

# **EVALUATION OF PROPERTY MANAGEMENT SYSTEMS FOR USE WITHIN THE SOCIAL HOUSING SECTOR IN SOUTH AFRICA**

**Clifford Hayim**

A dissertation submitted to the School of Construction Economics and Management in the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in the fulfilment of the requirements for the degree of Master of Science in Building.

Johannesburg, 2006

## **DECLARATION**

I declare that this dissertation is my own, unaided work. It is being submitted for the Degree of Master of Science in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

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Signature

\_\_\_\_\_ day of \_\_\_\_\_ year \_\_\_\_\_

## **Abstract**

The purpose of this qualitative research project is to establish whether or not there is currently a property management system or systems available that meet the unique requirements of the overall ICT strategy for the Social Housing sector in South Africa. This included a detailed evaluation of candidate systems wherever possible. A generic functional specification was outlined in the report and these, together with other factors including conformance with the proposed strategic architecture, technology imperatives and vendor characteristics formed the basis of the evaluation and recommendation that followed. The state of Information Technology within a sample group of Housing Institutions was determined, together with an evaluation of available skills. The JD Edwards Financial Real Estate system owned by PeopleSoft and supported by Deloitte, stood out as the leading commercial software package to satisfy the requirements of the overall ICT strategy for the sector. The IFCA Property Plus system ranked a close second.

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- The National Department of Housing and its local and municipal siblings
- The Support Programme for Social Housing (SPSH)
- The National Housing Finance Corporation (NHFC)
- The Social Housing Foundation (SHF)
- And of course to the various software and services vendors

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### iii. - Summary

The South African Social Housing sector is still in its infancy, both in its legislative framework and in its maturity and efficiency. The Housing Act of 1997 devolves much of the responsibilities of housing to Provincial and Local Governments. The sector also relies on national housing agencies, established by Government, and on the private sector for the actual production of houses.

It has been established that Government has developed an Information Communication Technology (ICT) strategy for the Social Housing sector, with a common goal to support the establishment of a viable, sustainable Social Housing sector in South Africa, and to provide the basis for its future expansion.

Part of the overall strategy is to provide a computerised property management system via a centralised centre or hub, accessibly by all parties. The purpose of the centralised hub is to co-ordinate and to a degree control the sector through greater accountability and regulation.

The purpose of this qualitative research project is therefore to establish whether or not there is currently a property management system or systems available that meet the unique requirements of the overall ICT strategy for the Social Housing sector in South Africa. Numerous options were examined to fulfil the strategic vision for the sector. This included a detailed evaluation of candidate systems wherever possible.

The Internet as a delivery mechanism in the context of the Social Housing sector was examined in depth. From the point of view of installing and updating software for the individual Social Housing Institutions (SHI), the Internet can be seen as the most viable option. Alternatives in the client-server present obstacles in terms of roll-out, distribution and remote access.

Open source software has received a lot of attention in recent years, and the range of packages available using open-source is increasing exponentially. Packages available include fully fledged Enterprise Resource Planning (ERP) systems, accounting systems and many others.

While these may not currently incorporate full property-management functionality, the systems are rules based and capable of providing all of the required functionality



through this rule base. While strictly speaking these cannot yet be directly compared against more mature property management systems, open source solutions offer a viable alternative to the proprietary software packages on the market today, and the acknowledged benefits of open source supersede the fact that they are often license-free. Apart from the general absence of licence fees, the commitment to a vendor falls away, and the Social Housing sector would then be free to select alternative service providers for support or to grow its own competencies in this area, in line with numerous Government and private sector trends and initiatives.

A generic functional specification was outlined in the report and these, together with other factors including conformance with the proposed strategic architecture, technology imperatives and vendor characteristics formed the basis of the evaluation and recommendation that followed. The state of Information Technology within a sample group of Housing Institutions was determined, together with an evaluation of available skills.

A review of the various modelling and decision support tools was conducted resulting in a sophisticated evaluation methodology. The Analytical Hierarchy Process developed by Dr Thomas Saaty in the early 1970's at the Wharton School of Business was selected to integrate the various criteria into a robust and defensible ranking model. The sensitivity to various assumptions in the evaluation model was also discussed.

While many systems offer similar property management functionality, to varying degrees of architectural conformity with the centralised hub strategy presented in this report, many of them scored poorly on factors like local representation, risk and agility.

The report concludes with the following:

The JD Edwards Financial Real Estate system owned by PeopleSoft and supported by Deloitte, stood out as the leading commercial software package to satisfy the requirements of the overall ICT strategy for the sector.

The IFCA Property Plus system came a close second. While functionally slightly richer than JD Edwards, it fell short in terms of its technology and architectural fit.

The report concludes with the following key recommendations:

- Engage key SHIs at both ends of the spectrum in discussions on participating in the formation of this hub. The importance of their deep involvement in a successful implementation cannot be overstated.
- Appoint a dedicated head of ICT within the SPSH (Support Programme for Social Housing) to champion this initiative. It is critical that this is not a vendor resource nor a consultant, but someone with the requisite skills who is focused on and rewarded for this task alone.
- Negotiate a phased release of the selected system consistent with the centralised hub model.

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# 1. - Introduction

## 1.1 - Overview

The Social Housing Sector in South Africa consists of various diverse (both in terms of geography and organisational maturity and size) Social Housing Institutions (SHI) and a number of supporting organisations. While not targeted at the poorest of the poor, social housing is seen to be geared around the needs of households earning incomes of R1500 – R3500 per month. (Social Housing Foundation, 1998, Page V)

In comparison to many developed countries, the South African Social Housing sector is still in its infancy, both in its legislative framework and in its maturity and efficiency. The growth of the sector has been complicated by fragmented governance arising from various pieces of existing legislation, which has led to inefficiencies and housing delivery delays (Goodlad,1996). Furthermore, the various institutions and organisations involved in Social Housing are not well aligned in terms of their specific purpose and functions, which has led to initiatives and developments within the sector being delayed and/or duplicated.

Governments vision of a “nation housed is sustainable human settlements” was formally introduced 1994 White Paper on Housing (Tomlinson, 2001).

State assisted housing development in South Africa is not centrally controlled. The Government’s defining characteristics for legal entities to be considered as SHIs are:

- Institutions ensuring affordable, quality housing and maximum benefit for residents from public funding made available for rental housing (and other non individual ownership tenure options);
- Institutions that are focused on managing housing stock over the long term;
- Institutions that may be focused on developing housing stock together with the housing management function.

There are approximately sixty SHIs operating throughout the country, many of whom are facing the problems described above, together with governance, management, skills shortages and financial difficulties. These difficulties are caused by many factors including inter alia: their relative inexperience in developing and managing housing stock for rental and other forms of tenure not conferring individual ownership; lack of critical mass; an over-eagerness to access institutional housing subsidies; inefficient regulation and; a lack of a supportive policy.

## **1.2 - Background to Research**

The Support Programme for Social Housing (SPSH) was set up by the European Union to facilitate improvements to the Social Housing sector. The SPSH together with the South African Government has developed an Information Communication Technology (ICT) strategy for the Social Housing sector in South Africa, with a common goal to support the establishment of a viable, sustainable Social Housing sector in South Africa, and to provide the basis for its future expansion. (Department of Housing 2004. Social Housing Policy Review, 2004).

This strategy is based on the view that ICT systems will play a crucial role in the attainment of their objectives, as it is only through being able to accurately monitor and measure progress that National and Local Government can ensure that the strategic goals are met and that oversight, allocation of resources, interventions and policy setting are all informed by timeous and accurate information.

While stakeholders like the European Union and various funders may require information for different reasons, to monitor subsidies and their effective administration and application, for example - their dependence on quality information is nevertheless similarly critical.

This is also the case with the SHIs themselves, who need to manage and control their day to day affairs and planning more efficiently, especially as the Social Housing sector matures and consolidates, and compliance requirements become more stringent and competition more pronounced.

## **1.3 - Problem Statement**

Part of the overall strategy (Hughes, SPSH, July 2005) is to provide a property management computer system via a centralised hub, accessible by all parties, in a manner suited to their specific requirements. The increased visibility and importance of a strong centre or hub to coordinate and to a degree control this sector, is consistent both with the strategic shift towards greater regulation and oversight, as well as the environmental demands of better governance and greater accountability. This network model of a centralised hub is also considered to be most appropriate for a maturing but still very new industry – one in which there are few experts and very

thinly spread expertise (both in terms of business and ICT). This represents the most efficient utilisation of these scarce and valued resources – not just to benefit one company but to set the standard for the industry. The problem identified is that it is not evident if such a system or systems, to meet these unique requirements is currently available.

### **1.3.1 - The Sub Problems**

The sub problems of this study are to:

- Analyse the requirements of the overall ICT strategy
- Determine the state of information technology within a sample group of Housing Institutions, together with an evaluation of skills available.
- Establish a generic functional specification for an ideal property management system together with other factors including conformance with the proposed strategic architecture, technology imperatives and vendor characteristics.
- Identify, Commercial Off the Shelf (COTS) property management systems that are currently in use by Housing Institutions nationally and internationally, or any other options or alternatives that may be available. Furthermore to evaluate these systems in terms of the requirements of a generic functional specification.
- The selection of one credible modelling and decision support tool to perform the overall evaluation and assessment. The model must be able to group decisions and make good, transparent and defensible decisions in a systematic and scientific manner.

### **1.4 - Why is it worth Investigating**

Through comprehensive research into the availability of these management systems, together with a credible technique in evaluating them, we will be able to identify if there is in fact a system or systems that will meet the strategy requirements, and support the establishment of a viable, sustainable Social Housing sector in South Africa, to provide the basis for its future expansion.

## 1.5 - The Objectives

By determining whether there is a system or systems that meet the strategy requirements, informed decisions can be made regarding the common goal to provide a suitable platform for the future expansion and growth of the Social Housing sector in South Africa.

## 1.6 - The Hypotheses

The main hypothesis of this research project is:

- There are various property management systems available, but none that meet the unique requirements of the overall ICT strategy for the Social Housing sector in South Africa.

The sub hypothesis is:

- The state of information technology within the sample group of Housing Institutions, is varied in sophistication, depending on their level of experience, self-sufficiency and maturity.

## 1.7 - Scope and Limits of Research

This research project is subject to the following exclusions:

- A critical analysis of Government housing policy.
- Non-ICT related problems at the sample group of SHIs including general and specific business skills.
- ICT systems not specifically related to the provision and development of the Social Housing sector, outside the scope of property management.
- ICT systems relating to the provision of subsidies or other finance to the sector.
- System requirements of the Department of Housing to meet their own strategic objectives.
- Property development processes and systems.



- Management systems that have not been tried and tested within the Social Housing sector.

## 1.8 - Research Methodology

The methodology employed in this research comprises:

- Analysis of the overall ICT Strategy for the sector. In order to analyse the strategy for the housing sector, informal qualitative research by means of discussion with key role players within the SPSH, together with recent Housing literature and policy prepared by the National Department of Housing.
- The state of information technology within the sector. To establish the current state of Information Technology within the sector, qualitative research by means of case study using a sample group of eleven Social Housing Institutions was undertaken. (see Appendix B - Sample Group of Housing Institutions on page 141). A nonprobability method of quota sampling (Leedy, 1997, p. 205) was the basis used for selection of the sample group. Data collection was in the format of a detailed questionnaire either telephonically or by personal interview. (see Appendix E - SHI Questionnaire on page 179). There are approximately sixty SHIs operating throughout the country, many of whom are facing the problems of governance, management, skills shortages and financial difficulties. The sample group was selected from both ends of the spectrum, from inexperienced start-up Institutions, to sophisticated and mature operations geographically spread around the country. All eleven of the sample group responded and completed the questionnaire. Reflective analysis (Leedy, 1997, p. 158) was used to analyze the data which was primarily an inductive process of organising the data into categories. The sample group is listed below :

1. Alexandra Social Housing Company (ASHCO)
2. Cape Town Community Housing Company (CTCHC)
3. First Metro Housing Company (FMHC)
4. Greater Middleburg Housing Association (GMHA)
5. Johannesburg Housing Company (JHC)
6. Johannesburg Trust for the Homeless
7. Mbombela Housing Association
8. Msunduzi Housing Association (MHA)

9. Reahola Housing Association
10. Social Housing Company (SOHCO)
11. Yeast City Housing (YCH)

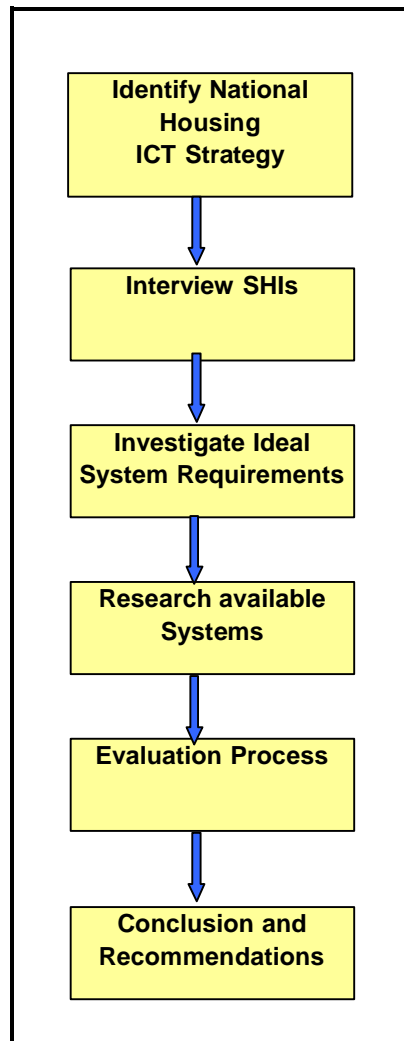
- Establish a generic functional specification for an ideal property management system. The methodology relied on researching available literature around general business, functionality and technological requirements for conformance with the proposed strategic architecture, technology imperatives and vendor characteristics.
  
