June 2012

Introduction to TFX Consulting's iMIS Report

We are grateful to TFX Consulting, and Ben Murray in particular, for the depth and clarity of this Report on our implementation of iMIS.

The iMIS Report complements an earlier Technology Report, which provided valuable advice in areas of network security, staged replacement of legacy hardware and a coherent software and licensing programme, with associated staff training.

It has been very useful to have independent scrutiny of both the implementation and long-term suitability of the iMIS database, and of our IT systems as a whole. Lessons can be – and have been – learned. For example, new project management protocols have been introduced by the College, and the instigation of an Audit and Risk Committee has been agreed.

The key recommendations of the Report are that we continue to work with the iMIS database in the immediate future, then migrate away from the system over a period of two to three years, as part of a natural upgrade path for RCVS IT systems.

Council accepted the findings of the Report at its recent meeting, and the new Chief Executive and Secretary, Nick Stace, will consider how the recommendations are best implemented, when he takes up his post in September 2012.

TFX Consulting has noted that the RCVS continues to fulfil its statutory duties in terms of fee collection and the maintenance of registration records. However, this has not been without effect on those who work with the database. On behalf of Council, I would like to thank the staff of the College for their hard work and continued patience.

Yours faithfully,

Jerry Davies
President, on behalf of RCVS Council

TFXCONSULTING

iMIS Report

April 2012 V1.0

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a. Terms of Reference

The following report is submitted in response to a request from the Royal College of Veterinary Surgeons (RCVS) Planning & Resources Committee (PRC) to undertake a full assessment into the implementation of iMIS at the RCVS. As set out via letter on the 13th November, this paper is to provide an assessment of iMIS suitability for the RCVS and a way forward. In authorising the work the PRC further requested that emphasis be given to *'how far the database is fit for the College's needs and what might be necessary to achieve this'*. In accepting the assignment TFX Consulting indicated, via email, that judgements around product fit would, by simple limit of time, be at a broad level.

b. Approach

The views expressed in this report are based on an examination of material supplied by the RCVS, interviews with current RCVS staff, consultation with ASI and a visual inspection of the iMIS technology platform.

c. Veracity

Whilst every effort has been made to check the veracity of the content of this report, the summary and conclusions are based on a short engagement and should be viewed within this context.

d. Background

The following report is submitted in response to a request from the RCVS to carry out a review of iMIS and the working relationship with ASI. The request was triggered by concerns around the implementation of IMIS, a new professional membership, subscription and Continued Professional Development (CPD) system (for the sake of brevity referred to in the main body of the report as a Membership Management System).

Executive Summary

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The following report is submitted in response to a request from the RCVS to carry out a review of iMIS and the working relationship with ASI. The request was triggered by concerns around the implementation of IMIS, a new professional membership, subscription and Continued Professional Development (CPD) system (for the sake of brevity referred to in the main body of the report as a Membership Management System). Set out below (and in greater detail in the main body of the report) is an assessment of the suitability of iMIS for the RCVS and a recommended course of action. The findings and recommendations are based on a detailed study of the RCVS implementation of iMIS and interviews with both client and supplier:

Procurement

- Insufficient analysis was carried out in the drafting of the original requirement resulting in an ITT that lacked depth and omitted key information such as workflows, data architecture and entity diagrams.
- The broad requirement of the Invitation to Tender (ITT) naturally elicited a broad response from ASI which failed to draw out areas where iMIS functionality would need to be modified or supplemented with other systems.

Expectation

- The RCVS and ASI management teams have differing perspectives on the nature of the procurement; is iMIS a turnkey solution or is it the delivery of an exploitable capability?
- ASI were surprised at the complexity that emerged during implementation and claim to have been unsighted on much of the detail prior to this. A position which is supported by the brevity of the ITT, although the possibility exists that ASI were equally guilty of making assumptions based on the size of the RCVS, which is disproportionate to the complexity of the requirement.

Project Management

- The general lack of control exercised in day-to-day project management is indicative of an under resourced or inappropriate implementation team on both sides.
- The RCVS failed to heed the warnings of the post-purchase gap-analysis, despite clear evidence of issues with product suitability.

Implementation

- The implementation was run along departmental lines which has created a fragmented environment of duplicated functionality and customisation between teams.
- Little consideration appears to have been given to change management, with end-users left largely to fend for themselves.

Go-Live

- The decision to go-live in December 2010 can only be viewed as an expression of necessity over judgement, as at the time the system was incomplete, largely undocumented, not fully tested and running in a development environment. ASI advised against a roll-out at this time and in this manner, although there is a lack of clarity as to how far this advice percolated through the RCVS management structure. It is also unclear if the advice to stay the implementation was expressed primarily as a warning around timing (i.e. avoiding the Christmas period) or wider concerns (ASI maintains the latter). A moot point, as in contractual terms go-live represented acceptance of the system.

Suitability

- Whilst the Finance functionality appears reasonable iMIS does not support the data structures required to fully support the work of either the Registration or Education teams. Without significant reworking of the core product iMIS will continue to be a poor fit for these aspects of the RCVS requirement.

Financial Remediation

- The lack of detail present in the original tender document, the high level of detail contained within the ASI scoping and gap analysis documents (Solution Document and Solution Matrix), the contractual position and the lack of record keeping in engaging with the supplier, would make any attempt to win compensation not only challenging but difficult to justify.

