are the result of instructions and not something endorsed by the actuary. More generally it is good practice to indicate the source of all information used, such as payslips and expert reports (PE1).

4.4.5 In a pension fund valuation, the actuary is expected to satisfy himself/herself as to the accuracy of the data supplied. With damages claims, this is difficult to apply, and the actuary will quite often be expected to use dubious information. The actuarial report should record such reservations. The precise wording used may require some tact, and disappointed attorneys have been known to demand removal of cautionary wording. The actuary then has to decide whether to reword or to withdraw from the case (PE2).

4.5 INFLATION AND DISCOUNT RATES

4.5.1 MPVL74 outlines two possible approaches to inflation: by the estimation of future rates independently, or by means of a relationship to the rate of interest. It states that the rate of interest with which to discount future values is that which the actuary assumes each dependant could reasonably earn on the capital sum awarded.

4.5.2 The developments in this topic since 1974 justify a research project on their own. MPVL74 implicitly uses the concept of risk-free rates of return. By the time of Martin et al. (op. cit.) risk-free rates of return were commonly represented by the return on the newly developed financial instruments of index-linked gilts. Martin et al. discuss whether a claimant should be given such a full guarantee, and (for future loss of earnings but not for future medical expenses) favour the 'ordinary investor' concept implicit in using a higher discount rate based on an equity risk premium.

4.5.3 Martin et al. (op. cit.) also recommend that investment management expenses be taken into account, and suggested a reduction of 0,75 percentage points in the equity-based rate discussed above. It may be argued that detailed consideration should be given to the way in which the claimant will invest a lump sum. This could include considering the tax position before and after claim, and the costs associated with different retail products that might meet their needs. An absence of matching investment instruments (for example annuities that cease on remarriage, or long-term index-linked

15 supra

bonds) could be highlighted. Such precision may only be justifiable where the legal budget allows for the necessary evidence to be collated.

4.5.4 Prest (unpublished) reports on a project by the Discount Rates Steering Group of the UK actuarial profession to consider how and why risk is included in discount rates across various actuarial fields. She highlights debate around

whether quoting one simple, discounted present value was becoming too dangerous or whether all clients want is a simple answer to what they see as a simple question—and it's therefore down to the actuaries to distil the complex information, whilst ensuring they appreciate the key risks involved.

4.5.5 Koch (2011b) reports that, at the time of writing, South African actuaries generally capitalise future earnings and support using the second approach of MPVL74 with a net capitalisation rate of 2,5% to 2,73% a year. Allowance for real increases in earnings and promotions is made explicitly rather than implicitly. By contrast, in the UK, the exchequer has dictated a net capitalisation rate of 2,5% a year, being a long-term real rate of return of 3,5% a year less 1% a year for real increases in earnings.¹⁶ For future medical expenses there are instances where price escalation above the rate of inflation is assumed and the costs are capitalised at rates of 1% a year, 0% a year and even negative rates. In a recent Appeal Court decision¹⁷ a net capitalisation rate of 2.5% a year was used for loss of earnings and a rate of 1% a year was used for future medical expenses.

4.6 MORTALITY

4.6.1 MPVL74 recommends using the published South African Life Tables ('SALT') for 'asian', 'coloured' and 'white' population groups. No suitable life tables were available for black lives. MPVL74 states that:

In deciding upon survival prospects ... the actuary seeks to use mortality statistics based on the experience of groups of lives identical in all material respects to the individuals concerned... and then adjust these in the light of any special features ...

4.6.2 Again the developments in this topic since 1974 justify a research project on their own. This paper merely highlights some of the issues.

4.6.3 Martin et al. (op. cit.) report on the UK practice of using the latest English Life Tables of population mortality. They suggest that the advantages of using this table include that it uses broad-based data and is generally accepted by plaintiffs and defendants. Although the table makes no provision for future improvement in mortality, this could be allowed for, as is done in the insurance field.

4.6.4 Koch (2011a)—following previous editions of the same work—uses socio-economic rather than race-based categories. However, these are derived from

16 Government Actuary's Department. Actuarial tables for use in personal injury and fatal accident cases, 2007

17 Singh v Ebrahim 2010 ZASCA 145

the race-based SALT. Most South African actuaries use some variation of the SALT tables, except when a more specific life table is appropriate and available, such as one for assured lives or annuitants (PE3). SALT have never produced complete mortality tables for black lives; actuaries can however refer to the tables produced by Dorrington et al. (unpublished), or the healthy lives in the Actuarial Society's various AIDS models.