- Identify Commercial Off the Shelf (COTS) property management systems that are currently in use by Housing Institutions nationally and internationally, or any other options or alternatives that may be available. In order to test the main hypothesis, qualitative research by means of case study into the various vendors and products was undertaken. In order to evaluate the systems in terms of a generic functional specification, the population or sample group included products that are currently used in one way or another specifically for the management of Social Housing, both locally and internationally. Data collection was in the format of a detailed questionnaire either telephonically or by personal interview. (see Appendix D - COTS Software Evaluation Forms on page 151). All fourteen of the population responded and completed the questionnaire. Reflective analysis (Leedy, 1997, p. 158) was used to analyze the data which was primarily an inductive process of organising the data into categories. The products investigated are listed below:
  1. Nicor
  2. JD Edwards Financial Real Estate
  3. MDA
  4. Novtel
  5. ManagelT
  6. MIS Active Management Systems
  7. Sx3
  8. IFCA Property Plus
  9. MRI
  10. IBS OpenHousing
  11. FatFish (Cubit)
  12. Wocus4All

13. Rascal

14. Compiere

- The selection of a modelling and decision support tool to perform the overall evaluation and assessment. Without a good decision support tool, decision makers usually simplify a decision - ignoring criteria that cannot easily be quantified. They may therefore oversimplify the decision structure and may select the wrong vendor or product. Research into available literature on the subject was conducted. Modelling and support tools are classified into the following (Institute for Manufacturing, 2005):

1. Information Control - gathering, storage, retrieval, and organisation of data, information and knowledge.
2. Paradigm Models - paradigms, frameworks or perspectives that help one 'get a handle' on the situation.
3. Simulation Models - models that enable answers to "What if?" questions.
4. Ways of Choosing - techniques or tools that analyse or help to narrow the field of choice.
5. Representation Aids - tools and techniques that aid visualisation of the data or problem space.
6. Processes - these are not in themselves tools, rather, they are management techniques or philosophies. Their primary aims are to control or 'run' some part of a manufacturing operation. They may also provide, or be based on, particular perspectives rather like the paradigm models above.



*Figure 1 – High Level Process Map*

## **1.9 - Literature Review**

Other than the literature by of Mouton and Leedy, which proved to be invaluable input necessary for the compilation of such a research project, the core literature used for the purposes of this research project focused on the following areas:

Understanding of the key social housing principles and participants. Many of the circumstances and assumptions of the current legislation have changed dramatically from when they were first instituted in the 1990's. At the time the Housing Policy and Strategy (1994) was focused on addressing the housing backlog as well as in stabilising the housing environment, which was complex, highly fragmented and racially segregated. Fundamental changes have subsequently taken place in the

sector, as well as a move towards more responsive and effective delivery. Government has made it quite clear about its intention to deliver houses. The Minister of Housing, Lindiwe Sisulu, National Assembly, Cape Town, June 2004, was recorded saying:

“Housing is an area where the steep inequalities of our country are immediately visible.....Together, therefore, let us break new ground in housing delivery”

The overall strategy that government intends, is largely found in Housing Policy documents. The following literature was drawn on:

1. Department of Housing 2004  
“Breaking New Ground” A Comprehensive Plan for the Development of Sustainable Human Settlements, in particular business plan 4 on Social (medium density) housing.
  2. Department of Housing 2004  
A Social Housing Policy for South Africa. Towards an enabling environment for Social Housing Development. Revised draft, November 2004.
  3. Department of Housing 2004 Social Housing Policy Review: key issues. Version 12, dated 1 October 2004
  4. Goodlad, 1996, discussion and review of developments in Housing Policy
  5. Mackay, 1999, Principles of Housing Policy
  6. Tomlinson, 2001, New Housing Delivery Model
  7. Social Housing Foundation, Current Status of Social Housing in South Africa, Report to Housing, 1998
  8. Housing Strategy  
<http://www.housing.gov.za/Content/Strategic%20Statement.htm#Strategic%20Objectives>
  9. Housing Code  
[http://www.housing.gov.za/content/housing\\_code/part1/chapter3a.htm](http://www.housing.gov.za/content/housing_code/part1/chapter3a.htm)
- The establishment of a generic functional specification for an ideal property management system was researched from literature of various sources listed:

1. The key characteristics to look for in Service Center Business Systems were located in  
<http://swguide.computerworld.com/cwsoftware/search/viewabstract/64342/index.jsp>
2. Information Systems and Business Agility  
MBA Research Report, Wits Business School, University of the Witwatersrand
3. Five Requirements for Business Agility  
Open Mission Critical Systems:  
[http://www.sw.nec.co.jp/english/omcs/overview/01/overview01\\_04](http://www.sw.nec.co.jp/english/omcs/overview/01/overview01_04).
4. Management Information Systems  
7th Edition – O'Brien & Marakas
5. Manifesto for Agile Software Development  
<http://www.agilemanifesto.org/>
6. The Secret to Software Success  
<http://www.cio.com/archive/070101/secret.html>
7. Management and Organizational Behavior  
Cook, Hunsaker & Coffey, 1997 – Irwin/McGraw Hill
8. To quote from the survey analysis relating to open source (Frank Scavo, Key Advantage of Open Source is Not Cost Savings)

“For software buyers, the best strategy is to consider mature and established open source products as well as proprietary software products that adhere to open standards. In this way, buyers can choose the best software product for the job, knowing that the value of their investment will be preserved without locking the organization in to a single vendor solution.”

### **1.9.1 - Discussion of Literature Review**

Numerous modelling and decision support tools were explored. Research into ways of choosing techniques or tools that analyse or help to narrow the field of choice was undertaken. This included the following models:

- Analytical Hierarchy Process (Saaty TL, 1980)
- Conflict Analysis (Lewin, 1951)

- Criteria Rating Form, Weighted Ranking (Chang, and Niedzwiecki, 1993)
- Gap Analysis
- Importance / Performance Matrix (Slack, N, 1994)
- Quantitative Decision Making (Levin, R, 1984)
- Strategic Assessment Model (Tavana et al)
- Strategic Assumptions Surfacing and Testing (Mason et al 1981)
- Strategic Choice Approach (Friend, J, 1992)

Modelling and decision support tools are classified into the following:

1. Information Control - gathering, storage, retrieval, and organisation of data, information and knowledge.
2. Paradigm Models - paradigms, frameworks or perspectives that help one 'get a handle' on the situation.
3. Simulation Models - models that enable answers to "What if?" questions.
4. Ways of Choosing - techniques or tools that analyse or help to narrow the field of choice.
5. Representation Aids - tools and techniques that aid visualisation of the data or problem space.

Evaluating vendors or products can be a daunting task. Typically many factors or criteria would impact on the decision – usually so many that they are hard to keep track of mentally. To further complicate the decision, a number of these factors may be hard to measure or quantify, yet can be crucial to the final decision.

Without a good decision support tool, decision makers usually simplify a decision - ignoring criteria that cannot easily be quantified. They may therefore oversimplify the decision structure and may select the wrong vendor or product. The following techniques or tools are available that analyse or help to narrow the field of choice.

### **1.9.1.1 - Analytic Hierarchy Process**

The Analytic Hierarchy Process (AHP) was developed by Dr Thomas Saaty (Saaty TL, 1980) in the early 1970's at the Wharton School of Business. It structures a

complex problem in a logical Hierarchy. It does not randomly assign weights to criteria, but rather derives these weights. This is done by using pair wise comparison between criteria. The relative importance or preference of any two criteria is a ratio scale. Using matrix algebra the pair wise comparisons are then used to calculate the weights of the individual criteria. The process involves building a hierarchy (ranking) of decision elements and then making comparisons between each possible pair in each cluster (as a matrix). This gives a weighting for each element within a cluster (or level of the hierarchy) and also a consistency ratio (useful for checking the consistency of the data).

The software implementation of the AHP is called Expert Choice. This product is widely used internationally to facilitate group decisions and make good, transparent and defensible decisions in a systematic and scientific way. Application areas include vendor selection, risk analysis, strategic decision making, human resource allocation and project portfolio management. The evaluation of options for recommendation in this report was modelled in Expert Choice (Forman et al).

### 1.9.1.2 - Conflict Analysis

Possible methods of conflict analysis include the matrix method, force field analysis, and matrices similar to that shown below can also be used to examine potential conflicts (e.g. between performance measures).

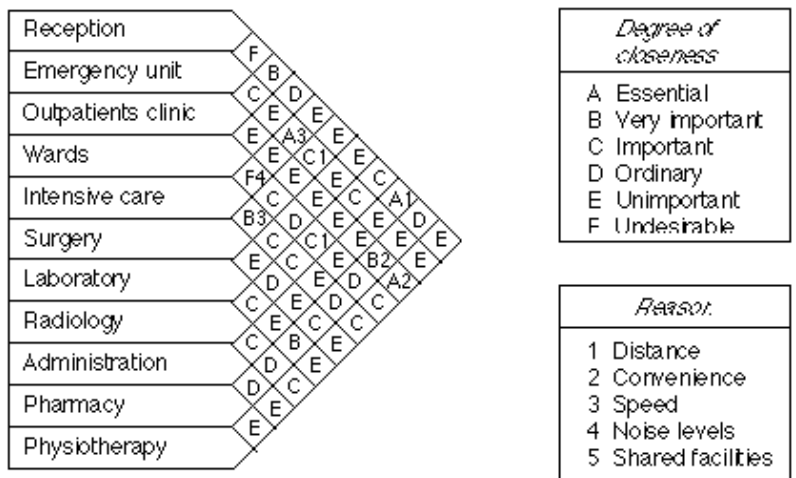


Figure 2 – Conflict Analysis Matrix





4. Determine the relative importance of each criterion.
5. Rank the criteria and assign a relative importance (weight) to each. The total of the assigned weights should equal 100.
6. Establish a rating scale; rate the alternatives.
7. A suitable rating scale might be, for instance: 1= low, 10=high. each alternative should be weighed against each criterion, using the same scale for each.
8. Calculate the final score.
9. Multiply the weight for each alternative by the score and write this in brackets. Add up the numbers in brackets for each alternative and write the sums in the appropriate total boxes. Add any summary comments in the appropriate summary box.
10. Select the best alternative.
11. Select the alternative with the highest score. This alternative may not be the one ultimately chosen - if the group disagrees with the choice, they should review the weighting of the criteria and make the necessary changes.

#### 1.9.1.4 - Gap Analysis

Gap analysis consists of defining the present state, the desired or 'target' state and hence the gap between them. In the later stages of problem solving the aim is to look at ways to bridge the gap defined and this may often be accomplished by backward-chaining logical sequences of actions or intermediate states from the desired state to the present state. In other words, asking the question:

"What (b) must be in place, or must have happened in order that this desired state (a) can exist?"

- then -

"What (c) must be in place, or must have happened in order that this desired state (b) can exist?"

Gap analysis alone however is not adequate for all problem situations as goals may evolve and emerge during the course of problem solving, "what ought to be" can be a highly variable target. Also, some problems have many alternative solutions, in which case backward-chaining search strategies will have little practical use.

### 1.9.1.5 - Importance / Performance Matrix

A 2x2 matrix of importance / performance can be used but may be found too crude. (Slack, N, 1994). The matrix uses the 9-point importance and performance scales reproduced below. The exact positions of the dividing lines between the zones "Excess", "Appropriate", "Improve" and "Urgent action" may need to be agreed by the group beforehand.

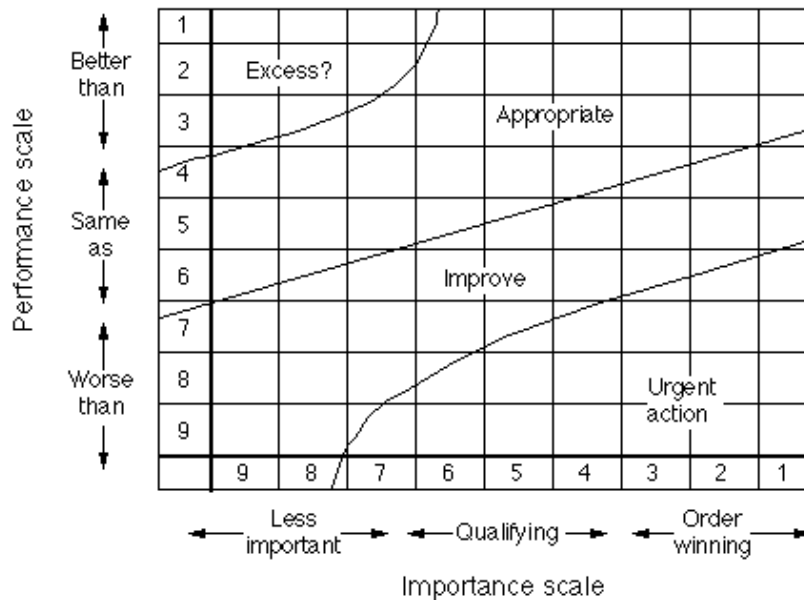


Figure 4 – The Importance / Performance Matrix

This decision tool is more geared around evaluation of a strategy. The derivation of a ranked (or rated) list of competitive factors such as quality, flexibility, cost, etc needs to be formulated.

### 1.9.1.6 - Quantitative Decision Making

Quantitative decision making methods can be used when there is a clearly stated objective, with several alternative courses of action. This results in a calculable measure of the benefit or worth of the various alternatives (Levin, R, 1984).

Uncertainties for which allowance must be made or probabilities calculated may include

- Events beyond the control of the decision maker.
- Uncertainty concerning which outcome (or external events) will actually happen.

Given the above conditions, standard statistical techniques using normal distribution data and probability calculation can be used to inform decision making.

### **1.9.1.7 - Strategic Assessment Model**

Strategic Assessment Model (SAM) decomposes a strategic problem into clearly defined components in which all alternatives, factors, weights, and probabilities are depicted (Tavana et al). Objective information and subjective judgements of experts are then integrated by utilising several methods of problem structuring and information processing. This decomposition and evaluation is not intended to replace the decision-makers, rather, it provides a systematic approach to support, supplement, and ensure the internal consistency of their judgements through a series of logically sound techniques. SAM divides the decision making environment into three parts:

- Internal environment: The set of relevant factors that form the profile of the internal operations of the organisation
- Task environment: the set of relevant factors that have direct transactions with the organisation. The influence between these factors is reciprocal
- General environment: The set of relevant factors that can exert considerable influence on the organisation. The organisation, however, has little or no impact on such factors.

The process consists of eight steps and uses an algebraic model together with a software version ("Expert Choice") of Saaty's Analytical Hierarchy process (AHP) to calculate risk adjusted strategic values for each alternative (Forman et al).

The eight steps are:

1. Generate strategic alternatives. (Brainstorming etc.) Alternatives are the set of potential means by which the stated objectives may be obtained. There must be at least two mutually exclusive alternatives in the set to permit a choice to be made.