Recommendations

- Undertake an analysis exercise with the objective of fully defining the RCVS requirement. Produce a design document that includes a data model, candidate workflows and a dependency diagram.[1]
- Establish a change programme that is governed by the design and dependencies expressed in the requirement. Plan for 24-36 months of gradual change that encompasses all aspects of working practice utilising IT as an enabler not a direct driving force.
- Ring fence the current iMIS implementation with a view to providing medium term support for both existing processes and RCVS statutory obligations. In parallel use the already planned redevelopment of ProfCon to design and deploy a new RCVS central database that will ultimately support the Registration and Education functions, thus eliminating their reliance on iMIS. Manage the entire process through the change programme and regulate the design through the requirements document and dependency diagram. (In this model iMIS becomes a consumer of records from a new RCVS database as opposed to the current situation where it is seen as the hub of RCVS systems.)
- Establish an internal IT function with the capability to act as a custodian for the change program and the resulting systems.
- Open a dialogue with ASI on the repositioning of iMIS and implications for interoperability.
- Seek an alternative support arrangement with an approved ASI systems integrator.

[1] A dependency diagram is a graphical representation of a programme of work. Each box on the diagram represents a discrete project. The lines connecting the projects (often shown in hierarchy) denote the inter-dependencies. Thus at a glance it is possible to see the order in which steps must be completed or, when tackling a project in isolation, the stubs that must be put in place to ensure that future connecting projects will be supported.

iMIS

The RCVS implementation of iMIS was extensively studied in the drafting of this report with the eventual conclusion that the system does not fully support the data structures required by either the Registration or Education functions. This has led to cumbersome workarounds within iMIS and heavy use of third party tools such as Excel, Access and, in some cases, DMS, with the result that Registration and Education data has become both duplicated and fragmented. By way of contrast the Finance function appears reasonably well served and the office continues to fulfil its statutory duties both in terms of fee collection and the maintenance of registration records by the Registration team (albeit with significant degrees of workaround and data duplication).

Insofar as it does not meet the needs of the Registration or Education departments iMIS must be considered a poor choice as the 'central hub' of RCVS systems, a concern that should have been identified during the post purchase gap analysis. Furthermore without extensive redevelopment it will continue to be a poor fit for these functions; it is simply the wrong tool for these tasks.

Based on RCVS experience to date it is likely that modifying iMIS to improve the degree of fit would be expensive, time consuming and unlikely to address all concerns. The recommended course of action is therefore to draw a line around the current implementation and over a period of time plan to move to different solutions for at least some, if not all, of the functionality originally envisaged for iMIS. If positioned as the central component of a change programme such an approach could present significant opportunities for driving down costs (reducing the supplier portfolio, rationalising working practice and ultimately reducing headcount etc.). Undoubtedly this is a difficult decision but a failure to act now is simply storing up even greater problems for the future.

At the heart of the iMIS implementation there appears to be a fundamental misunderstanding between ASI and the RCVS. On the supplier side ASI believe they committed to supply a software capability with sufficient training to allow an RCVS team to implement the solution described in the ITT. On the client side RCVS believe that ASI was contracted to supply and implement a turn-key solution with limited client involvement. The RCVS IT and project management function would appear to have been at the centre of this misunderstanding and may have over-committed the college in terms of internal capability, although this is far from certain. Undoubtedly the situation was exacerbated by a poor set of original requirements and the lack of a formally structured project team, which has inevitably resulted in opaque decision making and a lack of accountability.

In terms of remediation it is likely that any form of compensation will be difficult to achieve or, perhaps more accurately, difficult to justify. The lack of detail in the original RCVS tender document, the extensive detail provided by ASI within the Solution Document and Solution Matrix, the contractual position and the lack of record keeping, would make any attempt to win compensation very challenging. Unfortunately, whatever view is taken of ASI's responsibilities and ability to deliver, the RCVS bears a significant degree of responsibility for the situation it finds itself in.

Way Forward

Set out below (and in greater detail in section 4) are a series of recommendations designed to address RCVS concerns around membership management and processes. The suggested approach is one of placing a new set of administrative tools (processes and software) at the centre of a change programme, looking beyond the implementation of a solution to an opportunity for organisational renewal. For although consideration has been given to the 'do nothing' or 'do little' options, these have been discounted on the basis that such an approach would not address the fundamental problems of iMIS suitability for Registration and Education nor would they offer protection against the deepening problems of ad-hoc systems and data fragmentation. The original ITT did not adequately express RCVS' requirements and there is still no clear picture of the supporting systems that are required or the workflows that must be supported. Therefore the first step in any programme of reparative works must be to understand the whole requirement:

1. Define the requirement and produce a design

   Appoint a Design Authority (either an individual or a committee) to oversee the programme of work and own the design. Establish what is required and how it will be architected. Analyse current workflows and from these create an abstract requirement that is free from the influence of organisational structures, personalities and existing working practice. Extend the analysis work to cover the widest possible area and feed the requirement directly into the new workflow design. There is little that will not be touched by a new membership system and it is important to consciously design how work will flow through the new capability.

2. Set up a change programme

   Establish a properly resourced change programme, identify individual projects within the requirement and position these on a dependency diagram. Draft and maintain a programme plan, individual project plans, change, communication, training and benefits realisation plans. Appoint project managers and champions from within the business. Run programme and projects along formal lines.

3. Reposition the IT function

   Establish an IT function that, post change programme, is capable of acting as a custodian for the resulting solution (see recommendations in the IT Audit).

4. Seek alternative support arrangements

   Identify a suitable systems integrator to provide support for iMIS as an alternative to ASI. Owing to the nature of the implementation the RCVS has an above average requirement for support which at times ASI have struggled to resource.

5. Reposition iMIS

   Ring fence the current iMIS implementation with a view to providing medium term support for both existing processes and RCVS statutory obligations. In parallel seek to develop an alternative RCVS core database to service the needs of Registration and Education, thus eliminating their reliance on iMIS. In this target model iMIS becomes a single component of a wider solution, a consumer of central records held in separate system as opposed to providing a service that delivers them. This will require a highly structured approach based on the requirement set and dependency diagram, and delivered through the change programme.