4.6.5 Discrimination by race and gender has been integral to actuarial calculations in the past. The competing principles of a fair settlement and unfair discrimination will need to be considered in due course. Worsfold (unpublished) reports on current pressures in Europe to exclude gender as a primary rating factor in insurance; life expectancy is influenced by many other factors such as economic and social conditions, family environment, drug use, sport and eating habits. If providers of annuities may not use gendered mortality, then similar assumptions might need to be made in an actuarial calculation that assumes that an annuity is purchased to replace lost income.

4.6.6 The latest SALT tables are in respect of deaths recorded in 1984–86. This is considerably out of date given dramatic improvements in mortality in some groups and similar declines in others due to the AIDS epidemic. Use of these out-of-date tables carries the risk of recommending inappropriate settlements to the court; and more generally damaging the reputation of the profession in evaluating future contingencies.

4.6.7 Adjustments to normal mortality to allow for impairment usually require medical evidence. Mortality tables are easy to adjust if formulated as the impaired life having the mortality of a person x years older, or that her chances of dying have increased by $y\%$ a year. Koch (2011b) notes however that medical experts commonly state a percentage permanent impairment or disability or loss of work capacity, and that there is no necessary proportional relationship between percentage impairment and loss of earnings. Further, because this is often the only solid evidence, it is commonly used as basis for compensation, either as an increase to general contingencies or as a proportional loss of uninjured earnings. An anonymous reviewer reported often dealing with medical evidence formulated as reduced life expectancy, where again the actuary has to decide how best to apply the information.

4.6.8 HIV/AIDS has had a devastating effect on mortality in vulnerable groups in South Africa. Schneider and Kelly (unpublished) investigated possible methods for taking HIV/AIDS into account. They found much complexity in developing a model flexible enough to handle the projected extra AIDS mortality for an individual under a variety of personal circumstances. In particular:

The model should generate extra AIDS risk loadings which differ by age, gender, calendar year, province, urban/rural, risk group, recent HIV test results. ... One needs to model the probability of sero-converting each year ("Incidence Rates") and the length of survival from sero-conversion ('Survival Rates'), in much the same way as PHI policies are priced.

There would also be problems with paucity of data and the calibration of the model. They conclude by suggesting that standard tables derived from the model could be used as part of the contingency deduction for factors not easily susceptible to quantification.

4.6.9 Koch (2011b) states:

The 1985 tables remain the best available tables for persons who do not test positive for AIDS. The life expectancies for AIDS victims are a complicated issue. Retrovirals are now available from State hospitals and promise varying degrees of success. For compensation purposes it is usually appropriate to use as life expectancy the average between 11 years at onset of HIV (the period for an untreated AIDS victim) and the tabular rate for normal non-AIDS mortality.

4.7 OTHER CONTINGENCIES: REMARRIAGE

MPVL74 notes that the court may adjust an actuarial calculation for contingencies not yet taken into account, such as the widow's prospects of support from remarriage. For this purpose, actuaries can assist the court by applying the table produced by Thomson (unpublished a; b) based on South African census statistics. There are no statistics for black persons so the coloured rates are usually used for this purpose, usually adjusted downwards. Specific evidence (such as custom or religion) may indicate a lower or nil deduction (PE4).

4.8 OTHER CONTINGENCIES – GENERAL

Koch (2011b) reports that the so-called 'normal deductions' are 5% past and 15% future, although they are actually 'adjustments for contingencies not taken into account' that could increase or decrease the claim. In theory the determination of these deductions is the prerogative of the court. In practice deductions can range from 0% to 90% and they are often negotiated between the parties. The actuary can inform this discussion by focussing on the certainty or uncertainty of income streams. A post-morbid disability pension may be more certain than the claimant's earnings before the accident. It is not unusual for an actuary experienced with damages claims to be asked by the court to express an opinion on general contingencies (PE5).

4.9 OFFSET FOR ACCELERATED RECEIPT OF INHERITANCE

4.9.1 MPVL74 records that the claimant's loss should be reduced by any monetary benefit that accrued as a result of the incident. In particular, the actuary can assist the court in quantifying a deduction for inheritance.

4.9.2 This comprises the actual amount inherited; plus the value of using the inherited assets if the death had not happened; less the value of the chance of inheriting the assets had the deceased lived out his/her normal lifespan. Koch (2011b) notes that advisers are divided as to the proper approach, and suggests a possible standard as follows:

With a view to achieving some agreement and standardization the following approach is submitted:

- Inherited assets are assumed to escalate in line with inflation from date of death subject to evidence at trial to the contrary.
- Discounting is done to date of trial or settlement.
- Allowance be made for the widow's survival to date of trial or settlement.