2. Identify the relevant (those which can be exploited by the strategic alternatives) opportunities and threats and group them into internal, task and general sets of environmental factors.
3. Define environmental weights (using AHP)
4. Calculate the initial weights associated with the opportunities and threats.
5. Develop subjective probabilities for each alternative.
6. Calculate the overall importance weight for the opportunities and threats.
7. Measure the Decision-Maker's risk-aversion constant for the opportunities and threats (using certainty equivalence rather than gain or loss equivalence)
8. Calculate the risk adjusted strategic value for each alternative.

### **1.9.1.8 - Strategic Assumptions Surfacing and Testing**

Strategic Assumptions Surfacing and Testing (SAST) is a process which reveals the underlying assumptions of a policy or plan and helps create a map for exploring them (Mason et al 1981). SAST was developed in the US by Richard Mason, Ian Mitroff, and Jim Emshoff, and incorporates the following principles:

1. Adversarial - based on the premise that the best way to test an assumption is to oppose it.
2. Participative - based on the premise that the knowledge and resources necessary to solve and implement the solution to a complex problem is distributed among a group of individuals.
3. Integrative - based on the premise that a unified set of assumptions and action plan are needed to guide decision making, and that what comes out of the adversarial and participative elements can be unified.
4. Managerial mind supporting - based on the premise that exposure to assumption deepens the manager's insight into an organisation and its policy, planning, and strategic problems.

The above principles are employed through the following five phases of the SAST process:

1. Group formation. Key individuals from across company functions are formed into small (6 - 8 person) groups. Each group should consist of individuals who get on well with one another (minimise conflict). Each group should differ in its particular knowledge and problem perspectives (maximise differences). Each

group should have a different orientation, perspective or policy option from which to tackle the issue.

2. Assumption surfacing and rating. Each group meets separately and begins to identify the assumptions inherent in the issue (from their viewpoint). A way in may be to identify as many stakeholders as possible. List all the assumptions generated.
3. Within group dialectic debate. Firstly, each group now eliminates irrelevant assumptions by asking themselves "If the opposite of this assumptions is true, does it have any significant bearing on the issue?" If the answer is "No", then the assumption is not very relevant to the problem. Any assumption accepted as a strategic premise must meet two criteria:
  - It should have a significant bearing on the outcome of the strategy chosen and implemented. (Importance)
  - It should be as "self evident" and "certain to be true" as possible. (Certainty)

The assumptions are now ranked for importance by the group and entered in an Importance / Certainty matrix. If a more precise scaling is required here, the Analytical Hierarchy Process (AHP) is used to carry out pairwise comparison (each individual group member) and to calculate normalised weightings from the combined data. The individual data should also be open for discussion at this stage.

The resulting data is now plotted on a graph or 2 x 2 matrix whose scales are (relatively important / unimportant) & (relatively certain / uncertain).

Assumptions that are both important and certain become the pivotal or "bedrock" assumptions for the policy. Assumptions that are important but uncertain may require research. Assumptions in the other two quadrants may well be dropped. Using the graph as an aid, each group should debate "which are the pivotal assumptions?" and come up with a prioritised list of pivotal assumptions.

4. Between groups dialectic debate. The groups are brought together and a spokesperson for each group presents their importance / certainty graph and pivotal assumptions. Only clarifying questions are permitted at this stage. When all the groups have presented, all the assumptions are combined on one slide and thrown open for evaluation, debate and discussion. Agreed assumptions are extracted as premises from which to proceed, while contentious assumptions are debated further and may be modified to achieve agreement.

Final synthesis. All participants are asked to propose assumptions to resolve outstanding controversies. If no agreement is reached on an assumption it becomes an issue requiring further investigation. Each issue and key assumption is subjected to further analysis to adduce the data and warrants (what beliefs the assumption is based on) that underlie its claim. Where data is inadequate, business intelligence and management information systems activities are undertaken to acquire the specific data necessary to resolve the strategic issue.

When the policy decision must be made, the results of the information producing activities are collected and related to the issues for which they were undertaken. A final debate is held and a judgement is made on the best set of assumptions from which to proceed. Finally, an appropriate policy is chosen, based on the new information and the synthesis that emerged.

#### **1.9.1.9 - Strategic Choice Approach**

The Strategic Choice Approach is used in face to face workshops of a decision making group.

Strategic choice is viewed as an ongoing process in which the planned management of uncertainty plays a crucial role. (Friend, J, 1992) and (Friend, J et al, 1987). The Strategic Choice Approach

- Focuses on decisions to be made in a particular planning situation, whatever their timescale and whatever their substance.
- Highlights the subtle judgements involved in agreeing how to handle the uncertainties which surround the decision to be addressed - whether these be technical, political or procedural.
- The approach is an incremental one, rather than one which looks towards an end product of a comprehensive strategy at some future point in time. This principle is expressed through a framework known as a 'commitment package'. In this, an explicit balance is agreed between decisions to be made now and those to be left open until specified time horizons in the future.

The approach is interactive, in the sense that it is designed not for use by experts in a backroom setting, but as a framework for communication and collaboration between people with different backgrounds and skills. There are three key elements of analysis which are used in structuring problems and working towards decisions

1. The Decision Area
2. The Comparison Area
3. The Uncertainty Area - divides into three broad categories
  - Uncertainties to do with the working environment
  - Uncertainties to do with guiding values
  - Uncertainties to do with related choices

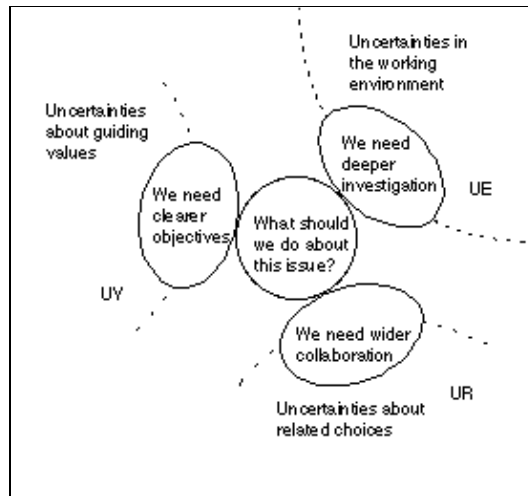


Figure 5 – Uncertainties, Strategic Choice Approach

There are four modes of strategic choice

1. Shaping
2. Designing
3. Comparing
4. Choosing

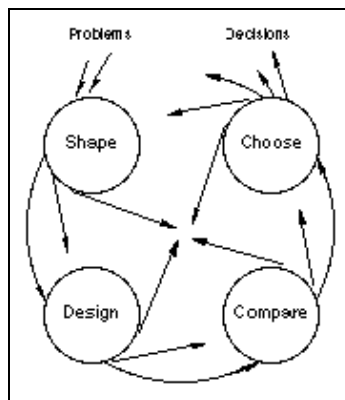


Figure 6 – Modes of Strategic Choice



The Strategic Choice Approach was originally developed using flip charts and wall space, however, a software package called "Strategic Advisor" or "STRAD" for short was developed and released in February 1991. The intention of this software package is to support individuals and small groups in the more informal use of the approach.

## 1.10 - Definitions, Terms and Abbreviations

### Abbreviations

AHP	-	Analytical Hierarchy Process
ASP	-	Application Service Provider
BPO	-	Business Process Outsourcing
COTS	-	Commercially Off the Shelf Software
DRP	-	Disaster Recovery Procedure
EFT	-	Electronic Funds Transfer
ERP	-	Enterprise Resource Planning
ERM	-	Enterprise Resource Management
ICT	-	Information Communications Technology
NHFC	-	National Housing Finance Corporation
SAM	-	Strategic Assessment Model
SAST	-	Strategic Assumptions Surfacing and Testing
SHI	-	Social Housing Institution
SPSH	-	Support Programme for Social Housing
STRAD	-	Strategic Advisor

### Definitions

I.T. Information technology can be defined broadly as any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information as well as such infrastructure as wide-area networks, local-area networks, desktops and email.

## 2. - South Africa's National Housing Strategy

### 2.1 - The Overall Strategy

In comparison to many developed countries, the South African Social Housing sector is still in its infancy, both in its legislative framework and in its maturity and efficiency.

The growth of the sector has been complicated by fragmented governance arising from various pieces of existing legislation, which has led to inefficiencies and housing delivery delays. Furthermore, the various institutions and organisations involved in Social Housing are not well aligned in terms of their specific purpose and functions, which has led to initiatives and developments within the sector being delayed and/or duplicated.

State assisted housing development in South Africa is not centrally controlled. The Housing Act of 1997 devolves much of the responsibilities of housing to the Provincial and Local Governments. The sector also relies on national housing agencies, established by Government, and on the private sector for the actual production of houses. Policy goal is to deliver a permanent residential structure with secure tenure, ensuring privacy and protection against the elements, potable water, adequate sanitary facilities, including waste disposal, and domestic electrical supply (Tomlinson, 2001, Pg 2).

The various roles and responsibilities can be summarised as follows:

- **National Government:**  
The Department of Housing maintains the national strategy, policy and programme guidelines for the administration of the Institutional Housing Programme by the lower two tiers of government.
- **Provincial Government:**  
Maintains the provincial strategy and administers the provincial portion of capital grants for housing.

- **Local Government:**

Maintains the local Housing Development Plans and administers capital grants for housing. Local Government also administers planning approvals and access to land and services.

- **National Housing Agencies:**

- **The Social Housing Foundation (SHF)** is mandated to increase the capacity of Social Housing Institutions through training and capacity building.
- **The National Finance Corporation (NHFC)** is tasked to leverage debt financing from the private sector for the low and moderate housing market.

- **Housing Institutions (private sector):**

Social Housing Institutes (SHIs) are legal entities that are established with the primary objective of developing and/or managing housing stock that has been funded through the Government's grant programmes.

Recently, the Support Programme for Social Housing (SPSH) was setup as a temporary structure to facilitate improvements to the Social Housing sector. The current contract expired at the end of May 2005, but the contract has been renewed for a further 2 years, after which the SPSH falls away.

Many of the circumstances and assumptions of the current legislation have changed dramatically from when they were first instituted in the 1990's. At the time the Housing Policy and Strategy (1994) was focused on addressing the housing backlog as well as in stabilising the housing environment, which was complex, highly fragmented and racially segregated. Although Government believes that the fundamentals of the policy remain intact, it is redirecting and enhancing the existing mechanisms to cope with the changes that have subsequently taken place in the sector, as well as to move towards more responsive and effective delivery.

### **Social Housing Institutions**

The Government's defining characteristics for legal entities to be considered as SHIs are:

- Institutions ensuring affordable, quality housing and maximum benefit for residents from public funding made available for rental housing (and other non individual ownership tenure options);
- Institutions that are focused on managing housing stock over the long term;
- Institutions that may be focused on developing housing stock together with the housing management function.

There are approximately sixty SHIs operating throughout the country, many of whom are facing governance, management and financial difficulties. These difficulties are caused by many factors including: their relative inexperience in developing and managing housing stock for rental and other forms of tenure not conferring individual ownership; lack of critical mass; an over-eagerness to access institutional housing subsidies; inefficient regulation and; a lack of a supportive policy.

In an attempt to increase the performance of the SHIs, and therefore achieve its housing objectives, the Government has realised the need to regulate the sector more appropriately. As such, it is in the process of enhancing and streamlining the current legislation governing the sector. The future legislation and regulatory framework will be designed to ensure that the sector is equipped to provide sustained delivery of Social Housing at scale, as well as protect the financial investment that Government and the private sector makes to the sector. The Social Housing Bill will deal with the legal requirements for the promotion of a sustainable and viable Social Housing sector in South Africa. Inter alia, the Act will specify the functions and legal forms of SHIs, a method and legal framework for the accreditation of SHIs, definitions of the roles and functions of sector agencies as well as specify Government's support mechanisms.

Government will insist that each and every SHI is accredited and monitored so as to ensure that SHIs are robust and sustainable institutions. For accreditation, housing institutions will have to demonstrate financial and operational sustainability over time while adhering to the guiding principles for Social Housing, ultimately achieving an independent status within 5 years of accreditation. After accreditation, the SHIs will qualify for certain benefits. For the accreditation process Government will provide the appropriate legislative framework within which the SHIs can operate as well provide institutional capacity to the SHIs including training and materials. In this regard, the

SHF has been mandated to provide the SHIs and Local Governments with capacity building skills and technical support.

It is envisioned that the accreditation process will reduce the number of SHIs from the current 60 to approximately 20, as it is Government's stated policy that it should focus its Social Housing investments "narrowly and strategically" as it believes that "depth" of investment will have a greater impact than investments of moderate amounts spread thinly over a wide area. By this it would seem that it is Government's intention to whittle down the number of SHIs by the accreditation process. Through the accreditation process it will be able to monitor the SHIs and provide the relevant support where necessary. Those that are ultimately accredited will be viable and sustainable going concerns with a track record. Government will then invest heavily in these remaining institutions so as to succeed in its housing objectives.

On the other hand, the increase in the value of subsidies, as well as the concurrent reduction in the income threshold, may well induce a higher demand for housing and therefore a larger space for SHIs. This may increase the number of SHIs entering the market in coming years.

More details on key elements of the National Housing strategy are presented in Appendix A.

## **2.2 - The Information Technology Strategy**

Information technology can be defined broadly as any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information as well as such infrastructure as wide-area networks, local-area networks, desktops and email.

The government's seven strategies for housing do not specifically mention the role of ICT in the attainment of these goals, except in point seven "*Co-ordinating state investment in development*" where one of the measures to achieve co-ordinated government is Integrated and Co-ordinated Information systems.

Key stakeholders and their interactions are illustrated in the diagram below.