Of these five steps it is perhaps the final one that is the most daunting, conjuring up images of a protracted tendering exercise. However, this need not be the case as opportunities may exist within the redevelopment of existing systems. For example ProfCon, now some ten years old, is nearing the end of its operational life and is overdue an upgrade. It supports one of the functions that will undoubtedly appear on the dependency diagram identified in Step (2) above. The existence of an effective working product greatly simplifies the specification and procurement process and it would not be an overly complex matter to extend this to include capabilities for the Registration and Education database, a requirement that sits at the centre of any future RCVS solution. ProfCon already replicates a significant degree of this functionality in its legacy guise and it makes little sense (other than for historical reasons) to continue this approach with ProfCon standing alone from the main Membership Management System.

Assuming the Step 1 Requirements Exercise corroborates this as an approach, a new ProfCon could be the first step on a structured journey to a core RCVS database, laying a foundation on which wider functionality may be built in line with the target architecture set out in both the requirements document and the dependency diagram.

a. Migration

Moving discrete functions away from iMIS and the plethora of other systems to an integrated approach will be challenging and will require a change strategy that is aligned with the programme plan. The recommended approach is one of incremental change over a period of time, using the dependency diagram as the basis of communication with RCVS colleagues, to ensure that all team members understand the change strategy and how the different components slot together.

b. Timing

Assuming that the change programme remit is set in the broadest terms, and sufficient funds are available, elapsed time to complete steps 1-5 above is likely to be between 24 and 36 months (during which time iMIS, from an accounting perspective, would be written-off). This assumes a full rationalisation of the supplier base, new organisation wide workflows, development of new systems and the repositioning of the IT department. But within this, the piecemeal approach afforded by the dependency diagram would enable the whole programme plan to be speeded up or slowed down as necessary without loss of continuity.

c. Safeguards

When embarking upon any development exercise with a third party supplier it is essential that good contractual terms are established from the outset. These must include:

- A mutually agreed specification, timetable and fixed cost for delivery
- Agreed standards for documentation at both technical and user level
- Clearly defined IP in terms of ownership of the programme code including an ESCROW agreement ensuring copies of the source code are available should the supplier cease to trade
- A formal cooperation agreement

Provided the technical documentation is up to standard and copies of the source code are available through ESCROW the exposure to any developer may be minimised.

iMIS Report

1. Procurement and Implementation

Set out below is an assessment of the procurement and implementation of the ASI iMIS membership management suite.

a. Requirement

The RCVS ITT document (RCVS-Requirement-Spec-Dec-2008.doc) would have benefited from a greater degree of formality in its construction for, although it may be argued that the paper conveys the breadth of the requirement, there is a lack of depth that leaves the entire content open to misinterpretation. Significant omissions include the lack of candidate workflows, an entity diagram and an appropriate indication of data architecture. The resulting ITT neither specifies the data that will be stored nor the relationships that must be present to support RCVS business processes. Without these core expressions of requirement, any contract awarded on the basis of this document (without a significant degree of supplementary dialogue) would be unlikely to meet the expectation of the authoring body regardless of which supplier won the bid.

A broad requirement will only ever elicit a broad response from a supplier which, given the imperative to win business, will always be affirmative. Greater detail in the requirement forces a potential supplier to think more carefully about their response and to take a bid more seriously, as the greater the granularity in the specification the further the burden of the risk shifts away from the client and onto the service provider. Higher levels of detail also assist in objective, comparative decision making; the lower the level of detail the more subjective the awarding of a contract becomes. It is interesting to note that, in stark contrast to the ITT, the Solution Matrix (compiled post purchase by ASI) identified over 500 requirements.

b. Contractual position

The RCVS contractual position would have benefited from legal advice prior to agreeing to the terms laid out in the Master Services Agreement (MSA). From a lay perspective, there seems to be little to protect the interests of RCVS within the MSA. ASI is apparently unbound by any commitment to cost, completion, functional integrity or timescale, yet they retain all Intellectual Property (IP) rights to the developed product. In summary, there appears to be little concept of shared risk between ASI and the RCVS. This is an unusual approach in a time-and-materials arrangement. Where IP is retained, it is more common to see a fixed price contract that sets a balance between risk and reward, with a commensurate reduction in cost to the client in lieu of relinquishing any claim to the intellectual property rights. In this context the ASI position may appear unbalanced but this assumes that the MSA is designed to support development work with an associated IP value.

ASI is a relatively lean organisation and seeks to avoid customising its products; its core business model is to achieve repeat sales using identical systems. ASI does not appear resourced to provide a bespoke service nor do its pro-forma contracts reflect the possibility that it may deliver them. The MSA is not intended to provide a platform for major development work; its primary function is to underpin minor tweaks and ad-hoc support required during implementation. The MSA was not a suitable contractual arrangement for either party given the scale of the work undertaken at the RCVS.

A Task Order should have been completed for each task undertaken by ASI within the framework of the MSA. Three Task Orders were reviewed. The drafting of these documents is loose and open to a

multitude of interpretations but in terms of acceptance the MSA is very clear on the point that any product produced by a task order is deemed accepted at the point derived works move into the production environment. In summary, the act of 'going live' signals the completion of the task and acceptance of the work.

c. Mismatch of expectations

At the heart of the disquiet surrounding iMIS there would appear to be a fundamental mismatch of expectation. On the client side there exists a belief within the RCVS that ASI was contracted to supply and implement a product to meet the specification laid down in the requirements document. On the supplier side ASI believe they committed to supply a set of tools, combined with sufficient technical and early adopter training, for the RCVS to achieve the specification laid down in the ITT. ASI appears consistent in their view whilst within the RCVS there are differing opinions as to the implementation approach. The IT and project management function would appear to have been at the heart of this misunderstanding.