- The value of the use of assets be added to the deceased's income as a real rate of return on the notional estate in each year.
- The family home be included with assets subject to an explicit allowance for the use thereof by way of the real rate of return mentioned above.
- The value of the use of business assets used by the deceased to generate his earnings be excluded from the use calculation because this would otherwise give rise to a double add-on.

4.10 SELF-ASSESSMENT

Having regard to current practice described above, practitioners are invited to assess their methods against indications of the reliability and usefulness of actuarial methods compiled by the Financial Reporting Council.¹⁸ Some of the indicators might not be relevant in this field. The Financial Reporting Council states that actuarial methods provide a positive contribution to actuarial quality where:

- they make effective use of models, with due recognition of the power and limitations of the models used
- they are directed to the needs of users, and measures taken to ensure their reliability and usefulness are proportionate to the benefit they provide to the users, and are not unduly constrained by financial and other restrictions.
- they incorporate checks on the reliability and usefulness of the data, and full clear documentation so that the results are capable of being checked and reproduced by other actuaries
- they incorporate robust criteria for selecting assumptions, ensuring consistent measures of assets and liabilities, recognising and exploring risk and uncertainty, and analysing model outputs against expectations
- there is effective and continuing review within and outside the profession of the methods used, so as to encourage innovative, transparent and consistent approaches
- they meet technical standards which are principles-based and outcome-focussed and which promote the reliability and usefulness of actuarial methods.

5. TECHNICAL SKILLS OF ACTUARIES

5.1 Unlike life assurance, retirement funds or medical schemes, there is no specific actuarial education in this field. Practitioners must adapt their core actuarial learning through experience and mentoring and continuing professional development.

5.2 It is relevant to note that the Faculty & Institute of Actuaries used to have a guidance note for actuaries appearing as expert witnesses. In 2009 the note was withdrawn and replaced by an Information and Assistance Note,¹⁹ which is not mandatory. This action may indicate an understanding that a different approach to actuarial quality is appropriate in this field where the actuary has less control over many aspects of the process.

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19 *supra*

5.3 As confirmed by the anonymous reviewers, most actuaries use a spreadsheet to make the calculation. The Society’s education programme includes a study of modelling technique. The aim is to ensure that an actuary can model data, document the work (including the maintenance of an audit trail), explain the methods used, interpret the outputs generated; and then communicate the approach, results and conclusions. This is an opportunity to apply such learning.

5.4 Since MPVL74 was written in 1974, actuarial techniques for larger valuation and pricing exercises (such as life office valuations or mergers) have developed to incorporate the modelling of the interactions of various variables. Boule (unpublished) discussed the application of such techniques to individuals. Such methods are likely to be too costly in most cases, although competition amongst service providers, as well as software developments, may see these techniques beginning to be used in the assessment of damages.

5.5 Most actuaries should have the skills to produce technically correct spreadsheets. However, some skill is also required in many of the matters set out in the second point in ¶5.6 below. This would include an understanding of the issues leading to the selection of assumptions for, *inter alia*, inflation, discount and mortality – as well as the maintenance of adequate records of these parameters. It might also include a thorough understanding of legal precedent (see section 10 below), although this might be seen as the duty of the claimant’s attorney.

5.6 The Financial Reporting Council²⁰ has compiled indicators for the technical skills of actuaries, which again should be useful for practitioners in the assessment of their technical skills. Some of the indicators might not be relevant in this field. The Financial Reporting Council states that the technical skills of actuaries make a positive contribution to actuarial quality where:

- actuaries are selected on merit by clients and employers from a wide range of high quality applicants
- there is clarity about the technical skills which can be expected of actuaries by users, including a thorough knowledge and understanding of current financial, economic and statistical theory and practice, and the wider business, regulatory and economic environment; proficiency in using and interpreting the latest relevant actuarial and related methods and in exercising judgment; and a dynamic understanding of relevant aspects of their clients’ or employers’ business or operations, including the relevant business model and the related risks
- actuaries acquire these skills through comprehensive initial training and testing, exposure to a range of relevant actuarial and non-actuarial experiences and influences, and supervised demonstration of their practical skills
- actuaries maintain and develop these skills through regular practice, updates, validation and challenge.

20 *supra*

6. ETHICS AND PROFESSIONALISM OF ACTUARIES

6.1 INTRODUCTION

6.1.1 In this section, and in sections 7 and 8, normative capabilities and values that the author believes are particularly needed for this field are discussed. Some of these issues were mentioned in MPVL74, although not necessarily conceptualised as ‘normative’.

