

# MAFF INVEST TO SAVE BUDGET

‘To evaluate the advantages of co-operative,  
integrated R&D project management, using  
resource-sharing for more efficient data-handling’

(PILOT PROJECT)

FINAL REPORT

Mr K JACQUES  
(Project Manager)

Horticulture Research International  
East Malling  
West Malling, Kent  
ME19 6BJ

Tel: 01732 843833  
Fax: 01732 849067  
E-mail: [kevin.jacques@hri.ac.uk](mailto:kevin.jacques@hri.ac.uk)



Invest to Save Budget

3 APRIL 2001  
(REVISED 23 OCT 2001 WITH HDC INPUT)

## EXECUTIVE SUMMARY

Project Partners: [Horticulture Research International](#);  
[Horticultural Development Council](#);  
[Apple and Pear Research Council](#).

The project aimed to evaluate the benefits that could be achieved through the use of integrated work-flow and document management systems for the more efficient management of data associated with the commissioning and implementation of research projects by Non Departmental Government Bodies (NDPBs) and the subsequent targeted knowledge-transfer processes.

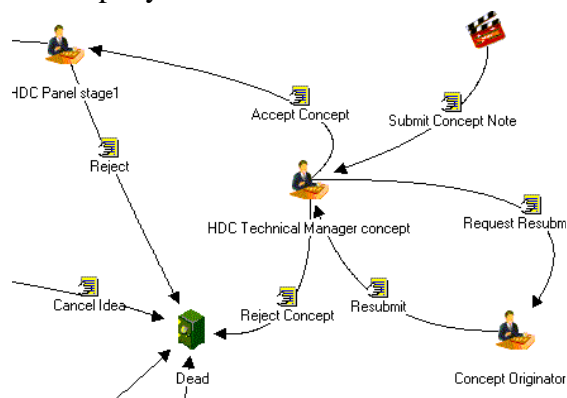
The pilot aimed to identify specific benefits to users but, in general was to try to identify:

reductions in costs to the public sector associated with reductions in response times required of participants in handling data requests;  
improved timeliness in project commissioning and knowledge-transfer;  
improvement in wealth creation opportunities;  
increased value for money to levy payers and the participant NDPBs.

Very early in the pilot all participating NDPBs were able to see benefits that would be available to their working practises simply through the introduction of a document management system. The benefits and flexibility of document profiling together with version control, full text search, security management and full auditing capabilities were immediately obvious to all taking part.

Adding the powerful functionality of work-flow management and the ability to scan and profile hard copy documents, all fully integrated with the document management could be seen to extend the benefits across the company boundaries

The diagram on the right shows only a few opening movements of the model used in the pilot but gives a feel of how work flow operated. When a concept note is submitted to the HDC Technical Manager there are three choices, Accept, Reject or Request Re-submission. He is automatically notified that a concept note has been submitted for consideration and once the response is determined then the document automatically continues along the predetermined path.



At each stage throughout the workflow comments, notes and any document profiled within the document management database (WP, spreadsheet, e-mail etc.) may be added. In fact, because common document management was used within the pilot, only pointers to documents were attached to the work flow ensuring that the latest version of a document was always being viewed and band width requirements were kept to a minimum. A powerful aid to the management process was the ability to assign 'watchers' to a particular work-flow. This enabled pre-determined staff to monitor progress of their contracts and manage them by exception.

The pilot project was considered by the participants to be a success as far as it went and it highlighted many interesting issues that need to be considered and elements of the wider concept of the pilot still need to be proven in a safe environment.

## 1. INTRODUCTION

The management of the cycle for commissioning R&D projects between NDPBs can often be drawn out due to multiple iterative changes being made to the contents of concept notes, proposals and contracts and in many cases the number of persons involved and their dispersion around the country. For geographically dispersed project teams to work effectively together, these iterations must be managed in an efficient manner; otherwise the pace of progress will be at the pace of the slowest participant and delivery of accurate and timely results thereby jeopardised.

During the pilot project the advantages that might be gained through closer inter-organisational collaboration using resource sharing for more efficient data handling, which in turn would improve returns on the customers' (i.e. levy payers) private sector investments, have been evaluated.

## 2. OBJECTIVES OF PILOT PROJECT

The overall objective of this pilot project was:

- To evaluate the benefits that could be achieved to the advantage of the participants in the project (as well as other interested public sector parties (including MAFF) through the availability of shared management resources.

The overall objective was addressed through the use of computer based integrated work-flow management, document version control, indexing of research papers and results and full text-search capabilities.