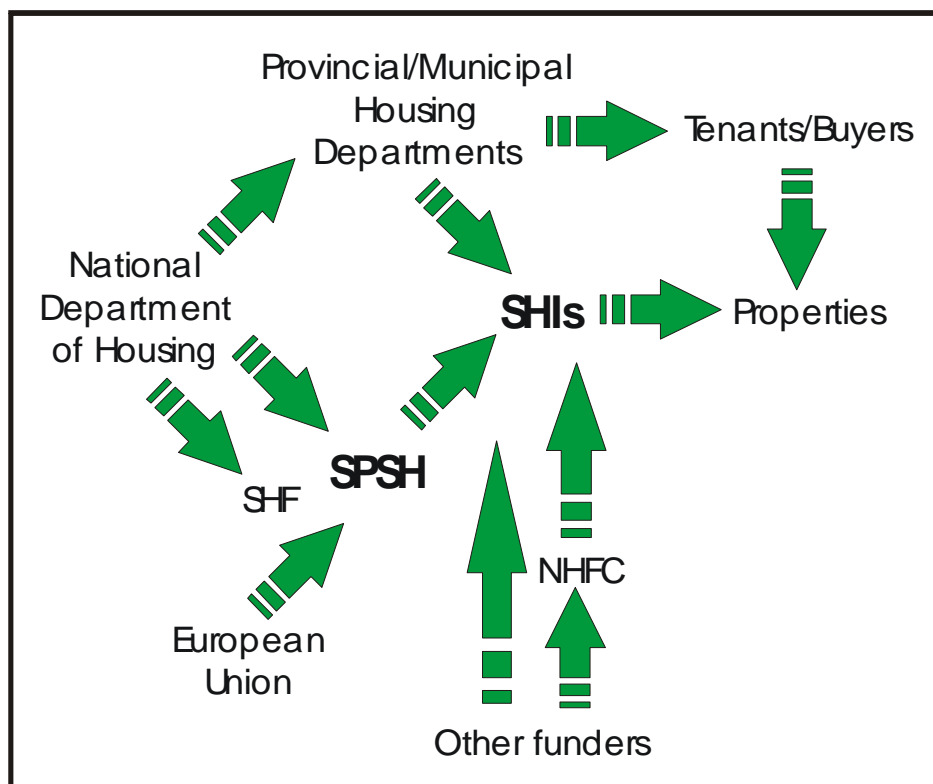


Figure 7 – Overview of Stakeholder Relationships

Another more focused representation is presented below (figure 3), in which the SHIs are differentiated between the majority (by size) of small institutions, and the minority of large operators. It stands to reason that the requirements of these two groups, while functionally similar, would in practice be vastly different. In addition, Figure 2 illustrates the inconsistent relationship between the various stakeholders and the SHIs.

The ICT strategy addresses both of these groups without compromising the unique requirements of either one. It does not impose a standard system across the board – something which would likely require the majority to stretch beyond their limited capacities and would similarly compel the larger, more established players to abandon their considerable investments to adopt what would conceivably be less functional and less suitable for their needs.

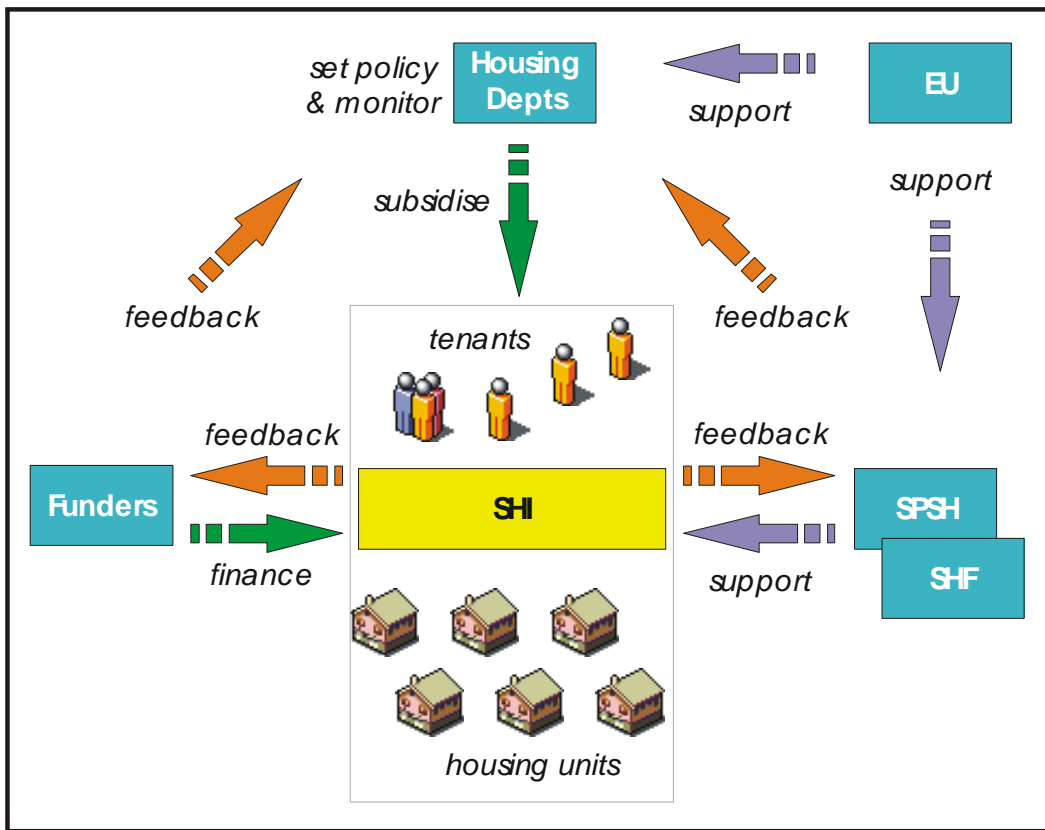


Figure 8 – Overview of Stakeholder Relationships

The Support Programme for Social Housing (SPSH) is in the process of making recommendations to National Government for an ICT strategy that requires a property management system to be provided via a centralised hub, accessible by all parties, in a manner suited to their specific requirements.

A major goal of the SPSH is to increase the capacity and efficiency of the Social Housing sector and ultimately to enable the sector to provide housing on a broader basis. The National Housing Strategy as embedded in the Breaking New Ground document includes the provision of large scale housing within communities and includes incorporating the private sector in the initiative.

The increased visibility and importance of a strong centre or hub to coordinate and to a degree control this sector, is consistent both with the strategic shift towards greater regulation and oversight, as well as the environmental demands of better governance and greater accountability.

This network model of a centralised hub is also considered to be most appropriate for a maturing but still very new industry – one in which there are few experts and very thinly spread expertise (both in terms of business and ICT). This represents the most efficient utilisation of these scarce and valued resources – not just to benefit one company but to set the standard for the industry.

Importantly, although the model caters to both ends of the spectrum, from inexperienced start-up Institutions to sophisticated and mature businesses, it does not dictate that these common tools be imposed on anyone. The value proposition to smaller SHIs is self evident – they simply cannot access this type of system on their own.

It is not clear what budgets are available for such a model. It may be relatively irrelevant at this stage, in the context of Social Housing delivery imperatives and the scale of financial activity in the sector. Even a simplistic cost allocation model however would give any size SHI access to a world-class service at a fraction of the cost of a comparable solo effort – and one that would not necessarily lock them into any contract or capital exposure.

In addition to the reduced management overhead of doing this alone, it may further prove to be compelling for larger, more capable SHIs to subscribe to this model by dedicating some of their resources to the continued evolution of the hub.



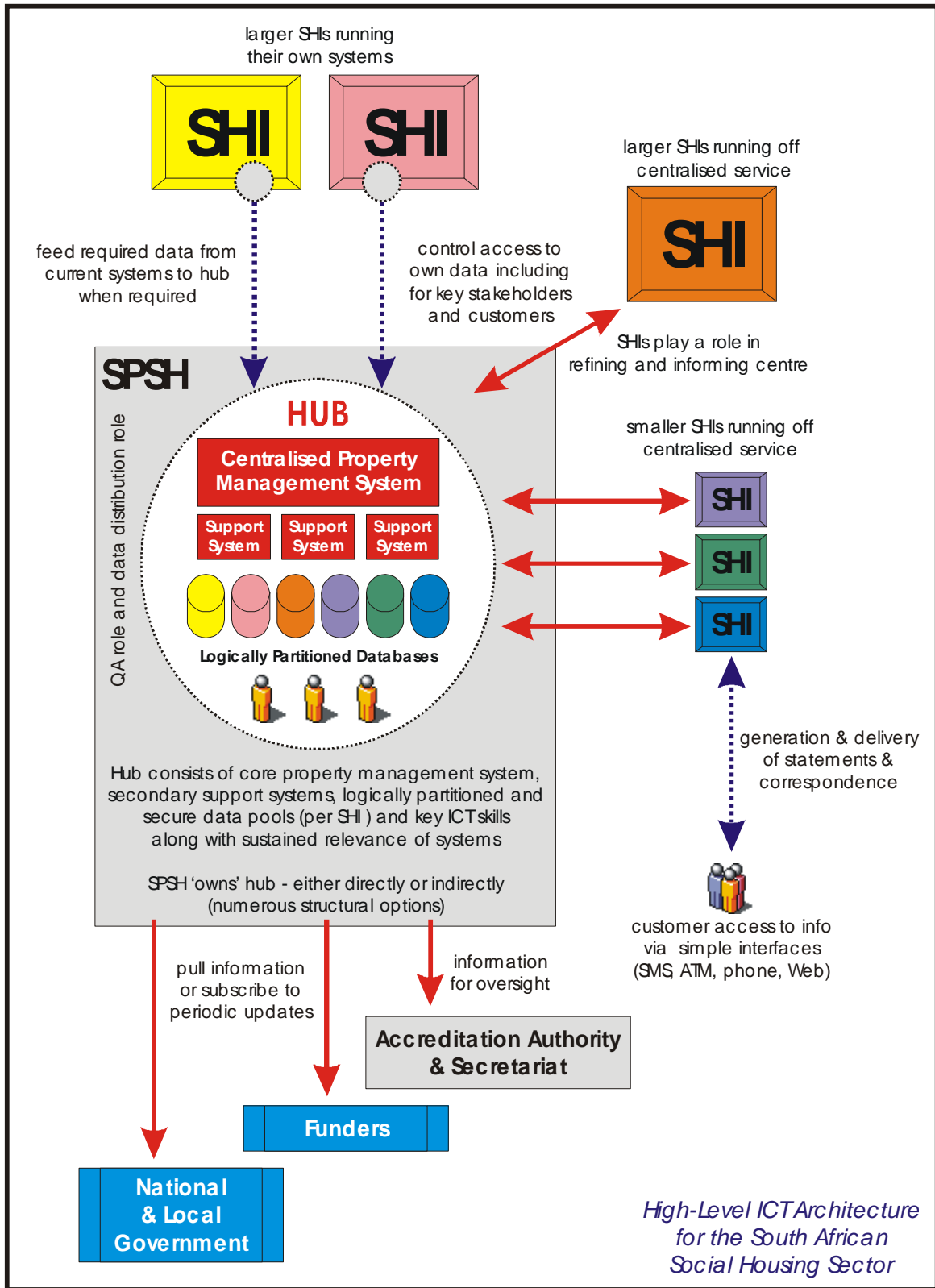


Figure 9 – High Level ICT Architecture for Social Housing Sector

So for SHIs of any size, participating in the centre, it is far more cost effective than going it alone, but this is not ruled out in the model since in any competitive business environment innovation needs to be encouraged, investments preserved and protected and freedom of choice guaranteed. The creation of a solid centre clearly offers some interesting opportunities but this directly raises some of the practical challenges of implementation.

The map in *figure 4* presents a centralised hub, controlled and perhaps managed by the SPSH or an external service provider. The hub will house (logically or physically) a property management system with a number of other support systems or specialised components emerging over time. SHIs – large or small – can utilise a wide range of functionality – accessing this functionality in stages as their requirements and capabilities grow. SHIs may choose to continue running their own systems – the only oversight requirement from the emerging accreditation authority / or the SPSH will be the SHI's sustained compliance with required reporting.

The hub will place a strong emphasis on security and privacy, not least around the careful partitioning of data so that only an SHI can see its own client and financial data until it chooses to release or open it up for managed access by select clients, funders, Government departments etc. In keeping with the growing sophistication of consumers – and the growing requirement to utilise technology to service multiple channels, this diagram highlights the possible use of mobile messaging, bank ATMs, email, Internet and other technologies.

The overall strategy is to achieve a critical mass of SHIs as a full-service model. This would preferably include some of the larger SHIs for a variety of reasons including their skills and knowledge being used to lift and indirectly mentor the smaller, less experienced SHIs. It is also clear in the overall Housing Sector ICT strategy that the ideal system is a web based system. A web application is any system that uses a web browser client (e.g. Firefox, Microsoft Internet Explorer) as the means of presenting the user interface (UI). In this way, a web application is similar to a web site with the important point being that the user can interact with a dynamic set of functionality rather than being primarily concerned with finding and reading content.

Web based systems offer immense value. In instances where internal technical skills do not exist or cannot be guaranteed – certainly the case with the majority of smaller

SHIs - then a hosted application, with centralised support is often the only option for high uptime. In addition, in widely dispersed businesses – and again the loose network of SHIs qualifies in this regard – centralised and hosted applications are ideal to achieve economies of scale and reduced overheads while still ensuring maximum availability of support and monitoring and a consistent system ensuring common standards and functionality for the sector.

Web systems open up a wide range of hosting options, allowing for solutions to grow naturally without huge capital investments. In addition to the often prohibitively expensive proprietary technologies, there is a rich, proven, widely supported and broadly deployed base of open source technologies including operating systems, web servers and database management systems.

The option of simple browser access without the need for any client side software is particularly important when considering the complexity and overhead of software distribution, configuration and support for remote users – which in the case of the SHIs and the proposed strategy is the majority of the user base. This becomes an even greater consideration where the system is likely to be enhanced and refined frequently and where the business itself is changing.

The requirement for a simple browser on most user workstations opens up a range of client side options without the need for high-end workstations, and open source is again a possible contender for many end users, depending of course on their other roles and requirements. For the small SHIs in particular, access to an intuitive web-based system with minimal investment may be the key to greater success and efficiency. One of the key points to note when considering web applications is that the web based front-end to the system is merely one potential component of the larger enterprise system. That is to say that although common perception may see the term web application as all encompassing, an application may have many different interfaces of which the web based user interface is just one interface that the end user can interact with.

### 3. - The State of Information Technology at the SHIs

#### 3.1 - Existing Systems

Results from completed questionnaires (Appendix E) show a clear dichotomy between SHIs. The larger of the SHIs have well established IT infrastructure with current hardware and property management software that either has integrated accounting capabilities or is supported by a stand alone, off the shelf accounting package (most commonly Pastel). The vast majority of these institutions outsourced their IT functions to third parties. These institutions are also able to employ people with appropriate IT skills when and where necessary.

On the other hand, the smaller SHIs seem to be running budget hardware and software. Networking is rudimentary and connections to the internet are either through ADSL or dialup. Very few are running property management software and typically keep records using MS Excel, if computerised at all. Skill levels in applications range from very low to adequate. The general findings of the research are summarised in the table below.