The ASI implementation model is one of 'train the trainer' and 'train the implementer'. Early adopters from within the client are introduced to iMIS and provided with the skills to self-implement on behalf of the purchasing organisation. ASI believes this was clearly articulated to the RCVS, a statement that has been corroborated by the recollections of at least one RCVS early adopter. ASI are also of the view that the need for strong iMIS technical skills within the RCVS was a role willingly accepted by the IT Department. It has not been possible to verify this. ASI's written ITT response tender is equivocal on the matter of responsibilities for implementation.

ASI were surprised at the level of support required by the RCVS for implementation and when asked if this was above average responded affirmatively. Although they were willing to concede there was a weakness of project management and ownership on both sides, they maintain their position that a lack of technical ownership at the RCVS was a significant factor in the delays to implementation.

ASI readily conceded that they had not fully understood the complexity of the requirement when responding to the tender, although it was suggested that the lack of understanding was present on both sides, an argument that is supported by the lack of detail in the ITT. When challenged on this, in light of the discrepancies highlighted by the Solution Overview, ASI's view was that the result of the analysis was known to both parties and, as far as they were aware, the RCVS seemed content to continue with an open ended Task Order and proceed on a consultative basis.

ASI are adamant that the requirement changed over the course of the implementation. A more realistic perspective may be that the requirement was more effectively communicated over time by the RCVS, firstly through participation in the gap analysis work and then through the process of implementation. The act of working though these processes enabled the RCVS team to refine their thinking and also to address ASI misconceptions resulting from the original requirements document. Undoubtedly there were also some small shifts in thinking resulting from greater RCVS exposure to the ASI product set.

Too many assumptions were made of both sides of the tendering process; RCVS assumptions that a supplier would be able to look beyond the words to see their vision and an assumption on the supplier side that RCVS would benefit from a standard not-for-profit software model. In terms of behaviours, ASI appear to have been passive in their approach to this unfolding drama, reassured perhaps by the right noises being made by the IT and project management function, as highlighted in the April 2011 meeting when Alan Waitt sought to contrast the relationship with the IT Department versus the wider user base.

d. Quality of work

RCVS have expressed a number of concerns around the alleged quality of the development work provided by ASI, a point which the supplier is unwilling to concede. However, a simple review of the length of time required to deliver certain elements of functionality (such as import routines) is clearly indicative of a flawed approach. It has proved difficult to make an assessment on this point, as the passage of time combined with poor record keeping have made it unclear as to which parties were responsible for which elements of the implementation and observation alone is insufficient to separate poor general fit from the perceived quality of any customisation work.

A significant degree of misunderstanding appears to surround the work carried out by ASI on both sides of the relationship. It would appear much of the work was carried out on an ad-hoc basis without reference to an adequate specification and in the absence of a Design Authority. This inevitably led to significant levels of rework and failed attempts to deliver components of the solution. If we are to take issue with ASI over this approach it is of being passive in the face of a worsening situation and a deteriorating client relationship. In mitigation the task order for a significant proportion of the work is a generic commitment to provide time without objective, the implication being that the RCVS were accepting responsibility for how that time was utilised, a resourcing method known as 'body shopping' (procurement of a contractor without remit, to be deployed as the internal project manager sees fit).

A significant factor in the on-going quality issues is undoubtedly the decision taken in December 2010 to go-live, ten months behind schedule. The decision to go-live in December 2010 can only be viewed as an expression of necessity over judgement, as at the time the system was incomplete, largely undocumented, not fully tested and running in a development environment. In addition the technical short cuts taken at this time left the organisation vulnerable to matters of internet security (as documented in the IT Audit). ASI advised against roll-out at this time and in this manner.

e. Programme and Change Management

The scale of the iMIS implementation should not have been viewed as a single project but as a programme of change within which iMIS was a single enabling component. The real prize was not the implementation of a new computer system but an opportunity to change RCVS business processes.

iMIS represented a significant opportunity for the RCVS, a chance to overhaul working practices and enhance inter-departmental working. IT as a catalyst for change is a common strategy, albeit that the effected change could often have been made with or without the purchase of a new system. When correctly executed the implementation of a new solution can have a galvanising effect on those who participate, a common purpose that naturally breaks down former impediments to change and establishes new working relationships.

Within the overall programme of change a project examining working practice should have started ahead of the ITT and fed directly into the requirements document. In reality 'change' only appears to have been considered during the implementation phases of iMIS and even then only as a side issue.

Transferring from a bespoke solution to a Commercial-Off-The-Shelf (COTS) approach can be challenging, particularly in situations where ad-hoc, user-developed systems have grown around the original offering. Cultural change in these situations can be a source of significant inertia. Indeed, the need to fit within a system, as opposed to fitting a system around the organisation, can often be met with resistance.

The implications of moving to a COTS solution were not sufficiently understood by the implementation team or the end users. Overall, there appears to have been insufficient control of user requirements, the result of which has been to drive up costs, complicate the overall user experience and shift the bias of the project from one of implementation to that of bespoke development. Further lack of control can be seen in the organic methods employed to translate new iMIS functionality into working practice.

f. Project Management

Through its actions and behaviours, the RCVS accepted a significant degree of responsibility for the implementation, key to this was the decision to continue with iMIS after delivery of the Solution Overview document. The need to purchase additional modules at this time to fulfil requirements (such as enrolment) which were documented in the ITT should have prompted a review of the tender and selection process. An experienced project manager would have viewed this as a Go/No-Go decision point that required escalation to the senior management team on both sides of the client/supplier relationship.