- The project steering group identified and agreed those work-flow models that were to be automated.
- External consultants were utilised to provide document management and integrated work-flow solutions to enable the tracking of research management information throughout the life of identified projects. The solution was to be able to address the security concerns when sharing information across company boundaries but it was agreed that the pilot project would not have sufficient resources to prove the security model.

Once the test bench was in place the participants were set the task of:

- identifying where advantages may be achieved through the central indexing of research activities
- investigating options for indexing historic, paper-based research material

It was agreed that although scalability had to be considered, the emphasis of the pilot was to be placed on the quality of systems, with thorough consideration of the possible operational options, rather than on the proving of a system with large capacity *per se*.

Although it was agreed that the final solution would need to achieve a great deal more than would be possible during the period of the pilot, the project should highlight the areas not proven and attempt to document the theory of how full requirements could be achieved for use in any project continuation.

The pilot project also aimed to identify where savings in public expenditure were possible in the following areas through increased efficiency:

- Man hours required to progress R&D proposal to contract start
- Disruption to key players in project management chain from calls chasing up progress
- Status of key documents at all times, thus saving in time and cost of phone calls required at present
- Bottlenecks or blocks to progress; their identification and rectification will reduce the costs associated with delayed starts of projects
- Need for timely knowledge transfer and thus improvement in competitive advantage of levy payers and UK industry
- Unproductive administrative burden across the three organisations
- Duplication of paperwork and effort.

## Chosen Products

In consultation with First Stop Computing Services the iManage, Metastorm e-Works and Kofax Ascent suite of applications were selected to run the pilot project:

### 1) iManage

iManage is a Content Management System (CMS) capable of managing a comprehensive variety of object types, including word-processing files, spreadsheets and presentation files as one would expect. Additionally it is also able to manage Emails, voice messages, faxes and other objects that may appear within a users Microsoft Outlook (MS Outlook) inbox.

The reasons that iManage was recommended over other document management systems were:

#### i) MS Outlook interface

The integration of MS Outlook and iManage is one of the features that differentiates iManage from many of the Document Management Systems presently considered as competitive products.

iManage integrates as a true MAPI service within MS Outlook using infoLook client. This provides an extension to the MS Outlook Explorer structure such that iManage becomes another folder structure. This allows e-mails to be simply 'dragged & dropped' into a virtual folder structure.

Documents are automatically 'Profiled' into iManage based on the e-mail header information. Attachments can be Profiled separately or with the same profile as the Email and Email and Attachments are then linked as 'related' documents.

#### ii) Interface with other products

iManage integrates with both MS Office 97 and MS Office 2000. MS Office 97 integration is achieved using macro integration whilst MS Office 2000 is via a set of COM Objects, PowerPoint as ODMA. Support is also included for Lotus products as well as WordPerfect and Visio.

#### iii) Modular approach

There are a number of Client applications according to the type and method of accessing iManage required. They are as follows: -

infoRite	Provides a fully functional 'desktop' interface into the iManage repository.
infoLook	Provides an interface into iManage that allows MS Outlook to be used as a Desktop instead of infoRite.
infoLink	Provides a Browser based interface into iManage.

It may be that certain users may require more than one Client interface. As an example a user that might split their time between being in the office and out of the office may require infoLook for when they are in the office and InfoLink when working away from the office.

For larger installations it is better to configure each of the server functions shown in figure 1 as separate servers. However, it is also possible not to be so modular and combine some of the functionality into single servers. It is not unusual to combine the DMS and the SQL server for instance. Taking this to the extreme there is actually a separate version of iManage, fully functional, that runs within a single server. This is for installations that have no more than 100 users.

iv) Hierarchical approach to distributed systems and security

Using a 3-Tier approach enables the design of distributed installations. It is possible to configure 2 separate DMS servers to 'talk' to each other by one server acting as a Proxy for the other. In this way users at a remote site will make enquiries to the local DMS, which will in turn proxy the requests to the central DMS server. In this way WAN traffic is kept to a minimum and response times improved over a WAN.

Security can be as open as one might want. Simply defining Public as the default security will enable every document to be seen and available as read/write to all users. Defining the security as Private will allow only the author to have access to the document. It will not even be seen, even as Viewable, by any other user. In between these extremes one can define access to a granular level that ends with defining the individual only.

v) iManage is a Content Management System (CMS).