6.1.2 ‘Normative’ refers to the manner in which the capital-value exercise is carried out and delivered. The Actuarial Society²¹ clusters normative capabilities and values into ethical and professional, interpersonal and communication, business management and life skills. Capabilities refer to the ‘ability to’ (e.g. communicate), whereas values refer to the ‘commitment to’ (e.g. integrity)—or each aspect could be thought of as being part capability and part value (for example, the ability to maintain confidentiality and a commitment to maintain confidentiality).

6.2 CONFLICTS OF INTEREST

The Professional Conduct Standards advise members to avoid or manage conflicts of interest. The Information and Assistance Note²² cautions over specific conflicts that can arise in this field. The Note suggests that there is a conflict of interest whenever the actuary’s objectivity, or duty to a client or the courts, is or could be impaired by competing interests. Any such conflict should be disclosed to the instructing attorney. If the actuary is uncertain as to whether a conflict of interest exists, the actuary should make full disclosure to the attorney, and come to a conclusion taking their views into account.

6.3 IMPARTIALITY

6.3.1 The Information and Assistance Note²³ also states that an expert witness must be impartial. One test of impartiality is that the expert would give the same opinion if given the same instructions by an opposing party. The expert’s fundamental obligation is to the court.

6.3.2 In practice, some attorneys will look to the actuary to assist them in preparing the best case for the client. It may be argued that there is a legitimate space for the actuary to explain the possibilities. However, this situation holds the threat of moving towards unacceptable advocacy and partiality and requires care (PE6). The Information and Assistance Note²⁴ counsels the actuary to resist pressure to give evidence that is contrary to their true opinion, although it permits the actuary to provide calculations on various alternative assumptions provided they state what their normal assumptions would be. It should also be borne in mind that, fairly often, a report prepared for one side ends up being relied on by the other side.

21 Actuarial Society. Normative and Organisational Education Proposal – Practical Implementation in the South African Education Curriculum, Education Board, 2011

22 supra

23 supra

24 supra

6.3.3 A particular ethical issue is whether the actuary acting for a claimant should enquire as to possible deductions to the gross claim, such as contractual pensions or disability benefits, other income and benefits in kind. The legal team may feel it is up to the defendant to unearth such facts, but the actuary is acting for the court. To help actuaries do the right thing, they should bear in mind the possibility of being held liable for damages to the claimant (for the overstated amount) if they knowingly sign off an overstated claim, which is subsequently reduced to its correct value (PE7). (But see also ¶11.4 below on professional liability).

6.4 COMPETENCE

6.4.1 Expert witnesses must confine their evidence to matters that lie within their expertise. Given the lack of specific actuarial education, this implies that new practitioners must find a mentor to peer review their work. Existing practitioners may find that such mentoring encourages reflection and improves their own practice (PE8).

6.4.2 Some disputes involve interwoven actuarial, legal and scientific issues where it can be useful for one professional to present an overall view, acknowledging where he has relied on the advice of other experts.

6.4.3 An anonymous reviewer pointed out a situation where actuaries might be tempted to move out of their sphere of competence. This is where actuaries appointed by claimant and defendant are asked to settle data differences such as the likely earnings of the claimant. The reviewer suggested that such opinions should be left to industrial psychologists.

6.5 PEER REVIEW

6.5.1 It is a common quality-assurance practice in many professions that practitioners have their process and reporting reviewed by a suitably experienced colleague from time to time. For members of the Actuarial Society working on the assessment of damages, peer review is currently a voluntary matter, although members must comply with the Professional Conduct Standard of being competent. The Professional Matters Board of the Actuarial Society is working on proposals for peer review of actuarial work.

6.5.2 There is a certain amount of automatic peer review in the field, because both parties to a claim may commission reports, and their actuaries will be asked to peruse each other's reports. However, this exercise is not the ideal opportunity to discuss alternative approaches, since each actuary has already submitted their expert opinion to the court, and may be disinclined to admit to too many shortcomings.

6.6 INTERACTING WITH ANOTHER ACTUARY

6.6.1 It is common that the report of the actuary for one party is referred to the other side's actuary for checking and comment. This process is greatly facilitated if the actuarial report to be reviewed includes a detailed year-by-year tabulation of how the capital sums are calculated. An anonymous reviewer reported that many South African actuaries in this field do not append detailed calculations, which results in difficulties in reviewing, often under time pressure.