**Table 1 – Summary of ICT at SHIs**

Criterion	Larger SHIs	Smaller SHIs
IT Support	Mainly outsourced	Basic in-house knowledge
Workstations	> 30	< 5
Hardware Specifications	Current	Dated
Hardware Ownership	Owned	Owned
Networked	Servers	Rudimentary, if at all
Internet Access	Broadband	ADSL or Dialup
Licensing Fees	Several	Limited (some SHIs have not even licensed their Microsoft Operating Systems or Applications)
Housing Systems Utilised	ERP, Proprietary or Custom developed, Accounting Packages	Pastel, MS Access, MS Excel

<b>Reporting Functionality</b>	Adequate	Minimal
<b>Software Application Skills</b>	Knowledge centres	Adequate / Minimal

This sets the scene for formulation of generic specifications – especially those relating to I.T.

### 3.2 - Review and Evaluation of Existing Systems

Systems currently in use at the SHIs include:

- **Nicor** – this is in use at the Johannesburg Housing Company, Semag and JHB Trust for the Homeless, Own Haven, COPE Housing, North West Housing Corporation and First Metro. This is the most widely used property management system in the sector
- **JD Edwards** – in use by the Cape Town Housing Company
- **Novtel** – has been purchased by Middleburg Housing Association and Secunda Housing Association, but has not been in use extensively
- **Pastel Accounting and MS Excel** – not a property management system but widely in use in the smaller SHIs. One of these, SOCHO has commissioned custom add-ons for the Pastel accounting to facilitate full property management. This is currently under development.
- **SPSH Monitoring System** – The SPSH has instituted a monitoring system for the SHIs to provide information on the effectiveness of programmes that have been put in place.

Details of these systems and a full evaluation thereof are included in the ICT Options area of this report in section 6 on page 57

### 3.3 - ICT Skills Evaluation

The skills and competency levels within various SHIs have been evaluated, in the use and support of their existing ICT Systems. The main systems identified were as follows:

- Microsoft Office which includes Word, Excel, Access and PowerPoint

- Email and Internet connectivity
- Accounting software
- Property Management software

It is evident from our research that most of the staff involved within the various SHIs have a basic knowledge and understanding of the applications provided within the Microsoft Office Suite enabling them to achieve their day to day outputs. However, there is a vast amount of functionality that is not being used, which could improve general productivity and efficiency. In some cases, staff have had the benefit of training in the use of the Microsoft applications, and the results are quite visible.

It is apparent from the Interviews that the skill levels in both ICT and more pointedly in general business skills is particularly low, and a more comprehensive skill development plan should be attempted to address these deficiencies holistically.

### **3.4 - ICT Skills Gap**

ICT skills cover a wide range of activities. IT skills needed at the most basic level include the ability to find and access information services and carry out online transactions. The ability to use a web-browser and email and to find, edit, save and print files.

ICT skills are required at a number of different levels in any modern organisation. At the most basic level, most jobs today require a basic level of ICT skills. As the vast majority of transactions carried out in the housing industry are done with the help of computer systems, staff in the industry require skills to be able to capture, record and update client and property details on the computer systems in use. Most of the financial transactions – including rent payments, payments for sales instalments are effected electronically through direct bank transfers. Payments to third parties are also managed electronically. In addition, much communication is managed through emails and faxes directly to a computer screen. Staff require the ability to not only access these but to be able to organise and retrieve such correspondence when required.

The level of skills – including ICT skills – has a direct bearing on the productivity of staff. A recent study showed that the number of properties administered by each staff

member in the South African Social Housing sector was about 40% lower than the equivalent in Europe. This can partly be attributed to the availability of appropriate systems as well as the level of skills in the sector.

The various systems available for the ICT sector should be able to integrate with the MS Office Suite – in particular MS Excel. While the study revealed that most staff have some knowledge of Word and Excel, the general skills level was not very in-depth, thus limiting the use to which these tools can be used. With the right training, Excel can become a powerful analytical tool for use in the sector.

Much of the ICT infrastructure management is currently outsourced. However, greater knowledge can enhance management's ability to manage the outsource service provider. Skills are also empowering – the greater the level of skills available, the more functions of the business that can be handled by a member of staff.

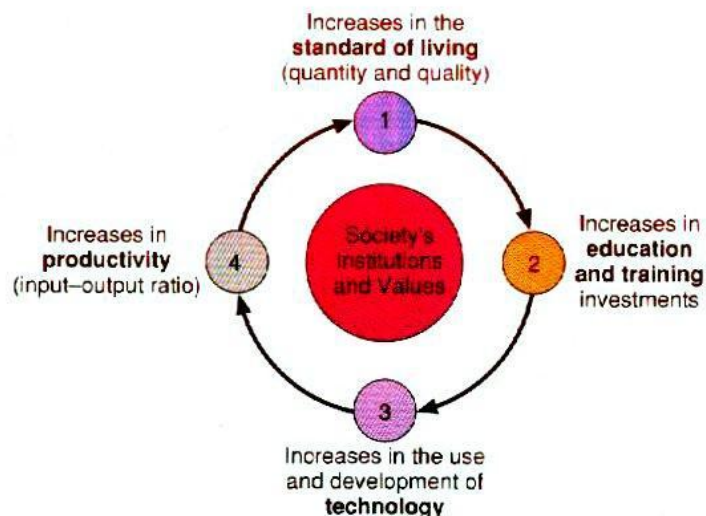


Figure 10 – Interdependence of Skills

(Cook, Hunsaker & Coffey, 1997)

The diagram illustrates the effect of greater levels of skills on a broader level. User interfaces should ideally incorporate a just-in-time knowledge approach where contextual help is available on demand rather than being included well in advance of it being required, used seldom, and often forgotten. User friendliness – while highly subjective – is part of the evaluation of any system and will be examined in light of the above.

The level of ICT skills is closely related to the usage made of ICT tools. The current level of tools usage is limited in some cases. In those SHIs where property management systems are in place, the skills levels are at a more acceptable level.

The vendors of the packages evaluated provide system training as part of their implementation plan. Some of these provide the training on a need basis – training on certain aspects of the system is provided when the client actually begins to use the system. This is the ideal method of training as the trainee is able to practice the required skills immediately rather than after a delay of days, weeks or even months.

The effectiveness of vendor training will be enhanced by a general improvement in overall ICT Skills. The two main levels required initially are:

- Basic computer literacy, which includes –
  - Computer fundamentals – finding one’s way around the operating system, familiarity with the various programs available
  - Keyboard and mouse skills
  - Use of a browser
  - Use of Email
  - Directories – accessing, creating
  - Finding, editing, saving and printing files
- MS Office
  - Excel
  - Word

These are the more fundamental ICT skills that should be available to all staff working in the sector. The next level of ICT skills is that required for providing ICT facilities. While much of this is currently outsourced, there is an argument to have a certain amount of these skills available ‘in-house’. It would then become possible to provide basic network and connectivity support, arranging for back-ups of systems and work-stations and to help ensure that the system is available as often as possible.

The diagram below illustrates the levels of competence that are achieved with increasing levels of skills and education.



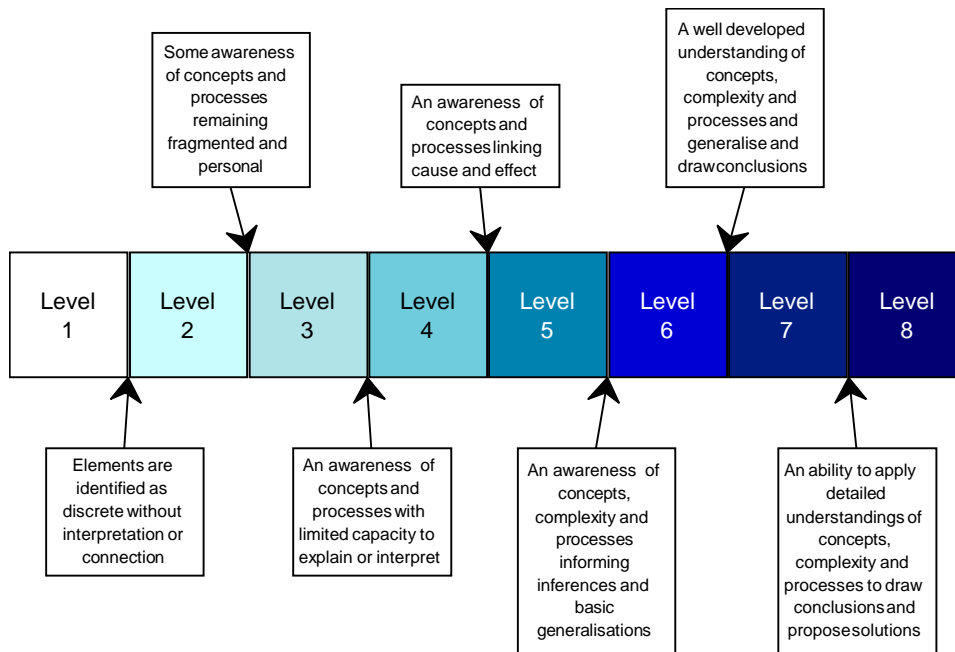


Figure 11 – Levels of Competence

(Adapted from Curriculum Framework Progress Maps)

Many commercial training organisations are available to provide training on computer literacy and on MS Office. In addition, Services Seta has made courses available for the property management sector as well as for ICT skills development. This should be the first step in the development of skills.

One common and increasingly popular way in which skills can be accessed is through business process outsourcing. When coupled with explicit skills transfer this is a powerful and low risk method of guaranteeing skills and service delivery, while also building competency into the organisation (e.g. the SPSH.) See Business Process Outsourcing on page 106 in more detail.

## 4. - Generic Systems Specification

### 4.1 - Background

ICT systems are important enablers in any business initiative – but their initial acquisition, customisation and implementation, as well as their ongoing utilisation, maintenance, development and enhancement is by no means a risk-free venture.

The first step in any systems specification process is to document the conceptual or logical requirements of the business free from any technology considerations. This is then followed by generic technology evaluation criteria, still largely at a conceptual level.

These generic – as opposed to specific - requirements are documented below, and express a minimum critical specification for a system to be used at a Social Housing Institution to manage its operations effectively. This is the final part of the business architecture as described above, and is illustrated in the functional map below.

## **4.2 - Generic Business Requirements**

The generic requirements include space management, lease management and an accounting process. On an operational level, it maximises return, where minimum cost and risk are the cornerstones of any investment in real estate. It is necessary for a proven computerised system and management process that ensures high quality control with continuous improvement and innovation. On a strategic level, key performance indicators and investment indicators are required. The system must incorporate the following:

- e-commerce and other features to take full advantage of the internet and cellular network technology
- features such as electronic collection of rental through debit orders
- tenant receipts from electronic bank statements
- full email capability
- electronic funds transfer (EFT)
- retrieval of utilities electronically from third party meter reading companies
- email of orders to suppliers and statements to tenants
- short messaging through cellular network
- professional and readable output forms and reports

The system must provide quick and easy access to the following:

### **Housing Institution**

- Legal entity details
- Banking details
- Contact details
- Domicilium

### **Properties**

- Identification (erf no, physical address, size, location etc.)
- Classification (retail, residential)
- Construction areas and rentable units/areas
- Accounting requirements
- Metered services
- Town planning and zoning details
- Title deeds
- Leases details such as
- Commencement and expiry dates
- Rental amounts
- Escalation rates
- Renewal conditions
- Limitation on number of residents
- Details of parking and storage facilities
- Mortgage details and terms
- Development information such as
  - Land value
  - Details of purchase agreement
  - Sellers details
  - Date of transaction

- Transferring attorney details
  - Date of transfer
  - Cost of improvements
  - Details of plans including planning permission
  - Development programme
  - Source of bridging funding and terms
- Contractor(s)

### **Tenants**

- Identification
- Contact details
- Occupation
- Banking details
- Document control
- Deposit control
- Subsidy information
- Credit record
- General notes and reminders
- Lease agreement details (renewal termination dates, options etc.)

### **Suppliers**

- Identification
- Classification (service provided)
- Contact details
- Vat numbers
- Payment arrangements
- Contractual particulars

## 4.3 - Functional Requirements

Software development is a dynamic process and is characterised by change. Software projects often begin with unclear, ambiguous, and incomplete requirements which give rise to intrinsic volatility. Constant change in requirements is one of the main causes of software defects and a major issue faced by the software industry, but this is unavoidable in any evolving environment. (Association for Computing Machinery, 2004)

An outline of the key functional requirements is represented in the following diagram with colours indicating functional groups.

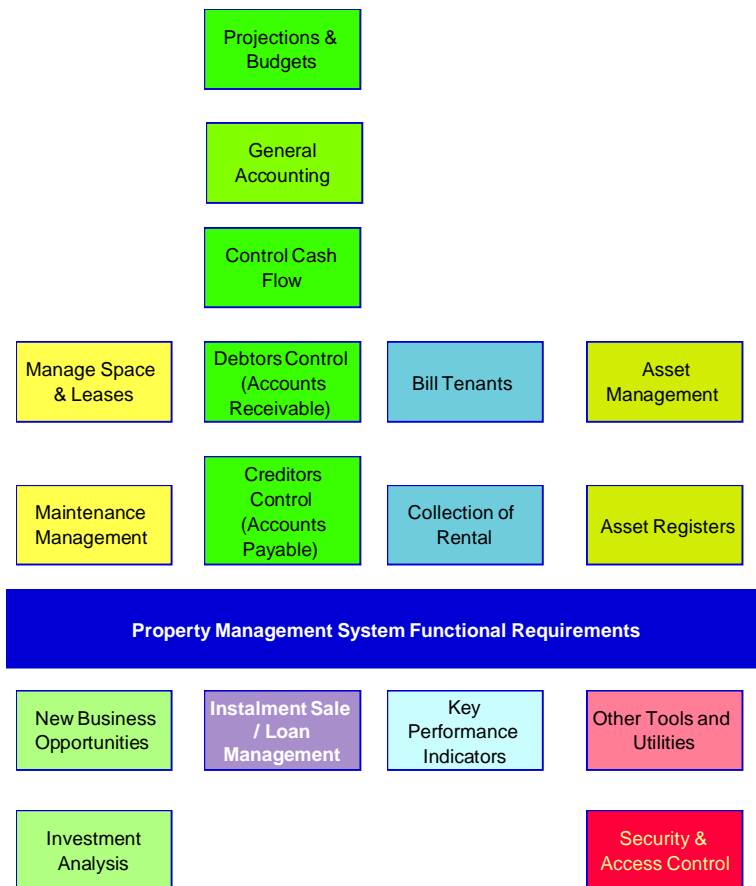


Figure 12 – Functional Requirements Overview

The system must be designed around the general business process of a Social Housing Institution.