Both the Solution Overview document and the Solution Matrix are well written, detailed pieces of work that support ASI's claim to have been transparent in their dealings with RCVS. From a supplier perspective, having made this level of detail available and receiving little negative feedback it would have been a fair assumption that all parties recognised the scale of the challenge and that all parties were happy to proceed on the basis of an informed decision.

The Solution Document is very candid in its assessment, both in terms of what it states and what it omits. For example the estimates of time required to deliver the bespoke elements of the solution do not appear to be supported by any formal method and should have been viewed with caution. The innovative use of modules to fulfil requirements for which they were clearly not designed should also have raised concerns, as should the number of areas where the document clearly states that iMIS was not designed to provide a required function.

In accepting the Solution Overview document and its recommendations the RCVS was acknowledging the degree of fit and setting out the course of events that would follow. In summary, the RCVS failed to manage ASI as a supplier.

g. Management of implementation and the Design Authority

In any implementation, a Design Authority (DA) should be appointed. This is typically an individual (or a committee of no more than three people) who have sufficient understanding of the requirement and the software to own the solution. This single point of reference enforces a change control process even if no formal paperwork exists. This function is particularly important in projects where development work is undertaken.

In the case of the RCVS iMIS implementation, there does not appear to have been a clearly designated Design Authority in place. As a consequence, design and implementation decisions were taken at a point in time without reference to the overall objectives of the project. The phased implementation of closely coupled systems needs careful management. Only by understanding the full interdependency of function at the outset, can a modular approach be taken that does not compromise the operation of each successive module implemented. This level of understanding and control does not appear to have been present in the iMIS rollout with function and working practice developing organically. As a result, it is

likely that achieving some of the currently undelivered initial objectives will require reimplementation of modules already in use.

h. Management of risk

Upon publication of the Solution Overview in October 2009, the number and scale of the gap items should have prompted a full scale review of the approach and choice of supplier. The need to purchase additional modules at this time, as a result of the detailed design work, is further evidence of either scope creep, inadequate ITT specification or an incomplete initial response from ASI. In respect of this, and the on-going escalation of time and cost, it may be argued that the RCVS has exercised inadequate control in the management of risk.

i. Management of time and cost

There has been a significant cost overrun. The total extent of this is unclear, as money allocated to database maintenance for the former system was diverted to iMIS. Additionally, the cost of employee time does not appear to have been factored into the figures.

Time and materials projects are notorious for cost overruns, particularly in environments where insufficient attention has been given to benefits realisation. When costs are fixed, suppliers are keen to establish a shared vision of benefits as a means of managing their margin. No such incentive exists with time and materials and it usually falls to the client to ensure costs are effectively managed. This level of overrun is indicative of poor project management on both sides but, unfortunately, given the nature of the contractual arrangement, it is one for which the RCVS must ultimately accept responsibility.

j. Completeness

In measuring completeness, the two key management documents are the ASI Solution Matrix and the RCVS Issues Log. However, although the Solution Matrix sets out the proposed implementation in some detail, it is a static document and has not been used for tracking delivery. ASI maintains that this is in line with their general approach of early adopters taking responsibility for the deployment of their own solution. The RCVS issues log is exactly as described, a collection of minutiae with some larger implementation issues also present. In summary, there is no definitive position as to the requirement, what has been delivered and what remains outstanding. What is clear is that a significant proportion of the proposed function remains unimplemented or in a poor state of repair. The lack of support for RCVS data structures is undoubtedly a significant factor in this.

Establishing an exact position would require a manual reconciliation of the Solution Matrix, an extremely time consuming exercise, and one that only serves a purpose if there is an intention to see through the iMIS implementation to conclusion or enter into a protracted period of litigious negotiation.

In measuring completeness, there will be a considerable shortfall from the RCVS perspective given its arguably unrealistic expectations that a COTS product could carry out all the functions sought.

k. Support

The RCVS often requires specialist support and has at times experienced frustration at not being able to make contact with appropriate ASI personnel. Of equal concern, having made contact, is the length of

time that a problem can take to resolve. Taking these two issues together one may postulate that ASI is either not appropriately resourced or that the RCVS implementation is complex or non-standard. Both are probably true, with events surrounding the go-live of a prototype system in December 2010 also being a factor. Clearly the level of support available to the RCVS is a problem and will continue to be so unless additional assistance is sought form a third party maintainer.

2. Suitability of iMIS

a. iMIS Deployment and Usability

iMIS is a generic product designed to meet the needs of the not-for-profit sector. The assumption is that organisations within that vertical have a shared requirement that can be serviced by a single product. This approach allows numerous organisations to take advantage of the cost benefit associated with a common platform. In line with many other providers delivering COTS solutions to vertical markets, ASI have taken the route of providing a generic database structure with default screens that provide a window directly onto database tables. In such an environment, the construction of relationships between data entries is largely manual and determined by user action, with mitigation provided through client specific workflows overlaid on the base system. This form of configuration has not been carried through to conclusion on the RCVS implementation of iMIS and this is undoubtedly a factor in the general difficulties experienced by the user population.

iMIS has been live for around 15 months, sufficient time for any new system to bed-in and reach a level of maturity. It is therefore a matter of concern that an examination of core process flows across four teams (Finance, Veterinary Nursing, Education, and Registration – Appendices D-G) gives little comfort of a maturing service. Indeed, users remain heavily reliant on third party systems (Excel, Access, paper records, DMS etc.) and significant tracts of functionality remain unimplemented. Of the four teams, Finance has gone furthest in terms of adoption, with Education probably the least integrated, however it must be stated that these lie at opposite ends of the iMIS 'fit spectrum'. Where adoption has occurred it is often with a significant degree of compromise and workaround. For example, the Registration team must cope with duplicated records and replicated data, the direct result of a workaround imposed to overcome iMIS' inability to adequately support RCVS' data relationships.