6.6.2 The checking process can extend to the actuaries' being instructed to prepare a joint report. Differences between actuaries could arise from their assumptions and methods; or (more usually) as a result of different information supplied, or different explicit instructions as to how the calculation should be made. Differences need to be expressly stated in the relevant joint report. The purpose of a joint report is to resolve differences between the experts and minimise the issues upon which the court needs to make findings. For this reason actuaries should attempt to resolve both actuarial and data differences. A simple method, which may be justifiable in some circumstances, is to add the differing results and divide by two (PE9).

6.6.3 An actuary called upon to capitalise future medical expenses will often be supplied with reports by different medical experts, some of them duplicating future expenses already listed by another expert. Some actuaries would capitalise all expenses including possible duplications, highlight possible duplications, and leave the parties to pick and choose; others would eliminate duplications (PE10).

6.7 ACTING FOR BOTH PARTIES

It is common that an actuary appointed by the claimant will be instructed by the defendant to do alternative calculations. It is usually advisable for the defendant to obtain consent from the claimant to do so. However, it is essential that a copy of the alternative calculations be supplied to the claimant. The actuary is the claimant's witness. A defendant who requires confidentiality must find another actuary. The same applies *mutatis mutandis* to a claimant who wishes to instruct the defendant's actuary (PE11).

6.8 CONTINGENCY FEES

It is appropriate in some circumstances for attorneys to agree to work on a success-only basis. However, contingency fees related to the amount of the claim are not normally appropriate for experts because they may create, or may be seen to create, a conflict of interest and a threat to objectivity. There is scope for an actuary to agree to reduce fees for indigent clients who lose their case, but in this case, disclosure to both sides may be necessary to manage any perceived conflict. The Standards of Practice of the Canadian Institute of Actuaries²⁵ specifically prohibit the actuary from charging a contingency fee related to the amount of the claim.

6.9 SELF-ASSESSMENT

The Financial Reporting Council²⁶ has compiled indicators for ethics and professionalism of actuaries, which again should be useful for practitioners to self-assess. Some of the indicators might not be relevant in this field. The Financial Reporting Council states that the ethics and professionalism of actuaries make a positive contribution to actuarial quality where:

²⁵ Canadian Institute of Actuaries. Standards of Practice, 2008, www.actuaries.ca

²⁶ *supra*

- actuaries aspire to the highest standards of professional conduct, and to ‘do the right thing’ in the public interest, and see this as enhancing their reputation and that of the organisations with which they are associated
- actuaries exhibit objectivity, and are robust in identifying and resisting pressures to act against their professional judgment or against the legitimate interests of users or potential users of their work
- actuaries have relevant training and guidance to help them address the ethical issues which are likely to arise in their work
- actuaries speak up whenever they have reasonable concerns arising from actuarial work or the way it is used, and follow the issues through.

7. COMMUNICATION OF ACTUARIAL INFORMATION AND ADVICE

7.1 The Information and Assistance Note²⁷ reminds experts that the experience of those involved should be kept in mind. Actuarial concepts may be difficult to understand if they are presented using terms and acronyms with which the audience is not familiar.

7.2 The Information and Assistance Note²⁸ also suggests that the actuary indicates that an actuarial valuation (as in the case of most valuations of any kind) necessarily has a degree of uncertainty associated with it, and that the result may be very sensitive to certain of the assumptions made. Sensitivity analyses can be useful in this regard, although attorneys often want the actuary to give the single ‘right’ answer.

7.3 MPVL74 sets out a standard format for an actuarial report. This format is still in common use. MPVL74 suggests six essential items: terms of reference, information supplied, assumptions and method, gross values, adjustments for other contingencies, and adjustments for late payment. It emphasises that a report should indicate that it is a calculation of a capital value, and not the actuary’s view of the merits of the case.

7.4 In the author’s opinion, a quality report has to meet a number of conflicting requirements, as follows:

- The report must be an effective communication.
- The report should describe what it does and does not aim to achieve. A disclaimer should be included to the effect that different information or assumptions will lead to a different result.
- Sufficient information should be provided that another independent actuary should be able to reproduce the results in the report. Statements such as “an appropriate life table has been used” do not satisfy this criterion.
- The report should not be too time-consuming, given that reports are often needed urgently.
- The report should not normally be too costly, given that the amounts of claims are

27 *supra*

28 *supra*

often quite small, and the costs are not always recoverable by the instructing party (PE12).

The disciplinary case mentioned in ¶1.2.2 above has relevance to reporting.