Originally, systems such as iManage were called Document Management Systems, but this is, with regard to iManage, something of a misnomer. Management is not limited to documents, as we would normally understand the word 'document'. For iManage, a 'document' could, of course, be an MS Word document, it could also be a spreadsheet, a scanned image, an Email, a sound clip, a video clip etc. etc. iManage is a system to manage the content of a users information store. However, for consistency, we will refer to all such data types as 'documents' within the rest of this document.

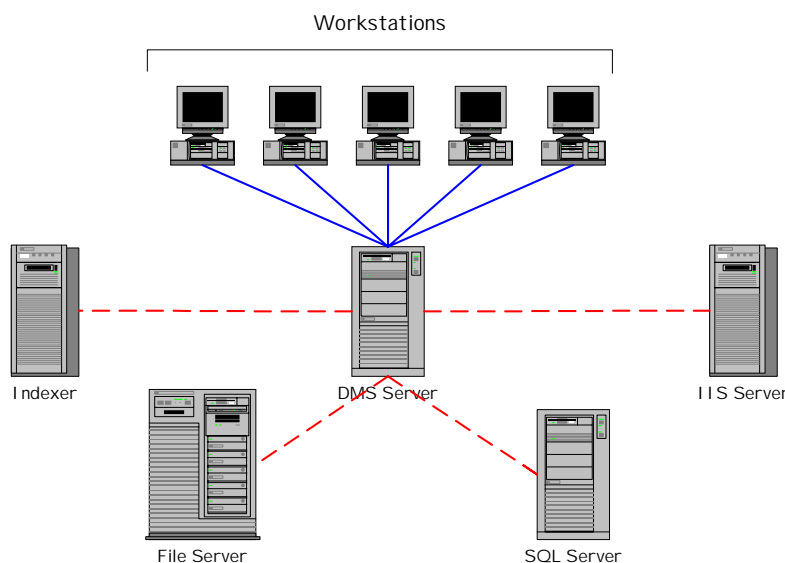


Fig.1 – iManage 3-Tier Model

iManage allows for all documents created to be indexed within the system by applying a Profile to them at the point of saving the document (Profiling). The Profile provides a set of index fields that are used to file away the document and also used to search and retrieve the document at a later stage. In addition to the index fields entered by the user, each document that is profiled has a unique systems generated index number applied to it.

Once the Profile has been completed the profile information is entered into an SQL database and the document stored within a File server. These actions are managed on behalf of the user by the iManage DMS server; the users never have a direct relationship with either the File server or the SQL database. This is called a 3-Tier Model and is illustrated in figure 1 above.

There are two other services that can be actioned within this model. The first is the Indexer. Implementing this part of the model allows all specified documents to have the actual body text of the document fully text indexed. This allows for very sophisticated search techniques to be applied when searching and retrieving documents.

The second additional service is based on a concept called infoCommerce. infoCommerce provides for full Web publishing and retrieval of documents within the iManage CMS.

## **2) Metastorm *e-Works***

Workflow services were provided using *e-Works*. Like iManage *e-Works* is an SQL based application, which includes full integration with MS Outlook. As such it complements iManage and the other applications being utilised as part of the pilot.

It was agreed in advance that the pilot would allow only for simple workflow procedures to be created and tested although the potential for further business processes to be automated in this way should not be overlooked.

Although *e-Works* claimed full integration with iManage, this was in fact not possible with the released version of the software. This was resolved by First Stop obtaining beta release software on our behalf and then writing an interface to enable us to run the pilot.

Although not proven within the pilot *e-Works* allows working documents and final reports to be published to an IIS server to making research material more readily available in shorter time spans to our end customers and levy payers.

Within the pilot the participants had to open *e-Works* through Internet Explorer 5 to check the status of any jobs via their personal To Do and Watcher lists, although it is possible for MS Outlook integration to alert users via Email that items require their attention.

The reason *e-Works* was chosen over other workflow engines was:

MetaStorm and iManage are jointly working on a set of functions that will provide a seamless integration between the two products. This is expected in Q2-2001.

The integration will allow iManage document pointers to be attached to *e-Works* workflows and treated like any other object. In this manner no documents will actually move around the workflow and so make the workflow more efficient and more secure. Any user not configured into iManage and running a suitable iManage client will not be able to see/or retrieve the document. Documents will only be moved to the workflow client when it is asked for. All accesses to the documents will also be registered within the iManage Audit database thus providing a full audit trail of any document that might be included in a workflow.

### **3) Kofax Ascent**

Kofax Ascent is an integrated document scanning software package with batch management forcing document profiling and effecting OCR thereby enabling full text searching before releasing the images and associated files to iManage.