1. On a day to day operational level to:

- a. Bill tenants
  - b. Collect money
  - c. Process payments
  - d. Control cash-flow
  - e. Manage maintenance
  - f. Administer leases
  - g. Liaise with tenants
  - h. Produce general ledger and cashbook
2. On a strategic level to provide:
- a. Key performance indicators
  - b. Projections and budgets
  - c. Investment analysis
  - d. New business opportunities

See Appendix C - Functional Requirements of a Generic Specification on page 142 for more detail.

## 5. - Technology Requirements

Like their general business maturity levels, the broad systems requirements for the various SHIs are extremely diverse. Some SHIs are staffed by computer-literate users managing high volumes of properties, with dedicated ICT support staff, while others are low intensity operations with a handful of employees who have limited formal computer skills at their disposal.

The small SHIs are currently managing their portfolios without the assistance of sophisticated ICT skills, but their capacity and growth prospects are limited by the lack of adequate systems. In addition, their inability to produce information on demand may become a compliance obstacle for accreditation and a practical obstacle for sustained funding as the sector matures. In view of the diversity of the SHIs and the lack of ICT sophistication of many, any system introduced to benefit the entire sector should be easy of use with an intuitive user interface.

The systems should preferably be web-based so as to minimise the hardware and network infrastructure requirements of at least the smaller SHIs – but this in no way

excludes the larger SHIs who will play a leading role in stretching the systems to meet their needs, and thereby continuing to bring along the smaller SHIs...

An added benefit of a centralised web based system is to enable even the smallest SHI to access sophisticated and functionally rich systems, growing their own skills along with their businesses to take advantage of more functionality as they require it. A simple interface to a system that allows for the capture and maintenance of property, rental, tenant, purchaser and accounting information is required by most with no requirement for an ICT infrastructure by the individual SHIs. The ICT system could be hosted and supported centrally for the entire sector.

The system should be intuitive and easy to use. A web-based system hosted and supported centrally is the preferred option as this requires minimal ICT infrastructure and network maintenance for the individual SHIs. The dependence on specialised skills is also dramatically reduced – local support to ensure baseline functionality and connectivity (browser access to the web) is all that is required.

Ideally, the system should be rule driven so that each SHI can set up its own unique business rules to run the system. In addition the ability to start small and embrace functionality as required, as well as adding layers of users as roles within the SHI become more clearly differentiated, would be very valuable. Some of the more common software evaluation factors (other than functionality) are outlined below:

**Table 2 – Common Software Evaluation Factors**

Factor	Typical Questions
<b>Compatibility</b>	<ul style="list-style-type: none"> <li>• Is it compatible with existing hardware and software?</li> <li>• Is it compatible with hardware and software provided by competing suppliers or is it proprietary?</li> </ul>
<b>Connectivity</b>	<ul style="list-style-type: none"> <li>• Is it web-enabled so it can easily access the Internet, intranets and extranets on its own, or by working with other web browsers or other network software?</li> <li>• Can it be easily connected to wide area and local area networks that use different types of network technologies and bandwidth alternatives?</li> </ul>
<b>Cost</b>	<ul style="list-style-type: none"> <li>• What is its lease or purchase price?</li> <li>• What will be its cost of operations and maintenance?</li> <li>• What are the secondary (indirect) costs?</li> <li>• What is the TCO (total cost of ownership)?</li> </ul>
<b>Documentation</b>	<ul style="list-style-type: none"> <li>• Is the software well documented?</li> <li>• Does it include help screens and helpful software agents?</li> </ul>
<b>Efficiency</b>	<ul style="list-style-type: none"> <li>• Is the software a well developed system of program code that does not use much CPU time, memory capacity or disk space?</li> <li>• Does the software automate repetitive tasks and assist the business in achieving its unique efficiency goals?</li> </ul>
<b>Ergonomics</b>	<ul style="list-style-type: none"> <li>• Has it been “human factor engineered” with the user in mind?</li> <li>• Is it user friendly, designed to be safe, comfortable and easy to use?</li> </ul>
<b>Flexibility</b>	<ul style="list-style-type: none"> <li>• Can it handle existing business processes easily, without major modification?</li> </ul>
<b>Hardware</b>	<ul style="list-style-type: none"> <li>• Does existing hardware have the features required to best use this software?</li> </ul>
<b>Maintenance</b>	<ul style="list-style-type: none"> <li>• Will new features and bug fixes be easily implemented?</li> <li>• Who will do this and what skills are required?</li> </ul>
<b>Performance</b>	<ul style="list-style-type: none"> <li>• What is its speed, capacity and throughput?</li> </ul>
<b>Quality</b>	<ul style="list-style-type: none"> <li>• Is it bug free, or does it have many errors in its program</li> </ul>



	<p>code?</p> <ul style="list-style-type: none"> <li>• What testing methodology was used, and does this remain in place as the product matures?</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• What are the risks of malfunction and its maintenance requirements?</li> <li>• What are the error control and diagnostic features?</li> <li>• Does it support roll-back and recovery features, and at what level?</li> </ul>
<b>Scalability</b>	<ul style="list-style-type: none"> <li>• Can it handle the processing demands of a wide range of end users, transactions, queries and other information processing requirements?</li> <li>• What are the bottlenecks in the growth of users, transaction volumes, properties, units, clients, leases etc?</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>• Does it provide control procedures for errors, malfunctions, and improper use?</li> </ul>
<b>Support</b>	<ul style="list-style-type: none"> <li>• Are the services required to support and maintain it available?</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li>• In what year of its product life-cycle is it?</li> <li>• Does it use a new untested technology?</li> <li>• Does it run the risk of obsolescence?</li> </ul>

(Adapted from O'Brien & Marakas, 2001)

## 6. - Discussion of ICT Options

### 6.1 - Overview of Options (Rationale)

The options available to the sector have been reviewed in the light of the needs of the SHIs and the sector as a whole, the National Housing Strategy and requirements of the SHF, SPSH and the Department of Housing.

The National Housing Strategy is far reaching. The seven key strategies (as listed in *Table 6 – Summary of Policy Initiatives* on page 137) require access to full information about the entire housing sector in South Africa. The Social Housing sector can be expected to play an increasing role within that sector, and accurate information is crucial to the achievement of the National Housing Strategy.

The Department of Housing's own strategic objectives include the provision of full and accurate information, formulation and review of policy based on analysis of the sector using full information. That information can only be provided if information is available to the department from all parts of the sector.

The ICT options available to the sector have therefore been reviewed not only in terms of their ability to assist the SHIs to improve capacity and efficiency but also in their ability to provide information to the Social Housing Foundation, the SPSH and the Department of Housing. The systems must therefore be 'open' or accessible (though secure) to appropriate bodies. The provision of management information that can be accessed to provide full information to the national bodies is therefore an important aspect of any systems that are available.

Costs are always an integral part of any assessment. Related to this, affordability is another key consideration. Systems that may not be accessible in terms of cost to many of the organisations may become an option if made available on a wider basis, through a centralised hub.

Usability and intuitive interfaces are considered as important components of any system, especially where availability of funds for training are not readily available and where it may be important to be able to replace personnel or introduce new staff as the SHIs grow without having a major impact on process.

## 6.2 - Build or Buy?

Software projects have a frighteningly poor success rate. This is not only limited to primary software development efforts, but also includes countless failed COTS (commercial off the shelf software) package implementations. Building software from scratch, assembling software from components, or even customising a package is therefore not something to be undertaken lightly. While initial capital costs may be reduced, and ongoing licensing costs largely avoided in a *build* project, these need to be evaluated against the costs associated with all stages of the development lifecycle including numerous iterations of analysis, design, project management, project team involvement, development, review, testing, implementation – each stage having its own unique risks.

To counter this - and this is particularly relevant in South Africa - these licensing and maintenance costs are often priced in US dollars and therefore expose the organisation to currency fluctuations which could be dramatic. While exposure to this risk can be managed, it adds an overhead to the costs and cannot practically be ignored nor eliminated entirely. Another possible argument against packages is the issue of ownership – not so much ownership in the sense of an asset but rather in the sense of control and prioritisation. This is a harder one to counter when the requirements are uncertain or likely to change, as is the case in the Social Housing sector. If the agile approaches discussed above are adopted - specifically where requirements are kept to a minimum - then this has a far greater chance of success. It does however require sustained access to appropriate skills which cannot be taken for granted anywhere, perhaps especially in South Africa where the skills pool is small and mobile.

A further argument is that a COTS solutions work against innovation by imposing common practices and processes on all parties – but in a sector which would benefit from best practice this is not an issue. In fact, the imposition of best practice is a positive factor – especially where the expertise required to innovate (or even to specify the functional requirements in any depth) is not widely available.

The debate over build vs. buy is not always so clear-cut though. Software package implementations – especially of the larger ERP type systems – often involves large scale customisation and extension, and this has all of the same challenges of bespoke development, albeit in a narrower frame since many of the foundation pieces can be implemented in their native form without modification. A more troubling concern is that agility is often compromised along with this extension and customisation. Add to this the very real risk of further releases to the packages being incompatible with some of the modifications and the balance may swing away from packages.

Finally, the risk of vendor lock-in is something that needs to be carefully guarded against and well understood since it may well be unavoidable.

While build options or variants thereof may be an option, the emphasis of the research has largely been on examining and reviewing existing systems.

## 6.3 - Vendor Selection

While the emphasis on product evaluation usually centres on functionality, and occasionally stops there, it is also critical to evaluate the vendor. The following table highlights some of the essential vendor characteristics:

**Table 3 – Essential Vendor Characteristics**

Vendor characteristic	Why it's important	What to look for
<b>Single version of the product</b>	<ul style="list-style-type: none"> <li>When a software supplier maintains multiple versions of a product — possibly for different technical environments or unrelated industries — their R&amp;D investment must be spread across those products and industries, reducing the number of new capabilities they can afford to develop for each one.</li> </ul>	<ul style="list-style-type: none"> <li>A single product suite and a single product direction that supports all customers</li> <li>A focus on a closely related set of industries with common needs</li> </ul>
<b>Track record of product improvement</b>	<ul style="list-style-type: none"> <li>Your business needs will always be evolving and you want your business system to evolve with them.</li> <li>One of the biggest advantages of using a software package is to get improvements at nominal additional cost over time</li> </ul>	<ul style="list-style-type: none"> <li>A history of steady product releases with valuable enhancements.</li> </ul>

<b>Active user community</b>	<ul style="list-style-type: none"> <li>When other companies with similar needs to yours are using the software and providing input to its direction, it is more likely that it will continue to evolve to meet your needs</li> </ul>	<ul style="list-style-type: none"> <li>Indications that they encourage customer requests for enhancements as an important driver of product improvement.</li> </ul> <p>Periodic customer events where various companies share their experiences using the software with each other</p>
<b>Structured approach to implementation and support</b>	<ul style="list-style-type: none"> <li>Implementation of a new business system is a major project with a significant impact on the company - you want to know that the risk and effort will be minimized</li> </ul>	<ul style="list-style-type: none"> <li>A clear implementation methodology with supporting people and tools.</li> <li>Indications from references that they were happy with their project and the results.</li> <li>A full range of support including: implementation consulting, Helpline, on-line self-service support, etc.</li> </ul>

(Table adapted from Software Evaluation Guide)

Evaluation of the vendors included a process of assessing their stability. This was determined by assessing performance within the market place and whether they were considered viable based on their financial and competitive positioning. Market performance was considered by assessing the degree to which the vendor has successfully penetrated and won a share within target market segments.

A final consideration was the vendors acceptance within the industry, whether industry and technology specialists have endorsed and favourably recognised the prospects of the vendor's product offering, market position and competitive strategies

– as well as the value they are perceived to add in terms of business knowledge and experience.

### 6.3.1 - Vendor Lock

The software market is driven by differentiation, not standardisation, and it is often innovative (i.e., non-standard) features that secure software sales. (Software Engineering Institute, Commercial-Off-The-Shelf Software).

The temptation to take full advantage of unique product features is understandable, especially in high-end, expensive products. Using vendor-specific features can provide enhanced system capabilities, but on the other hand the sustainability of the system is then dependent upon a single supplier. There is a complementary temptation to insulate systems from specific products, usually as a hedge against market dynamism. For example, if a vendor goes out of business a new product can be inserted in place of the old, and clients will not be affected. Insulating products provides stability, but an abstract interface that can be mapped to competing products forces the system to rely on the common subset of features found in products.

Although there is no universal answer to this very real trade-off, it is important that any decision is made in full recognition of the conditions in which unanticipated and *de facto vendor lock* can arise. One simple technique is to ensure that every product used in a system has a viable competitor that is commercially available. If competitors exist, then a separate design decision about whether or not to insulate the design from the product (through abstract interfaces, for example) can be made.

If there are no viable competitors, however, no amount of insulation can hide the reality of vendor lock. Note that “standards” are not guarantees; in some cases vendors extend standards (SQL is a classic example), while in other cases too few products may implement a standard to prevent *de facto lock-in*. Another technique for the designer to avoid vendor lock is to allow the use of product-specific features, but only for non-critical or discretionary parts of a system capabilities that can be sacrificed. This can be a good compromise, but it does introduce a very slippery slope. While vendor dependence is inevitable and unavoidable, especially in the

early stages of a project and an industry, care must be exercised to avoid overdependence – but this is a thin line and difficult to see clearly except perhaps in hindsight.

## **6.4 - Commercial Off the Shelf (COTS) Software**

A high-level checklist has been drawn up to enable data collection and easier comparison of different products. This is specifically not a weighting and scoring model – the reasons for this approach and the actual evaluation model is presented in section 7 on page 63. The evaluation sheets have been included in Appendix D - COTS Software Evaluation Forms on page 151.

The major advantages of purchasing a commercial off-the-shelf software package lie in the belief that:

- The cost of software development has been borne by many
- Bugs have been detected and fixed
- There is a large saving in time and effort as against custom development
- Many clients have contributed to an increased level of functionality

In many cases these prove to be true. A ready-made package that suits the organisation's needs with little customisation can usually be delivered much faster than a design and build equivalent. And of course, the cost of development can be recovered from many purchasers. Some software companies pride themselves on their responsiveness to the user groups and add a range of functionality suggested by clients. Extensive testing and wide usage have helped eliminate the bugs. But the truth of these varies from one package to another. It must be borne in mind that in some cases the costs of purchasing and implementing a software package can far exceed the costs of custom development. This can occur especially where the package does not meet all of the requirements of the client and large amounts of customisation have to take place. Experiences of major implementations of ERP and other systems where customisation has run into many years abound. In the case of new packages, the risk of bugs is as much evident as in a custom development. The

risks involved in the purchase of a software package should not be underestimated, and a number of questions should be asked throughout the evaluation process:

- Does the package meet the needs of the organisation?
- Can the system be used off-the-shelf or will a large amount of customisation be required?
- Does the product fit with local conditions?
- Does the vendor have a strong enough local presence to offer meaningful long-term support?
- Is the technology base sound?
- Is the system scalable?
- What are the long term costs of ownership, and the cost of growth?
- Can the organisation customise the product itself?