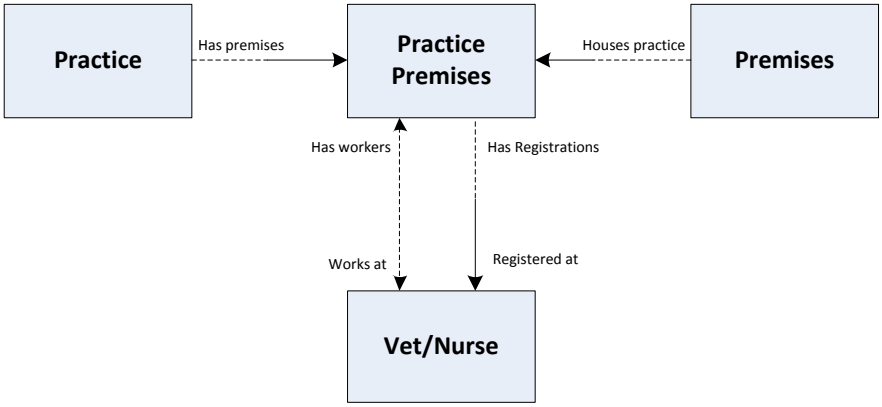
Such shortcomings are further exacerbated by a somewhat clumsy RCVS User Interface (UI) which does not assist in overcoming these difficulties. iMIS, in its RCVS form, is not an intuitive product, the behaviour of the UI can be hard to predict and is unforgiving of mistakes. On mastering a method of carrying out a particular task there is little incentive for a user to explore other options.

Of further concern are the assumptions made by ASI in designing the base product and the underlying data architecture which, although perfectly valid for the core iMIS client base, present the RCVS with some difficulties. For a COTS model to be effective, a design must be capable of universal application within the target market. In the case of ASI, this would seem to hold true as they are a successful organisation with a relatively large client base, but for the RCVS to benefit from this approach the same requirement must exist within the client body. Unfortunately this does not appear to be the case. The RCVS occupies a unique regulatory position and has a complexity of requirement that belies its size. In its current form iMIS does not support the data architecture required to adequately meet the full needs of either the Registration or Education departments.

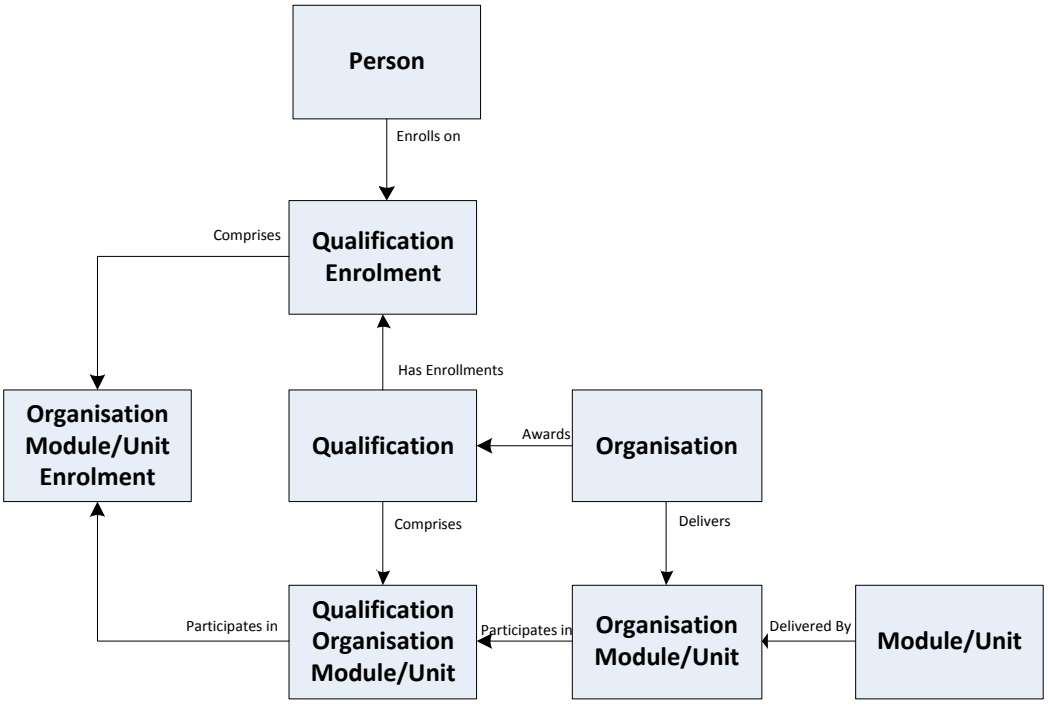
Poor process integration, disparate working practice and the extensive use of ad-hoc systems are responsible for a level of inefficiency that may be directly correlated to headcount. In its role as RCVS's primary productivity tool, iMIS should provide the necessary functionality to assist in addressing such issues but in reality the poor degree of fit is exacerbating the situation.

b. Entity Relationships

Entity relationship diagrams are used to describe relationships within a set of data. An entity is a person, object, place or event for which data is collected. In diagrammatic form entities are represented as rectangles and the relationships between them as lines. A dashed line represents an optional relationship and an arrow head represents 'many'. For example, in the diagram below, which describes the relationships between a practice, its premises and its professionally qualified staff, a Practice may have none, one or many Practice Premises.



The diagram below describes the relationships between students, qualifications, modules and units.