Although Kofax Ascent does not integrate directly with iManage, First Stop wrote a Release Script that interrogates the Kofax Ascent default system directory on a regular basis. If there are any files within the directory these will be automatically imported into iManage and profiled.

The OCR file produced following scanning of the document will be presented to the Indexing Service of iManage and this allows for searches on the textural content of the scanned image. If a scanned image is selected in this way then it is the image that is displayed, not the OCR text file. This ensures that it is the correct 'document' that is displayed, in the correct format and as the real and actual document.

Kofax Ascent is not a graphics package and as such it cannot be used to change the scanned image, other than the QA features such as deskewing and rotating. The original image is considered as sacrosanct and cannot be changed or altered with any of the tools/applications provided.

The main reason for selecting the Kofax Ascent product over other scanning software was its scalability.

Scalability is defined by the scanning engine license, which is based on the number of images scanned per month. This allows the correct license to be specified according to throughput and not based on the level of functionality.

Kofax Ascent is used by large companies scanning many thousands of images a month as well as small companies that may only scan in a couple of hundred a month. The same product is presented and functionality is not compromised. Kofax is accepted as one of the market leading products in its application arena.

#### 4. iManage /e-Works interface. (Hook Rise custom Interface)

Although the pilot was run using a custom interface written by First Stop, future releases of iManage and e-Works should be shipped with integration out of the box.

##### **Pilot test bench configuration.**

The pilot was run in an isolated test bench environment with its own primary Domain Controller. To enable the pilot to run within budgetary restraints the configuration shown in Figure 2 below was implemented on the pilot test bench combining DMS/SQL/File and Indexing server functions within a single server. This was possible due to the small number of pilot users.

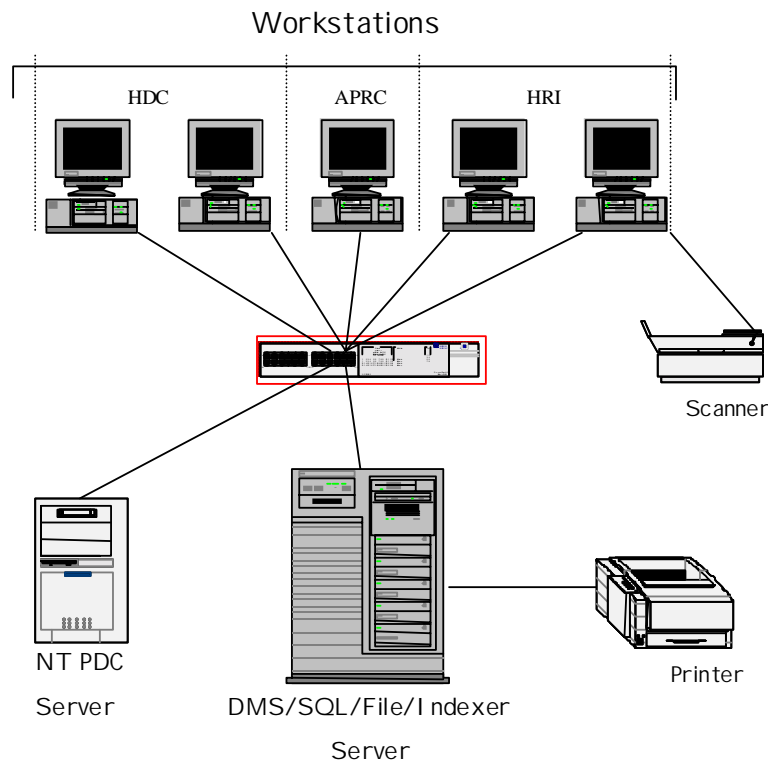


Figure 2

The workstations were initially based upon HRI standard NT desktops with infoLook and iManage client software added along with upgrading Internet Explorer 4 to IE5 for access to e-Works list rather than using e-works dedicated client software. An HP Scanner and Kofax Ascent software was installed on to a single workstation to facilitate document scanning.

Integration of MS Office and iManage was left simply at the File Open/File Save level for the pilot exercise although there would be potential for a much deeper integration if required. Although iManage integrates much more smoothly with MS Office 2000, integration with MS Office 97 was proven within the pilot environment.