Often, the purchase of a software package involves locking-in to the vendor that has supplied the package. Enhancements and customisation may only be executed by the supplier. In these cases, long term costs can far exceed those associated with providing in-house support for a custom designed system. Although there are risks associated with the purchase of a product, these can be minimised by adopting certain strategies:

- Customisation must be limited to the bare essentials
- A large part of the customisation can be carried out in-house (e.g. in a rules based system)
- The vendor has a good track record and the chances of the vendor disappearing are minimal
- Check that the system is scalable, the costs of growth and renewed licence fees
- The technology basis is current and affordable
- Wherever possible, select a platform independent option



A quality software package may indeed prove to be a time and cost saver, at least in the relatively short term. A well selected package can also score against custom development especially where there is no in-house expertise in the field. The risks associated with purchasing a package can be minimised through the use of a rigorous selection methodology.

## **6.4.1 - Nicor**

### **6.4.1.1 - System Usage at SHIs**

The Nicor system is in use at a number of the SHIs either in-house or hosted. One site is the Johannesburg Housing Company (JHC) where Nicor was implemented about three years ago. JHC are running the system in-house through an outsource company – PCB Technologies. Semag have approximately five staff members and a fairly substantial property portfolio. Nicor manage all of Semag's administration as well as remotely hosting the system. The JHB Trust for the Homeless is another user of Nicor system using JHC's facilities. First Metro in Durban is another user of the system. The other SHIs using the system at present all use the system on a bureau basis.

Two main modules are used – the property management module 'PropPro' and the financial management module 'FinPro'. Although the FinPro module can be run alone, it is required for the PropPro module which does not integrate to other accounting packages. Semag only have access to enquiry facilities from the system. They have applied for ADSL to attain faster access to the remotely hosted Nicor system. The new manager of this SHI had been awaiting access to the system for two months. The manager and staff were not unhappy with the system, but were concerned at the level of training and support. They expressed the view that they had little idea of what information they could access from the system.

JHC has a relatively large and stable staff, who are at ease with the property management side of the system. They are able to use this effectively, and are happy with the facilities offered by the system. However, a number of shortfalls were identified – rent increases must be applied to each building separately although JHC apply all rent increases simultaneously across the board. JHC's financial manager

found the financial side of the system to be extremely difficult to use and to set up. She stated that it works in reverse to all other accounting packages, and took many months for her to manage to use the system as required for the business. The budgeting tool was also found to be very difficult to use, and the company resorted to using Excel to budget.

JHC's view was that while the system is able to handle rentals fairly efficiently, comments included strong criticism of the financial module. The system does not have an 'intuitive' user interface, has a 'legacy system' feel, requires fairly extensive training and does not include any facilities management. Excel is used to manage building maintenance. Much training is required to enable effective use of the system. Another major criticism is that information other than on standard reports is not accessible. The database design is based on old design methodology where both files and fields are given codes rather than meaningful names.

On the positive side, Nicor have been sensitive to the needs of the Social Housing sector – in particular JHC – and have implemented a number of enhancements to accommodate the sector. One such enhancement was the addition of instalment sale functionality. This functionality has been limited to the calculation of interest on monthly balance and the use of a captured rather than system calculated.

The system is not web-enabled but can be accessed remotely through cable network or MS Terminal Services through the Internet. The main focus of the system is on the commercial rental business, but Nicor has introduced customised changes to accommodate the Social Housing sector.

#### **6.4.1.2 - System Architecture**

The Nicor system is a client-server application built on a Progress database using the Progress tools. The system will run on all platforms except for Novell. The system is not web-enabled, but a dot net version is in the pipeline. Web access can be achieved using MS Terminal Services. Networking has traditionally been through diginet lines or call-back. Nicor are now making a network service available using ADSL. Nicor offer a selection of implementation options – in-house where there is sufficient infrastructure and support, hosted by Nicor or hosted with full administration of the portfolio.

### 6.4.1.3 - Background

The Nicor system was first implemented by JH Isaacs in 1977 as their in-house property management system. The system was later outsourced, further developed and made available to the real-estate property management sector. A number of enhancements have been made to the system specifically for the Social Housing sector.

### 6.4.1.4 - Functionality

The Nicor system covers most aspects of property management, especially for rental business.

The functionality of the PropPro system includes:

- Payment of commissions
- Electronic receipting of tenant payments from multiple bank accounts directly from bank statement downloads
- Automatic generation of recurring charges
- Apportioning of bulk charges to tenants
- Automatic generation of tenant invoices, rent-rolls and so on
- Portfolio management enquiries
- Credit control
- Electronic meter reading capture
- Integration with financial suite FinPro
- Integration with Word & Excel
- Loan / Instalment sale system

The FinPro financial suite includes:

- General Ledger
- Cash Book
- Creditors
- Direct Cheques
- Report Writer
- Budgets

- Inter-company Loan Accounts
- Group Consolidations

A wide range of standard reports are available within the Nicor system. Most of these have extensive drill-down facilities. A facilities management module is currently under development. Additional modules that are available include Call Centre, Data Warehouse and Fixed Assets.

#### **6.4.1.5 - Pricing**

It must be stressed that these prices be used as a guideline only. Nicor own the software and are therefore able to negotiate much more favourable terms for the Social Housing sector. The system is available as an 'Outright Purchase' where the client purchases the right to use the software and hosts the system in-house. This involves a capital outlay and an annual renewal fee.

The bureau option involves a monthly fee. The software is hosted on Nicor premises. Nicor take responsibility for the database and system administration as well as data back-ups. Pricing is per module per concurrent user. There is a reduction in the price where there are a greater number of users.

The cost for 5 users on the purchase model is R 137,825.

The renewal licence includes all upgrade is calculated at 17% p.a. on the initial licence fee escalating at 10%. The first year renewal is R 23,666

The bureau option involves an upfront payment for the Progress database of R 8 625 Thereafter a monthly fee of R 7 625 per 5 concurrent users. The Progress licence fee is renewable at 18% of the initial cost. Nicor are able to negotiate discounts on the Progress licence fee for start-up SHIs.

#### **6.4.1.6 - Conclusions**

The Nicor system currently supplies a large portion of the Social Housing sector with a property management system. One of these runs the system in-house, the others use a bureau service. While the system does have some current limitations, there is a strong argument to retain the system for those that are using the system and to avoid the transfer costs learning curve associated with the implementation of a new system. Nicor are prepared to discount the software for the sector.

The main limitations of the system can be summarised as:

- the absence of facilities management
- the system is not web-enabled
- “legacy system feel”
- Difficult to use accounting system
- Access to information outside of standard reports
- No access to source code to make modifications

In favour of the system are:

- Open platform
- Integration with MS Office
- Integration with meter reading
- Local support base
- Flexible pricing for SHIs
- Functionality of overall system works
- Ability to run as bureau
- Ability of vendor to do all administration

Nicor have a fairly substantial support base of about 15 developers and an equal number of consultants. Nicor have developed a number of enhancements to their system to accommodate their clients in the Social Housing sector. The pricing structure of Nicor is user and module based.

## **6.4.2 - JD Edwards**

### **6.4.2.1 - Existing SHIs**

The JD Edwards package is in use by Cape Town Housing Company (CTCH) as a hosted service on a three year contract, expiring in June 2005. The functionality of the system meets the requirements of CTCH. A new module to handle the instalment sales has just been added to the system – this represents all of the business processes carried out by CTCH. CTCH found the process of adding enhancements to the system very lengthy. CTCH are currently reviewing other systems – mainly with a view to saving on cost.

The system has been looked at by other SHIs but has not been implemented. The main reason for this is the cost associated with individual ownership. While the cost of providing the system for individual SHIs remains prohibitive, the use of this system on a shared basis remains a viable possibility.

### **6.4.2.2 - Background**

The JD Edwards Financial and Real Estate system is owned by PeopleSoft and supported by Deloitte. As such, a substantial support base is available. The JD Edwards system is an Enterprise Resource Planning (ERP) system. It is a fully fledged financial system and other industry-specific modules have been added around it. One of these is the real-estate module which provides a fully comprehensive property management system. Other modules available include Project Management and call-centre software. Being a full ERP system, JD Edwards features strong financial management and a rule based system allowing for great flexibility. The real-estate module is fully compliant with the South African legislative environment, can handle property development, project management, maintenance scheduling and creates job cards.

### 6.4.2.3 - Architecture

JD Edwards is an open, platform independent web-based system. It can be run in-house or over the Internet. The system is predominantly rules based. Individual screens can be set-up to show information required in the sequence needed.

The system is structured to manage multiple companies and multiple entities from within a single installation. Each can have its own configuration through the rules base. Implementation is limited to the server – there is no need to install the software on individual work-stations.

The system is fully web-based. It can be run in-house at a client, or may be hosted by a client or by Deloitte. A number of databases are suitable for JDE – including SQL Server, DB2 or Oracle and the system is platform independent. Implementation is recommended on a stepped basis, especially for the smaller less sophisticated SHIs. Additional functionality may be added as the SHI grows and becomes familiar with using the application.

### 6.4.2.4 - Functionality

The system includes the automatic creation of invoicing, bank links and reconciliations, and has an accessible database that can be queried at various levels. Much of the system is rules based, and rules can be set up for each individual entity. The JDE system is able to calculate instalments for instalment sales, and is able to calculate interest on a daily, weekly, monthly or annual basis as required. It is able to apply global rent increases as well as per unit or per building.

Functionality includes:

- Lease maintenance
- Rent capture from lease
- Automatic invoicing
- Rent increases may be captured for entire company
- Other charges on invoice (meters, etc.)
- Property maintenance – repairs
- Property maintenance – routine

- Project management
- Workflow
- CRM
- Document Management
- Instalment sales functionality (limited)
- Rules-based customisation

#### **6.4.2.5 - Pricing**

Pricing is based on the revenue of the company purchasing the software. As an indication of cost, a revenue basis of R500 million would cost in the region of R1m to R1.3 m for implementation of the full set of functionality including the workflow and project management modules, and the cost of implementation and training. Rental pricing is based on number of users, choice of hosting, and modules selected.

#### **6.4.2.6 - Conclusions**

The JD Edwards system is a strong contender for the Social Housing. Some of the advantages of the system for current and future use are:

- Platform independence
- Web-based
- No installation on individual workstations
- Comprehensive nature of system
- Can manage multiple entities at several levels
- Templates and views are easily customisable
- Can be centrally hosted but retain full security for each SHI
- Depth of local support
- An unlimited number of users may use the system if bought centrally



## **6.4.3 - MDA**

### **6.4.3.1 - Architecture**

The MDA system is built on an MS SQL Server database. Most installations use the free MDSE version of the database. The system is written in Visual Basic. Reporting uses Crystal Reports. The Data Model was originally developed using Erwin. The system employs FailSafe to manage the detection and correction of bugs and errors in the system. MDA recommend a minimum of a Zeon or Dual Processors processor, 1Gb+ Ram running Windows 2003 Server for the Server for more than 10 users. Workstations should be P3 500 MHz+, 256 Mb+ Ram running Windows XP or 2000. The system is not web-based but can be accessed over the Internet using MS Terminal Services.

### **6.4.3.2 - Functionality**

The MDA system is a comprehensive property management system for commercial property rentals. It has full integrated accounting functions. It has all of the requirements for property rentals including full maintenance and facilities management, automating bank reconciliation, debit order and electronic receipting, automatic invoicing lease and tenant maintenance. The system is marketed as an off-the-shelf package and features over 60 pre-defined reports. The system is widely in use (at about 100 sites) for commercial property and is able to handle a combination of commercial and residential property rentals.

The system does not currently deal with sales or sales by instalment, though sales and purchases can be shown through the accounting system. The system includes full maintenance and facilities management functionality. The system does not include project management. The system features a KPI system for evaluating the level of service provided by contractors and other service providers. The system integrates with MS Office and all reports may be exported into Excel. Work is used as a mail-merge facility with the system. The system is able to dispatch mail using email, fax or paper.

### 6.4.3.3 - Pricing

Costing structure is based on the number of users. It consists of an initial licensing fee renewable annually. A 20% discount has been offered to Social Housing organisations wishing to make use of the system.

The cost of the system is as follows:

- Single User            R 49,500
- 5 User                    R104,000
- 10 User                 R170,500
- 20 User                 R302,500

Renewal licence fees are 18% of the non-discounted initial licence fee, escalating at the higher of 9% and CPI per annum. If the full MS SQL Server is required (more than 3 GB of data) then additional licence fees apply. Hourly rates for consulting services range from R445 to R695.

## 6.4.4 - Novtel

### 6.4.4.1 - Architecture

The Novtel system is built in Visual Basic on an Access data base. It is designed to be run on a single work-station, but can be accessed remotely by other networked users using MS Terminal Services. The system is not web-based, but web access is achievable using MS Terminal Services. The system has been adapted from a car rental system. The system is integrated with Pastel accounting.

### 6.4.4.2 - Background and Functionality

Two SHIs (Middleburg and Secunda) are due to implement the Novtel system shortly. The Novtel system is a fairly comprehensive property rental system. The user interface is a 'grid' showing property units on rows and a calendar date for each column. The system is able to issue invoices and other reporting monthly, but these must be initiated for each rental unit by the user.

The user may set up his own invoice design. There is currently no facility for instalment sales or for linking to meter reading companies. The system does have the ability to schedule regular maintenance tasks as well as ad-hoc maintenance and will create the appropriate job cards. A variety of pre-defined reports are available from the system, but there is no facility for user defined reporting. Because of the Pastel Accounting integration, the system includes the full functionality that comes with Pastel.

#### **6.4.4.3 - Pricing**

The costing structure is based on a once of payment for the installation and for Pastel accounting, and a monthly payment to cover maintenance, enhancements and licencing costs. The cost structure makes the product suitable for small organisations that do not currently have access to a property management system.

These is an initial outlay of R2 589 and a monthly fee of R299 plus a registration fee of R6 000 per workstation for Pastel. Additional costs (MS Terminal Service and MS Small Business Server) amount to over R40 000 as minimum set-up costs.