The diagrams above detail simple extracts from the overall data architecture. Neither is adequately supported by iMIS but both are fundamental to the operation of the RCVS, a reality that must also be

viewed in the context that the full data model is significantly more complex than that illustrated here. For example, Registration must also cope with inspection and management of the Practice Standards Scheme etc., and Education requires facilities for tracking grades and managing the roles that individuals play in the awards process. There are many more examples. The lack of iMIS compatibility with these entity relationships is at the heart of the implementation difficulties and will remain a serious problem for the life of the product at the RCVS, they are also likely to cause problems in integrating with other systems (as was the case with the ProfCon data extract).

c. Fragmentation and integrity of data

The extensive use of third party tools and ad-hoc applications to support iMIS is leading to a highly fragmented data set spread across multiple systems, a situation that will inevitably lead to data integrity issues, as is the case with any process that relies on the manual linking of records between disparate systems. Furthermore such working practices are laborious, inefficient and demotivating for those administering them. It is also highly likely that customer service will be affected as it can become extremely difficult to respond in a timely manner when information is spread across a number of different systems.

3. Conclusion

iMIS will not meet its full design objectives for a number of reasons (detailed below) but underpinning them all is the treatment of this implementation as a project, whereas in reality the scale of what was being attempted was a change programme that required appropriate resourcing.

Procurement

- Insufficient analysis was carried out prior to the drafting of the requirement. As a result the ITT lacked depth and failed to effectively position the RCVS need, omitting key information such a candidate workflows, data architecture and an entity diagram
- The broad requirement expressed in the ITT naturally elicited a broad response from ASI, which failed to draw out areas where iMIS functionality would need to be modified or supplemented with other systems

Expectation

- The RCVS and ASI management teams have differing perspectives over the nature of the procurement; is iMIS a turnkey solution or is it the delivery of an exploitable capability? The IT and project management function would appear to be at the heart of this misunderstanding
- ASI were surprised by the complexity of the requirement that emerged during implementation and claim to have been unsighted on much of the detail prior to this, a position which is supported by the brevity of the ITT
- iMIS appears to have been procured and implemented as a project with touch points to other RCVS systems

Project Management

- The general lack of control exercised in day-to-day project management is indicative of an under resourced or inappropriate implementation team
- The project management team failed to heed the warnings of the post-purchase gap-analysis, despite clear evidence of issues with product suitability

Implementation

- The implementation was run along departmental lines which has created a fragmented environment of duplicated functionality and customisation between teams
- Little consideration appears to have been given to change management, with end-users left largely to fend for themselves

iMIS does not natively support some core RCVS data structures and is consequently cumbersome in its operation. The iMIS product is, and will continue to be, a poor fit for the RCVS due to the specialist nature of the requirement. This should not be viewed as a reflection on either ASI or iMIS as a product; it is simply the wrong tool for the task at hand. In terms of remediation, at ASI's expense, it is likely this will be difficult to achieve. The nature of the original tender document, the detail contained within the Solution Document and Solution Matrix, the contractual position and the lack of record keeping in engaging with the supplier would make any attempt to win compensation very challenging.

4. Recommendations

a. Approach

Set out below are a series of recommendations designed to address the issues with the RCVS membership management system and processes. In broad terms the approach is one of placing a set of suitable administrative tools at the centre of a change programme, looking beyond the implementation of a software package to an opportunity for organisational change.

In setting out this potential course of action consideration has not been given to the 'do nothing' or 'do little' option. It would be possible to tidy around the edges of iMIS, do a little work on process improvement, and seek some additional third party support, but this would not address the fundamental problems of suitability nor would it necessarily offer protection against the deepening problems of ad-hoc systems and data fragmentation. All sticking plasters eventually fall off. To do the minimum now is simply storing up a worse problem for the future, and there are many benefits to be had by taking decisive action, not least of which will be cost savings.

b. Define the requirement

The original procurement exercise suffered from a poor set of requirements based on an incomplete understanding of the target processes and data architecture. It is essential that this situation be corrected before further attempts are made at reparative works. The requirement must be established to a sufficient technical depth to either allow the reimplementation of the existing solutions or the successful procurement of an alternative.

The review should look at the organisation as a whole, not just those areas targeted by iMIS. There is a need to separate out existing organisational structures, personalities and working practice from the underlying requirement, to arrive at a reference model for how the RCVS would operate if freed from existing constraints. Furthermore, broadening the review in this manner will present an opportunity to reposition the whole process as the start of a change programme, an ideal way to rekindle the debate around working practice and to draw together the currently isolated departments. The work should be carried out by a team comprising independent business analyst(s) and RCVS colleagues. The analysis team should:

- Fully review business processes
  Carry out a full analysis of existing business processes and from these distil the abstract requirement and document the workflows using a standard business tool such as UML.
- Define the information architecture
  Model the information requirement from data capture through to utilisation and report. Use a standard business tool such as entity modelling to represent the data relationships.

Defining a reference model for the RCVS requirement will set the standard against which future design decisions may be measured.

c. Produce a design

Given the base of a well-defined set of requirements, the next stage is to translate this into a design that incorporates reference model workflows and data architecture. This work should be led by the design authority. Typically an individual (or a committee of no more than three people) who have sufficient understanding of both requirement and design to 'own' the solution. The design authority should:

- Identify functional areas
  The grouping of requirement workflows into functional areas and the drawing together of a specification for the respective supporting services
- Assess current solutions
  Legacy applications should be assessed in light of the identified functional areas and measured against target service requirements.
- Produce a design
  Using the assessments made above, a design should be produced that combines retained legacy systems with the blocks of new functionality that must be procured or developed.