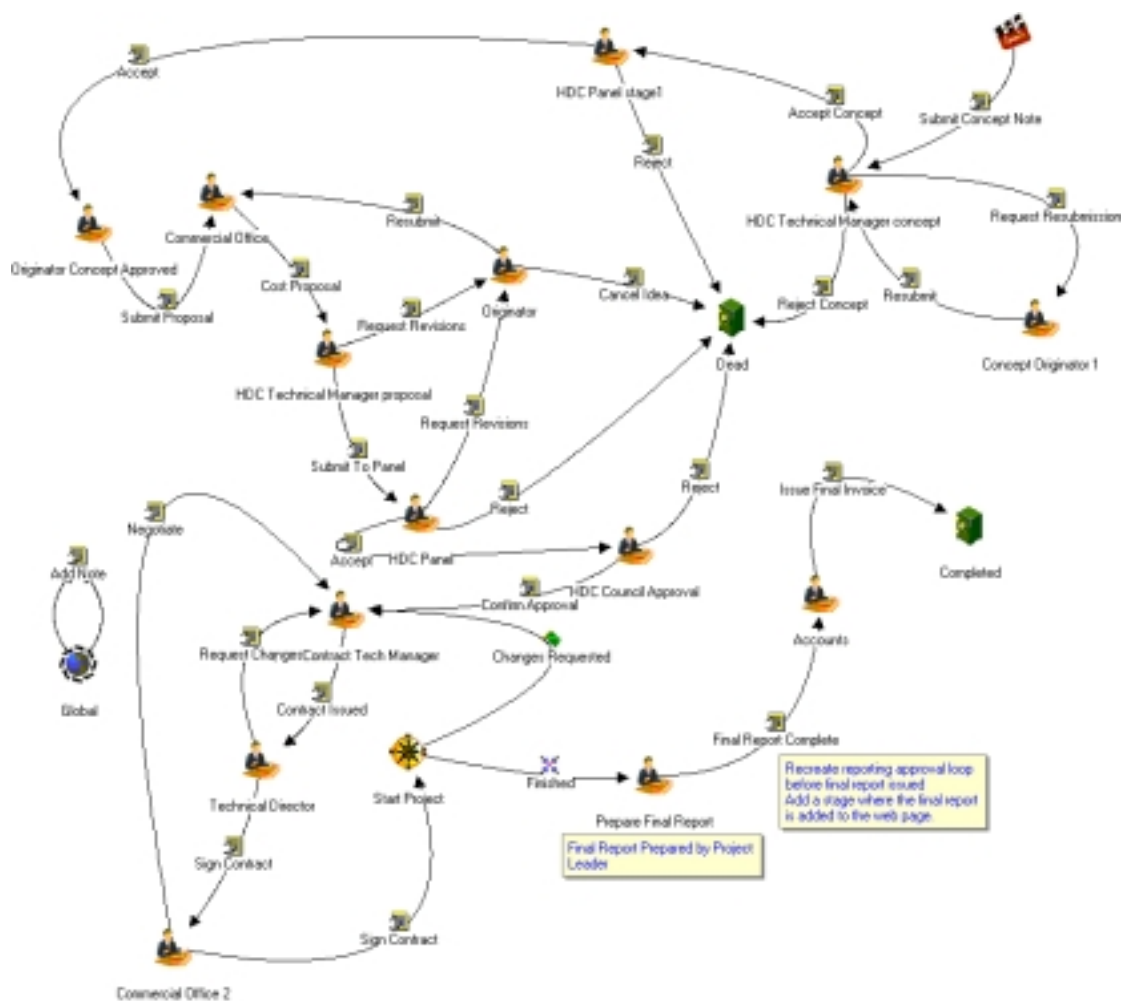
For the purpose of the pilot exercise, all Users were created within a single NT Domain, and all three organisations shared a common iManage server and data store. It was not possible to prove the distributed systems model and inter company security within either the time scale or budget available. The theory of how these issues could be addressed are detailed later in this report.

The model to be used for the work flow evaluation was established through discussion and meetings with the representatives of the three NDPBs and the external consultants (First Stop Computing).

The model was developed to replicate as closely as possible the current project commissioning process between HDC and HRI.

The model as used is laid out in the following diagrams. Importantly, it should be remembered that a number of the 'Roles' identified within the flow are employees of separate NDPBs.

### The Complete Process





## **Objectives addressed.**

- Man hours required to progress R&D proposal to contract start

The ability to be able to circulate documents quickly and efficiently between all parties in the commissioning process, knowing that all parties are referencing the same version of a document at all times, could greatly improve the integrity of the commissioning process from concept note to contract delivery. This could lead to a significant reduction in the man hours expended during the commissioning process checking and re-checking documents, copying 'missing' documents to others.