7.5 The Society's education programme includes a study of communication, and these reports are an opportunity to apply such learning. Effective communication might be achieved with the use of an executive summary including results; then the detailed report in plain language; and then calculation annexures using colours and borders to assist understanding. Further suggestions are made in the textbook (Grant & Borchers, 2008) used in some of the university actuarial programmes.

7.6 At present most reports are delivered electronically. Although clients and courts seem to accept unsigned, unsecured documents, it is better practice to use a secure format (such as a PDF document or an electronic signature). Changes are often required to reports, whether because of new information or the discovery of errors. A new report should be suitably numbered and clearly indicate that it replaces the previous report (PE13).

7.7 Most assessment-of-damages cases are settled between the parties before reaching a court or other dispute resolution system. It seems reasonable, as is the practice of some actuaries, that an abbreviated 'report for settlement purposes' be provided on request. However, the actuary should previously have discussed the limitations of such a report with the relevant legal practitioner (PE14).

7.8 The Financial Reporting Council²⁹ has compiled indicators for communication of actuarial information and advice, which again should be useful for practitioners to self-assess. Some of the indicators might not be relevant in this field. The Financial Reporting Council states that the communication of actuarial information and advice provides a positive contribution to actuarial quality where:

- it is clear and unambiguous, using plain language where possible, with a view to addressing the needs of users for actuarial information and advice
- it includes sufficient information for the reader to judge the appropriateness and implications of any recommendations, without being obscured by immaterial or irrelevant information
- it includes an indication of inherent uncertainty, including an assessment of the key related risks which the entity faces
- it includes discussions with clients or employers to establish a common understanding about their needs and the scope of the work; limitations on the reliability of the work; the key risks identified and judgments made; and the quality of their data, systems and documentation.

29 *supra*

8. OTHER NORMATIVE CAPABILITIES

8.1 Actuaries wanting to better understand how old authorities, precedent and statute work together should read Hahlo & Kahn (1968). General law textbooks usually do not give much space to the assessment of damages, but Corbett, Buchanan & Gauntlett (1985) is a detailed, updated reference work for lawyers. These and other reference works are listed in the bibliography included in Koch (2011b). A useful website, which publishes and tracks the development of case law, is www.saflii.org.

8.2 Useful works written by South African actuaries themselves include

- Koch (unpublished), which links numerical and legal aspects of the assessment of quantum;
- Koch (2011a), an annual update of precedent-setting cases together with current earnings, inflation, mortality and other rates; and
- Whittaker (2009), a compendium of historical earnings, inflation, mortality, investment and other statistics.

8.3 MPVL74 speculates on the possible use of an actuary sitting with a judge as an assessor. Thirty-seven years later this has not happened and we may conclude that, for damages claims, it never will.

8.4 One of the anonymous reviewers of this paper noted how actuaries in this field interact with members of the public much more often than those in traditional fields. For the first time in their life, a lay person may read an actuarial report—a first point of a contact that may significantly affect their personal finances, and when this person is often very emotionally involved in the matter. Life skills somewhat akin to those of the general practitioner in the medical profession are needed—not just the empathetic manner, but also the ability to recall relevant law on the spot without referring back to sources.

9. THE PROFESSIONAL ENVIRONMENT

9.1 Lowther & McMillan (2006) explain the ‘organisational’ aspects of quality assurance as the structures that the profession puts in place to ensure that the technical skills are indeed delivered in the normative way; as well as matters of public interest. MPVL74 did not touch on these issues.

9.2 The Actuarial Society has not issued any specific guidance for members working in this field. However, members are subject to the general requirements to abide by the Professional Conduct Standards and carry out adequate continuing professional development.

9.3 The Actuarial Society has recently set up a practice committee in this field. Having regard to the issues traversed in this paper, the committee could promote quality service in the ways discussed in ¶¶9.4–9.9 below.

9.4 The committee could facilitate an ongoing description of the various aspects of the field and best practice in it, perhaps using this paper as a starting point. As mentioned in ¶5.2 above, the UK actuarial profession has an Information and Assistance Note, which replaced an earlier formal guidance note. The committee could encourage research into the areas highlighted in this report. The committee could encourage the Actuarial Society's education programme to cover this field and, at the minimum, caution prospective practitioners that the work is more than a simple spreadsheet calculation (as demonstrated in this paper).

9.5 The committee could encourage a community of practice through meetings and electronic networks. The first step would be a register of practitioners. Such networking would serve as, and encourage, continuing professional development. At present some practitioners report difficulty in completing the requirements for continuing professional development because the Actuarial Society provides little formal support. The committee could consider presenting an annual seminar, as is done by their counterparts in other fields.