Producing and sharing a design across the organisation will set the agenda for what is to come and ensure that everyone is aligned with the objectives.

d. Establish a programme of change

Given a design the next stage is to identify individual projects and construct a dependency diagram illustrating the inter-relationships between them, arranging these into a programme of work with appropriate supporting services. This work should be carried out by the project team, the structure of which will vary depending on the scale of the undertaking identified in the previous stages. The project team should:

- Identify projects
  Within the design identify the individual projects that must be brought together to deliver the whole solution. These may be organisational or technical. Produce a schematic plan for each.
- Establish inter- dependencies
  Construct an inter-dependency diagram that links the projects together and establishes an order of implementation, thus providing a template for a modular programme of change. One in which the role of each component is understood in context, allowing, if required, a piecemeal implementation to take place over a protracted period of time.
- Develop a programme plan
  Using project plans and the inter-dependency diagram build a programme plan that links the components together on a timeline.
- Develop a change plan
  Map the new workflows onto the organisation structure. Establish the level of organisation change inherent in the new design and develop a change plan that will run in parallel with the programme plan, managing the transition.
- Develop a communication plan
  Determine the strategy for managing programme communications, how much or little will be shared with each audience (internal and external) at each stage of the implementation and the methods of communication that will be used.
- Develop a training plan
  Identify training needs at the earliest opportunity and develop a plan accordingly.
- Develop a benefits realisation plan
  Identify the benefits that the RCVS expect to see delivered as part of the initiative and map these against the programme plan, demonstrating how and when they will be realised
- Procure appropriate supporting software
  Use the documentation produced above to go to market and procure the appropriate software in accordance with the timeline established in the programme plan.

e. Manage the change

Any programme of change must have a programme manager (who may also be the design authority). Ideally this individual should have a mixed technical and business background and if drawn from within the organisation, must have sufficient time to give to the task. Project managers should be appointed to the individual components of the plan. As far as possible these should be drawn from the business as a means of increasing ownership of the solution. A steering committee, chaired by the programme manager and including representation from the user base, IT and the senior management team should be established to steer the programme. It will fall to this committee to ensure that the goals set out in the change programme are achieved.

f. Reposition the IT Function

The RCVS has an IT requirement that is disproportionate to its size and requires a technology function that is capable of supporting this need. In steady state running there should be sufficient in-house technical ability to take on the role of the design authority. It is not enough for the team to be technically adept, they must be fully integrated into the business and understand the commercial consequences of their actions, whether this be a lax approach to security or a decision around the implications of a system upgrade.

Post implementation the IT function becomes the custodian of the solution. The current team lacks the skills to perform this function and will require a significant overhaul if it is to support the programme detailed above. Furthermore, there is a pressing need to reduce the number of suppliers and inject some leadership into the IT function; however this issue is covered in a separate report.

g. Membership Management System

Detailed below are the four options available for moving the membership management system forward. The following options pre-suppose that the outcome of the requirements and strategy exercise detailed above will be to recommend change along these lines:

- Option 1: Re-implement iMIS

  Approach ASI with the reworked set of requirements (including business processes and entity diagram) and negotiate a reimplementation of the product, using either themselves or an accredited reseller as the prime contractor. This has the advantage of building on an existing investment but is likely to encounter a number of other difficulties:

  - Major reworking of iMIS database required to support RCVS information model
  - Unlikely to address poor user experience of the iMIS user interface
  - Level of customisation required is likely to be at odds with the ASI business model
  - Cost – based on past experiences ASI costs are likely to be high
  - Use of a reseller for bespoke work defeats objective of buying off-the-shelf

- Option 2: Replace iMIS with a different commercial product

  Return to the market using the reworked requirement set and run a tendering exercise for a replacement system. This has the advantage of testing the market for a viable commercially available alternative to iMIS but is likely to encounter similar problems:

  - Time and expense of tender exercise
  - Unlikely to find a solution that does not require heavy customisation

- Option 3: Replace iMIS with a custom written product

  Return to the market using the reworked requirement set and procure a custom written system. The RCVS requirement is sufficiently unique to justify the approach and provided the requirements work is done to a sufficiently high standard the risk of failure is reasonably low. However there are other risks which are present in any development project:

  - Mismatch of expectation and failure to deliver a working product
  - Exposure to the financial fragility of the supplier

- Option 4: Reposition iMIS

  Identify areas that iMIS serves well (for example Finance) ring-fence these and in parallel seek to develop an alternative RCVS core database (servicing Registration and Education etc.). In this model iMIS becomes a single component of a wider solution, a consumer of central records held in separate system as opposed to providing a service that delivers them (as has been attempted in the current implementation). This will involve some custom development work but the RCVS is sufficiently unique to justify the approach and, provided the requirements work is done to a sufficiently high standard, the risk of failure is reasonably low. However there are other risks which are present in any development project:

  - Mismatch of expectation and failure to deliver a working product
  - Exposure to the financial fragility of the supplier(s)

h. Recommended Option

Given the unique nature of the RCVS requirement it is highly unlikely that an off-the-shelf solution will ever fully meet the organisation's needs. Customisation of a COTS product is an option, if a willing partner can be found, but this is likely to be expensive and will involve compromise. Reimplementation of iMIS is a consideration but based on experience to date such an option would need to be viewed with caution (even assuming that ASI is willing to commit to the level of customisation required). On balance, and having carefully considered the current position and the courses of action available, the most effective and cost efficient option for the RCVS is Option 4 - draw a line around the working elements of iMIS and seek to service the outstanding requirements through an integrated custom solutions based on a newly established set of requirements. This approach if driven through a change programme would:

- Offer a significant opportunity for organisational change
- Address the issues of fit
- Present opportunities for efficiencies and cost savings
- Improve customer service
- Introduce transparency into the processing of data
- Reduce reliance on individuals

It would also introduce new challenges. Ways must be found of indemnifying the organisation against the supplier business failing through Escrow agreements; the development project itself will need to be managed, a supplier will need to be selected and the challenges associated with migration from a fragmented data set will need to be addressed.