- Disruption to key players in project management chain from calls chasing up progress

The fully configurable 'Watcher' facility within the workflow engine will enable any or all of the defined roles within a business process to track current status of projects and chase accordingly before a delay becomes a problem. If exception alerting is then added to workflows all projects could be managed by exception rather than the rule. This would then lead to a significant reduction in disruption to key players time enabling them to focus on productive tasks.

- Status of key documents at all times, thus saving in time and cost of phone calls required at present

Because key documents or any significant data whether it be a word processed document, scanned image or e-mail can be attached to the workflow, the latest version of all relevant information is always readily available directly from your To Do list. This will ensure that time is not wasted commenting on out of date versions of documents or calling round other participants to find who has the latest version.

- Bottlenecks or blocks to progress; their identification and rectification will reduce the costs associated with delayed starts of projects

With the incorporation of suitable time counters and alerts into the work flow those activities that are becoming overdue can be flagged up to key participants to prompt for a response.

- Need for timely knowledge transfer and thus improvement in competitive advantage of levy payers and UK industry

Management of projects within a workflow engine should speed up the processes from concept to contract thereby promoting a prompt start to the project. On going management of the project progress via an automated system should promote timely completion and publication of the work as per the agreed schedules.

If the same process is then able to publish project reports etc. directly to the web and e-mail notification to growers and levy payers then this would improve timeliness of dissemination of information. Any system that will speed up the process of making the project findings available to the end-user ie. the growers, will have the benefit of enabling the findings to be put into practice sooner and hence any resulting improvements/savings will accrue earlier.

- Unproductive administrative burden across the three organisations & duplication of paperwork and effort

For each project under going commissioning there will be several files held within the participating organisation. The research leader will have a file, the commercial manager will have a file, the technical manager will have a file as will the industry representative.

Each file will have contents that duplicate (necessarily at the current time) the content of other's files but similarly there will be differences in content depending upon who has been communicating with whom and who said communications have been copied to.

The integrated system would remove the need to hold duplicate files and assuming the access privileges were set correctly the entire information set could be held on the system. That information applicable to all participants could be publicly available and that specific to a function set as private.

Such an approach would remove the need for duplication and circulation of papers etc. and thereby reduce the administrative burden in each participating organisation.

## **What did each of the participating Non Departmental Public Bodies gain from their involvement in the project?**

### Horticulture Research International (HRI)

HRI obtains over 75% of its research funding from public sources such as MAFF, BBSRC and the levy bodies (HDC, APRC, NHA et al) and as an organisation will have several hundred research projects on going at any one time and all at varying stages. Any computer based process that would improve the ease of management of such projects throughout their lifecycle would be of great benefit to HRI.

The benefits to HRI highlighted by the pilot project were:

#### i) Document Management

The pilot project provided HRI with an opportunity to view the benefits/costs of a full document management system and it highlighted the many benefits that could be obtained.

With HRI occupying five geographically dispersed sites it often occurs that researchers on a single project may be located at different sites. In such circumstances much reliance is placed upon Email communication and the post to pass information between those who are perceived to need it. However this process is by its very nature private, anyone outside of the project who has not been looped in by the project team, may well not be aware of what is going on, but have a legitimate need to do so.

With a document management system it would be possible to give public access (within HRI) to certain information and thereby make it possible for third parties (within HRI) to obtain said information. For example when preparing a concept note a researcher could search the document management system using key words to ascertain what similar work has been done in the past etc.

The strict version control imposed by a document management system would be of benefit when drafts of documents are passed between persons for editing and approval.

There are costs associated with implementing a document management system that reach beyond the software licence and staff training costs. The most obvious cost will be related to the time taken to profile each and every document generated within the daily activities. The information entered in the profile will dictate how effectively the system can be used by others.

#### ii) Automated process monitoring and alerting

As indicated above HRI may have several hundred projects 'live' at any one time. Individual research leaders may have up to ten projects of varying types at any one time.

Any system that can automate the monitoring and reporting of progress on such projects would greatly benefit HRI. Although the research leaders actively monitor progress on their own projects the staff time required to monitor each and every

project on a weekly/monthly basis at an organisation wide level would be unsustainable.

However monitoring such projects automatically against pre-set timescales and reporting by exception, i.e. those actions that are outside the given timescale then the problem becomes manageable and prompt action can be taken to head off any problems that might arise.

iii) Reduction in paper passing between organisations

The current commissioning system necessarily requires considerable amounts of paper to be passed between the participants, a proposal for example may be copied to all panel members say up to ten plus internal copies within the submitting organisation. If changes are requested then all these copies need to be replaced.