9.6 The committee could promote quality service through 'light' to 'heavy' regulation. Such regulation could range from encouragement of members to engage in voluntary peer review, through inspection of a portfolio of members' work, all the way to the requirement that members hold practising certificates. (It is noted that the UK actuarial profession is currently consulting its members on the need for practising certificates for all consulting work, and not just statutory valuations as at present.)

9.7 The committee could regulate firms as well as members, as the Actuarial Society currently does for employers of statutory life, pension and medical-scheme actuaries. These 'registered service providers' are required to give certain undertakings such as business continuity.

9.8 The committee could facilitate the maintenance of a central library for members, covering court precedents and other matters necessary for a quality service.

9.9 The committee could set up an official liaison channel with the Road Accident Fund to discuss issues of mutual concern.

9.10 The above-mentioned tasks of the committee would contribute to the public service mission of the Actuarial Society by ensuring that a quality service is available. The committee could also go further and encourage pro-deo work for indigent claimants, perhaps through a central registry. (It is noted that South African lawyers are required to devote a certain number of hours to work in legal-aid clinics.)

10. THE REGULATORY ENVIRONMENT

10.1 Assessing the quantum of damages for a South African court is not a reserved role for actuaries. The court may consider evidence from whomsoever it accepts as an

expert. Nevertheless, South African courts (unlike those in England) have placed great weight on actuarial evidence and it is rare for a damages claim for personal injury or death to be settled in or out of court without the benefit of an actuarial report (PE15).

10.2 The courts have rules of procedure, which include the management of expert witnesses. These rules cover such matters as timing of submissions, rights of reply, pre-trial meetings, meetings of experts, etc. Actuaries should look to their instructing attorney for guidance in these matters.

10.3 The methodology of a quantum calculation is considerably influenced not just by statutory law, but also by past legal precedents—the so-called ‘common law’. The rules of precedent require a lower court to apply the principles of previous judgments made in a higher court, if the circumstances are the same. This is how the common law develops. However, new situations can arise where the actuary could contribute to the creation of new precedents. Actuaries should similarly take care not to follow inappropriate judgments.

10.4 The maintenance of a library that describes some of the more important precedents is identified in ¶9.8 above as a way in which the new practice committee could promote a quality service. A contemporaneous paper (Koch, 2011b) is aimed at beginning such a register.

11. THE COMMERCIAL ENVIRONMENT

11.1 The nature of work on the assessment of quantum has led to small businesses’ being the main service providers. There are full-time practices operated by one or two actuaries assisted by a number of clerical staff, sometimes out-sourcing the actuarial sign-off to contracted actuaries. There are some consultancies with a division for the assessment of quantum. There are smaller one-person practices in which the actuary does all the work, often part-time as an adjunct to academic or other employment. Generally, there is more of a business orientation than some other actuarial fields where members may be employees of large companies (PE16).

11.2 Given the small and scattered nature of these businesses, practitioners need to take active steps to keep up the quality of their service. This could include peer review, and setting up a local network of practitioners for regular informal discussions.

11.3 Appropriate business practices and procedures need to be put in place. The education programme of the Actuarial Society touches on business awareness. However, actuaries setting up in this business should get appropriate advice, covering compliance with (*inter alia*) tax laws, the Consumer Protection Act³⁰ and the Protection of Personal Information Bill.³¹ Although this work is not subject to the Financial Advisory and

30 Act no. 68 of 2008

31 Bill no. 9 of 2009

Intermediary Services Act,³² the regulations to that Act provide good guidance on contemporary governance procedures.

11.4 Businesses should consider the risk of liability for negligence. It would be difficult for an aggrieved party to claim against a soundly reasoned opinion. However, spreadsheet errors and data discrepancies could well give rise to a claim. Lowther & Mort (2002) discuss the management of actuaries' professional risk, and since those days a group professional-indemnity scheme for actuaries in small business has been developed. Risk management procedures should include a check of spreadsheet calculations.

11.5 Koch (2011b) strongly advises actuaries instructed by attorneys to insist on a written contract detailing the terms for payment of the fees.

11.6 Some years ago the Actuarial Society published recommended fees for quantum calculations. This practice was stopped when the Competition Act³³ was enacted. There is often a time and cost constraint in this work—what the user needs, compared with the amount of the claim and the claimant's ability to pay.