The shared access to a single version by all concerned would drastically reduce this burden/cost and remove chances of 'old' versions being re-introduced in to the discussions at a later date by mistake.

iv) Strengthening of partnership between organisations

At present although the NDPBs work closely together during the commissioning process each participant has their own file and detailed knowledge of how their part of the process works.

With an integrated system the whole process would be visible to all participants enabling an understanding of the other participant's issues. This would contribute to strengthening the all important partnership between the organisations

### Horticultural Development Council

The HDC has approximately 2,000 levy payers and several hundred associate and voluntary members, all who contribute to the research funding and need to receive information about the projects both during and on completion. There are usually in the region of 200 on-going projects directly managed by three Technical Managers. With so many projects to monitor, an easy to use document management system and a workflow system would be beneficial. E-mail alerts highlighting missed deadlines and the managing of projects by exception would ensure valuable time could be directed where it was most needed.

The paperwork involved with commissioning and running each project is considerable. A document management facility would reduce reliance on paper and allow wider simultaneous access, where appropriate, while maintaining security of sensitive documents to either selected individuals or to a single organisation.

Within the life of a project, annual and final reports are produced and may have several drafts before the final is approved, therefore version control would be very important. In addition the facility to publish this information directly to the website, for members to access, would make the whole report release process more efficient. There is potential, should such a system be adopted, for other publications and documents to benefit from version control, such as factsheets, event handouts, news articles etc. as liaison occurs between contractors and the Communications Managers.

However, the pilot highlighted how labour intensive and expensive setting up these systems can be. The licence and training costs would be considerable. The disruption to on-going work and the commissioning of new work would be great while the system was implemented, stretching already limited resources and increasing delays, in the short term.

HDC has no dedicated computer staff to troubleshoot system problems, and relying on external contractors can be disruptive and frustrating.

More importantly the HDC has a responsibility to ensure the levy is used efficiently and effectively for running projects and communicating results, and the costs of implementing such a system would be considerable, and hard to justify, despite the advantages highlighted. In addition, HRI is only one of over 100 contractors working on HDC projects, albeit the major one. It would be a huge task to incorporate all the other contractors into the same system, and some are too small to use such a tool.

### Apple & Pear Research Council

The APRC has some 550 levy payers and a small number of commercial sponsors, all of whom have an interest in what funds are spent on and the outcome of the research that is supported. In comparison with the other levy bodies the APRC budget is very small and the number of projects supported is low at around 12 each year. Consequently the current paper, e-mail and telephone system for commissioning and monitoring proposals and projects work reasonably efficiently.

The APRC is becoming increasingly involved as a collaborator in LINK funded projects. These can be made up of numerous partners including commercial companies. The more different partners with their own objectives and understanding of what might come out of the project, the more complex the whole procedure of agreeing and running a project becomes. The systems explored in this pilot study would appear to offer a method of speeding up this process.

The systems developed in the pilot project demonstrated some obvious benefits in terms of rapid movement of documents and a clear view of the progress stage of any particular proposal/project at given time. However, experience shows that delays in progress are usually due to the human element and a timely personal telephone call is still likely to be necessary on occasion.

The APRC would certainly be interested in further development of the system but has major reservations about actual implementation due the high initial capital cost. The APRC has not carried out a cost-benefit analysis but it is safe to assume that the start-up costs would greatly outstrip any savings in time given the small number of projects supported by the APRC at any one time. With a limited budget the APRC has to be seen to spend as much as possible on research and as little as possible on overheads. It is therefore unlikely that the APRC would be prepared to invest funds in further development of the system unless there was substantial financial aid from another source or sources.

## Considerations / Concerns

### ***What difference in the levels of functionality could be achieved if only parts of the models were implemented?***

A basic installation must include the DMS/File server/SQL server functions plus one Client. The basic Client would be infoRite. This would provide a desktop interface into iManage. This option would not allow MS Outlook Emails to be profiled and neither would it allow for Browser connection. Choose a Client, or combination of Clients, to suit the method of access that best achieves the desired result. In addition it is not necessary to run the Indexer to provide the Verity Full Text Retrieval engine, documents could still be retrieved based on Profile information only.

One may not require full workflow functionality. A simpler approach to workflow may be to use the infoCommerce server and infoLink client to achieve an automated web publishing environment for documents. In this way documents will be published to an IIS server in a secure and controlled manner giving access to documents either as read only or read/write. This would provide for a collaborative working environment with the documents still controlled and audited by the central iManage function.

### ***If the main players had underlying doc management but smaller NDPBs only had web access to the workflow engine, how much functionality would be lost?***

In this scenario documents would have to be included in the workflow as attachments as well as an iManage pointer so that those users without iManage could see the documents. Access by a user without document management would not be recorded within the iManage audit database and bandwidth use would be increased, as **actual** documents would be moving around the workflow. Document security could possibly be compromised.

### ***If NDPBs had a workflow engine but their own choice of document management system what functionality would be lost?***

In this case documents would always have to be moved around the workflow as attachments in all cases. It would have to be assumed that the document management systems were incompatible from a central management point of view and that client applications would not support alternative document management systems. There would be no common approach to document security.

### ***What functionality could be achieved with workflow management only?***

This would present a similar environment to that discussed above. One would have to build into the workflow suitable levels of document security, management and audit.

Although Metastorm e-Works proved capable of managing the business processes between two parties in a common Horticulture research project, there remains some doubt as to whether the product is flexible enough for an environment where there is likely to be large numbers of changes and relatively small numbers of repetitions.

A major issue of sharing business processes between companies is security of data. This was not proven on the pilot project but the chosen product suite would address the problem

If all participating companies ran independent

iManage document management databases then there would be no automatic method of allowing access between and within, they would be isolated from each other and users would still have to send the documents as real attachments, not as simple pointers. If each participating company set-up its own 'shared' database, in addition to their own internal one, the necessary users from the other participating companies could be set-up as 'external users' it would be possible to configure access to each others database and so create a set of 3 shared databases. Each site would copy documents into their own 'shared' database and everybody allowed access would be able to store and retrieve from it.

An alternative would be to implement an infoCommerce set-up and share documents this way. This would be more secure as less work would have to be done with regards to firewall access etc.

Any business giving this level of functionality would become relied upon very quickly. Business continuity would have to be considered when proving the resilience of any such system.

### **Summary**

All participants considered the pilot to have been very successful. The tools used proved that work-flow automation would work and offer great benefits to the existing working practises. The participants were also able to view the power of Document Management and begin to get an insight into what could be achieved within their own organisations. From this it was then easy to theorise on the benefits of implementation across NDPBs and begin pushing the limits of the technology currently available.

Although many benefits can be seen, there is some concern that implementation of a solution this far reaching would prove too costly for many and the business benefit would be reduced if buy-in were limited. It was felt that for any business automation between Government non-departmental bodies with this level of functionality to succeed would need MAFF buy-in at an early stage to enable large licensing discounts to be negotiated with software vendors.

## **Recommendations**

The opinion of all participant companies at our final steering group meeting was that there were some real benefits to be gained but concern was voiced in respect of relative high cost of entry level solution.

It was considered that sufficient benefits had been proven possible to warrant a fully functional pilot project (as opposed to a proof of concept). Any future pilot should include additional partners (perhaps MAFF or a link partner) over a three year period to prove that a solution will work across company boundaries. The pilot would also need to prove automatic publishing of either publicly available or restricted access documents to the web. The pilot should also undertake to add more of the functionality discussed but not possible to prove within the budget and time restraints of this proof of concept project.

## PROJECT CYCLE MANAGEMENT

**The management teams were forced to change during the period of the project due to changes in personnel, but all three participants maintained their presence and ensured continued resource into the project.**

Progress in the project was monitored and evaluated through a Steering Committee comprising representatives of the three participating organisations, as follows:

- Mr K Jacques (Project Manager)  
[IT Systems Manager, HRI-East Malling]
- Dr A R Thompson - changed role within the organisation and subsequently retired before the completion of the project.  
[Site Director, HRI-East Malling]
- Dr S Lucey, resigned from HRI and was replaced on the committee by: Mr Gary Arnold  
[Head, Information Technology, HRI-Wellesbourne]
- Mr I W Hardie  
[Commercial Manager, HRI-East Malling]
- Mr M Beckenham  
[Chief Executive, HDC]
- Mr M T Ronald  
[Secretary, APRC] resigned from the company at the end of 2000 and was replaced on the committee by Mr Andrew Tinsley

and a Technical Project Team, comprised as follows, reporting to the Steering Committee:

- Mr G Arnold  
[Head, Computer Systems, HRI-Wellesbourne] moved to the Steering committee and replaced by Mr Michael Duckett.
- Miss F Sheppard  
[Information Manager, HDC] Started a period of maternity leave early 2001 and her position on the committee was covered by Mr Martin Beckenham.
- Mr C McGlenn  
[Senior IT Support Technician, HRI-East Malling]
- First Stop Computer Group Ltd, were successful through the tender exercise and were appointed as the chosen consultants.