12. CONCLUSION

12.1 The research reported in this paper has applied a quality framework to the assessment of quantum of damages. It has done so identifying technical, normative and environmental aspects of current practice from literature and personal experience. The paper highlights the theory that practitioners need to apply capabilities in each category in order to deliver a quality service. The range of aspects identified is summarised in Table 2. This table can be extended or amended as the community of practice develops.

12.2 Practitioners can assess their practices against parameters of quality which have been compiled by the Financial Reporting Council³⁴ in each area.

12.3 Findings are made from the research as to how the newly formed practice committee of the Actuarial Society can promote a quality service.

12.4 The application, in this paper, of quality theory to the professionalisation of one field of actuarial practice might be usefully applied by practice committees in other fields. In newer and wider fields, such as enterprise risk management, such an approach might crystallise for clients why they might benefit from using an actuary for such work.

32 Act no. 37 of 2002

33 Act no. 89 of 1998

34 *supra*

Table 2: A quality framework for the assessment of quantum of damages

Technical Methods & Skills	Normative Capabilities & Values	Environment
<p>THE RELIABILITY AND USEFULNESS OF ACTUARIAL METHODS:</p> <ul style="list-style-type: none"> — concept of capitalisation — adequacy of the data — inflation & discount rates — mortality — remarriage — other contingencies — inheritance 	<p>ETHICS AND PROFESSIONALISM OF ACTUARIES:</p> <ul style="list-style-type: none"> — conflicts of interest — impartiality — field of competence — peer review — interacting with other actuary — acting for both parties — contingency fees 	<p>PRACTICE COMMITTEE:</p> <ul style="list-style-type: none"> — describe field — research — education — community of practice — regulation — library of legal precedent <p>REGULATORY:</p> <ul style="list-style-type: none"> — court rules — legal precedent
<p>TECHNICAL SKILLS OF ACTUARIES:</p> <ul style="list-style-type: none"> — modelling skills — basis of assumptions — record keeping of parameters 	<p>COMMUNICATION OF ACTUARIAL INFORMATION AND ADVICE:</p> <ul style="list-style-type: none"> — background of audience — uncertainty of results — format of reports — effective communication — reports for settlement <p>OTHER NORMATIVE CAPABILITIES:</p> <ul style="list-style-type: none"> — seeing the big picture — interacting with lay people 	<p>COMMERCIAL:</p> <ul style="list-style-type: none"> — small businesses — systems and processes — compliance — liability — fees

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APPENDIX

An actuary could be requested, *inter alia*, to calculate a capital value in terms of the legislation shown in Table A.1.

Table A.1. Legislation that may require actuarial involvement

Legislation	Example of actuarial involvement
PERSONAL INJURY AND LOSS OF SUPPORT	
Road Accident Fund Act 56 of 1996	quantum of damages in road accidents occurring before 1 August 2008
Road Accident Fund Amendment Act 19 of 2005	quantum of damages in road accidents occurring after 1 August 2008
Compensation for Occupational Injuries and Diseases Act 130 of 1993	personal injuries at work
Mine Health and Safety Act 29 of 1996	personal injuries in mines
MAINTENANCE	
Maintenance of Surviving Spouses Act 27 of 1990	maintenance of surviving spouses
Maintenance Act 99 of 1998	maintenance of children
Child Care Amendment Act 96 of 1996	maintenance of children
Administration of Estates Act 66 of 1965	other deceased-estate issues
Divorce Amendment Acts 95 of 1996 and 62 of 2002	maintenance and contract issues arising from divorce
EMPLOYMENT AND RETIREMENT BENEFITS	
Pension Funds Act 24 of 1956 and many amendments	retirement-fund benefits
Government Employees Pension Fund Act 41 of 2008	civil-service pensions
Aged Persons Amendment Act 44 of 1994	state old-age pension
Social Assistance Amendment Act 46 of 1994	state benefits
Labour Relations Act 66 of 1995	employment benefits
Basic Conditions of Employment Act 75 of 1997	employment benefits
Unemployment Insurance Act 63 of 2001	employment benefits
Medical Schemes Amendment Act 55 of 2001	medical benefits, especially prescribed minimum benefits
OTHER	
Patents Amendments Acts 10 of 2001 and 58 of 2002	patents
Restitution of Land Rights Act 22 of 1994	actuarial aspects of equitable compensation
Judicial Matters Act 66 of 2008	<i>curator bonis</i> cases

In addition, actuaries may be asked to calculate capital values in terms of laws of contract (for example, insurance claims, medical negligence and errors by investment managers or advisers) and laws of delict (for example, assault and wrongful arrest).