#### **6.4.4.4 - Conclusions**

While the up-front costs are low, the system's limits are a concern. The user interface is a grid of property unit and a calendar. The system has adequate functionality for rentals, but has no capacity to handle sales. The vendor provides the assurance that whatever is required by the user will be built in at no additional cost. There is no guarantee that these requirements will be incorporated into the system. While the system may be adequate for very small SHIs, it is cumbersome to use and lacks automation of basic steps (e.g. invoices) that are included in other systems and seen as an essential basic feature. It was also felt that the system in its current form – essentially a retasking of a system from another industry - would be of limited value to a broader user base and severely restricted for more demanding situations. In terms of scalability extreme limits are currently in place. The system is run using a

single instance of the program running on a server using an MS Access database accessible through MS Terminal services.

## **6.4.5 - ManageIT**

### **6.4.5.1 - Architecture**

Manage-IT is shipped in three versions:

- Manage-IT Pro – this is a single machine version of the product. Uses an MS Access database
- Manage-IT is a client-server version of the product. Uses an MS Access database
- Manage-IT Enterprise – Uses an MS SQL Server database, but can also use MySQL, and can be used for an unlimited number of units
- The ASP version also uses an MS Access database

### **6.4.5.2 - Functionality**

Manage-IT is a comprehensive off-the-shelf rental and accounting system from the USA. The system is not a web-based system, but there is a hosted ASP service available over the Web, and Terminal Services may be used for remote internet access. Manage-IT incorporates all aspects of property management for rental accommodation. It Includes:

- Automated invoicing
- Credit control
- Management of applications
- Screening
- Property maintenance
- Document management

- Reporting
- CAM (common area management)
- A knowledgebase is included in the Advanced and Enterprise versions
- Letter-Writing software

There is no facility to accommodate sales or sale by instalment – but these can be reflected through the accounting system. The system includes letter-writing software. The system is easy to use with a friendly intuitive interface. The accounting component is a full accounting system. Additional ledgers may be added for additional functionality – e.g. a Loan ledger and instalment sales ledger can be setup to handle instalment sales. The vendor is willing to partner with a South African company to provide support and see to the localisation of the product.

### 6.4.5.3 - Pricing

The cost is very low – and based on the number of users. Apart from the client-server version, Logic-Built also offer a hosted service through the Internet for a monthly fee.

Manage-IT Advanced	\$1 725.00 for first user
	\$ 300.00 additional concurrent users

### 6.4.5.4 - Conclusions

Manage-IT presents a simple easy-to-use system for managing property. Although it lacks specific instalment sale functionality, the accounting functionality is flexible enough to be used for this purpose. In terms of cost, ease of use and training requirements this may present a viable alternative to the large ERP systems on offer.

## 6.4.6 - MIS Active Management Systems

Several attempts were made to establish contact with MIS. At this stage there has been no meaningful contact, and information available is limited to their web-site and

brochure. The MIS Housing Solutions offers a fully comprehensive package for Social Housing focussing mainly on the rental aspect of the business. Missing components are those that handle sales and instalment sales. The system uses an MS SQL database and is sold as an add-on to the MS GreatPlains package. The system uses browser technology and as such is web enabled. Inevitable, some localisation and customisation will be required as well as establishing a business partner to support the product in South Africa. The Housing Solutions include the following modules:

- Rents
- Asset Management
- Repairs
- Lettings
- Contractors
- Planned Maintenance
- CRM
- Services Charges
- Development
- Desktop
- Cash Receipting
- Workflow
- Document Imaging
- Web Portal
- Repairs Diagnostics
- Private Property Management
- Business Object Reporting
- Mobile Working

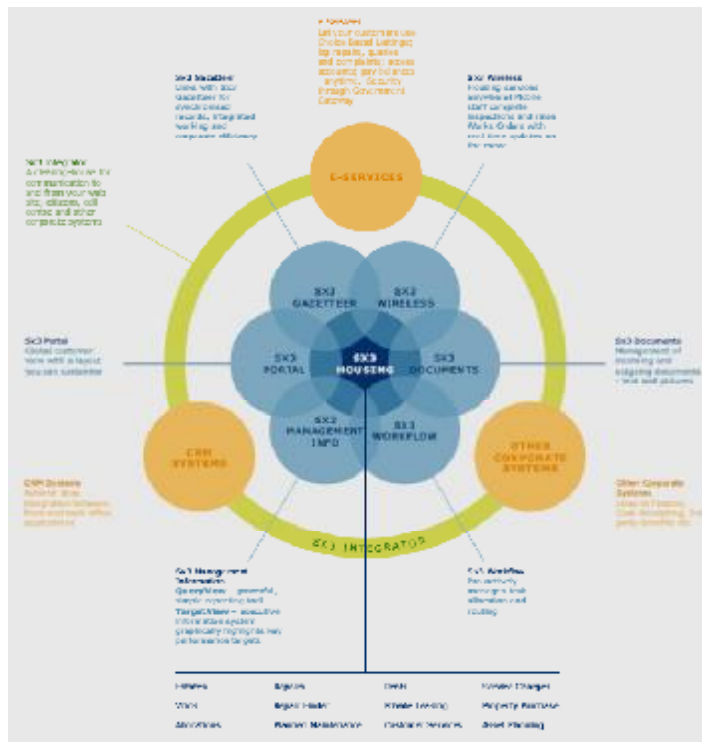
#### **6.4.7 - Sx3**

Although several attempts were made to contact Sx3 representatives, we did not receive any response. For the sake of completeness, Sx3 has been included here briefly. The only information available was the information on their web-site. Sx3 is a leading supplier of Social Housing solutions in the UK, and has a presence in

Australia and Canada. The software is comprehensive, but does not handle sales or instalment sales. A degree of localisation would be required.

The Sx3 system's functionality includes:

- Allocations & Homelessness
- Asset Planning
- Choice-Based Lettings
- Customer Services
- Rents & Arrears
- Service Charges
- Estates & Voids
- Property Purchase
- Repairs
- Repair Finder
- Planned Maintenance
- Private Leasing
- System Control
- Business Accelerators



(Sx3 Architecture)

Figure 13 – Sx3 Architecture

## **6.4.8 - IFCA Property Plus**

### **6.4.8.1 - Architecture**

The IFCA PropertyPlus system is a modular but fully integrated system built on an MS SQL Server data base using Power Builder. The suite is a client-server application and is not web-enabled although the MS SQL data-base is suited to web applications. One of the modules has recently been released in a web version, and a web version of the main PropertyPlus module is scheduled for release in December 2005. The system must be installed on each workstation with the database on the server. Full details of the implementation procedures – which include a gap analysis and identification of requirements - are available.

### **6.4.8.2 - Background**

The system was originally designed 18 years ago as a property management system. Although based in Malaysia, the system has become well established around the world and is in use at over 1000 sites worldwide. IFCA have introduced their product to the Social Housing sector in Southern Africa in recent years. The system was implemented for Namibia's Social Housing sector in 2003 under the auspices of their National Housing Enterprise. It is also in use for Transnet Housing and the Botswana Housing Corporation. The NHE are primarily using the Loans and Constriction modules, BHC are using the rental component and Transnet are using the system for Property Management (rentals) as well as for their hotels.

### **6.4.8.3 - Functionality**

The IFCA Property Plus package is described by the vendor as “comprehensive and fully integrated business software”. Unlike many of its competitors the software was built for anyone involved in “building, selling or renting” property. The system includes full project management focusing on the financials of the project and the allocation of funds. Details of contractors, sub-contractors, charges, rates and track record are recorded in the system. The suite is designed to handle all aspects of property



management including managing development projects, property sales and rentals. Facilities management is a strength of the system. The system has its own financial module which is a fully functional accounting system. The financial system is fully integrated to the property system, but is optional – the system can be used with other accounting packages through standard interfaces.

The system has full functionality to handle instalment sales. Full mortgage loan facilities have been added to the system as a result of the company's involvement with the NHE. The Property Plus suite comprises the following components:

- Property Sales
- Property Management
- Construction Management
- Customer Relationship Management
- Business Intelligence, and the
- IFCA Financial package

In addition there is a Loans+ module which can be used to administer loans and calculate interest. This would be of use especially for instalment sales. Other aspects of the system are the document management, customer relationship management, workflow and built in Business Intelligence.

#### **6.4.8.4 - Client Feedback**

The General Manager of NHE was very enthusiastic about the system and its suitability for their needs. IFCA South Africa carried out a lot of customisation for the organisation initially, and now the system is running extremely well. Prior to the system implementation in July 2003, NHE was running most things manually and most staff were computer illiterate. However, with training and the right components being installed everything is going extremely well. NHE are focused on the provision of housing through sales. NHE build, sell and finance the provision of housing units. They provide finance to home buyers on a mortgage bond type basis. Much of the loan functionality in the IFCA system is in place as a result of this development.

The CEO of BHC felt that the PropertyPlus module was very good and reliable and could handle the requirements for property rentals and maintenance extremely well.

The BHC business is involved in development of housing, and rentals or deferred sales. They had initial concerns about the local support base for IFCA, but this has been largely resolved with the establishment of IFCA South Africa and the growth of the local support base.

#### **6.4.8.5 - Pricing**

IFCA have quoted the following prices for the system:

15 User System	R 174 000 (allowing a 50% Social Housing discount)
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Implementation:	R 287 000 based on 89 days.
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Annual renewal is quoted at 15% of initial licence fee.

A plan for a 100 User system spread over 7 servers amounts to R 1 234 000

#### **6.4.9 - MRI**

##### **6.4.9.1 - Architecture and Background**

MRI is an ERP system now owned by Intuit. As with other ERP systems, MRI is a rule based system. MRI uses an MS SQL Server as its database. The system can be installed using either SQL Server or MSDE depending on the volume of data. It is available in a Windows Client-Server or web version. MRI is a full ERP system in use in various organisations around the world. It is in use by Old Mutual PLC to manage their property portfolio, as well as Transnet Pension Fund, and other organisations in South Africa. The property management modules are primarily aimed at the administration of rentals. One of MRI's clients was less than enthusiastic about the system, and advised us to get a test version to try out before making any decisions on purchase. He also advised that we would be better off using Acc-Pac than the system's own accounting part.

### 6.4.9.2 - Functionality

Automatic rent invoiced which include any other expenses (e.g. water and lights) can be generated from the system. Much of the system is rules based. Screens and reports can be customised to reflect the company's own look and feel and to produce reports. There are 250 standard reports in the system, but there is also a facility for producing customised reports.

The system does not have a specific project management component, but the task management module may be able to provide for these needs. There is no facility for handling instalment sales but the system can calculate interest and this could conceivably be handled through accounting transactions.

The system does include a full property maintenance component and is able to handle both ad hoc and planned preventative maintenance. Details of contractors, pricing, expected time taken for specific tasks can be captured up-front. The suite includes an asset management component to control the property portfolio and other assets of the company.

- A complete, centralised IT solution for property and asset management
- A comprehensive database ensures real-time access to important leasing and financial information, allowing you to make informed decisions.
- Modular product suite, which includes specialised retail, facilities and asset management modules.
- Complete accounting capabilities including portfolio level and corporate accounting.
- Over 400 standard reports that can be modified to meet unique business needs.

### 6.4.9.3 - Pricing

A quote has apparently been sent but has not been received. An indication of pricing for 20 concurrent users is R 500 000 for the core modules using an MS SQL Server, plus approximately R500 000 for implementation,

#### **6.4.9.4 - Conclusions**

The system does not include functionality for Instalment Sales or project management although it does include most functionality required for the rental business. Interestingly, Intuit advised that they do not use the residential module in South Africa but use the Commercial Property module instead. The system uses MS SQL Server which restricts usage of the system to a Windows environment.

#### **6.4.10 - IBS OpenHousing**

##### **6.4.10.1 - Architecture**

The IBS OpenHousing system is built on a Progress database using the Progress language. The system runs on a Windows or UNIX platform. Web-enabling software is available as an additional module.

##### **6.4.10.2 - Functionality**

IBS provide a comprehensive range of 19 integrated modules. These are available as separate modules. Web-enablement is available for both staff and customers for remote access. Optional modules include Workflow, Call Centre.

A wide range of functionality is available.

- A central database of people and properties is retained in the core database. Information created and modified from any of the modules is saved centrally. Features include search facilities, navigation tools, audit facilities.
- Waiting lists – all aspects of housing allocations
- Rent accounting and arrears monitoring
- Cash receipting
- Factoring of common expenses
- Responsive repairs – caters for the management of day to day requirements including documentation, invoicing,

- Planned Maintenance and Contract management – used for planned and cyclical repairs
- Development – monitor the building and refurbishment schemes.
- Contact management – provides for recording and monitoring of all forms of communications. Provides instant access to the full case history of every communication logged
- Workflow
- Document image processing
- Reporting – a variety of reporting facilities are available including standard reports and letters, audit trails and data extracts. OPENQuery allows for full ad hoc reporting requirements
- OPENFinancials

The system includes a customer contact dashboard which pulls together all information held relating to any person or property. Each section of the screen contains summary information with full drill-down capabilities. The system is web-enabled through the OPENAccess module which allows the full system (or restricted views) to be accessed over the internet from anywhere. Tenants have access to information about their details of applications, tenancies and repair orders.

A right to buy module is available that facilitates tenants ability to purchase properties which they are renting. The system does not currently provide for instalment sales. Other available modules include GIS.

The full list of modules available is as follows:

- Core Person and Property Database
- Rent Accounting & Arrears
- Void Management
- Allocations & Waiting Lists
- Responsive Repairs
- Planned Maintenance
- Supporting People
- Homelessness

- Estate Management
- Service Charges
- Factoring
- Development
- Appointments
- Choice Based Lettings
- Workflow
- DIP
- OPENVue EIS
- Temporary Accommodation
- Right to Buy
- Open Access
- Web Enablement
- Asset Register
- Cash Receipting Software
- Job Scheduling
- Contact Management

The IBS OPENHousing system is designed specifically for the UK Social Housing sector and would require customization to meet South African needs.

### **6.4.10.3 - Pricing**

IBS is very keen to enter the South African market by partnering with Progress SA. Progress SA is very interested in partnering with IBS to provide the service to the local Social Housing sector. The prices below are for a selection of core modules.

ITEM	5 users	15 users	50 users
Core Person & Property Database	£5,000	£7,500	£10,000
Cash Receipting	£7,500	£7,500	£10,000
Responsive Repairs	£10,000	£12,500	£20,000
Planned Maintenance	£7,500	£7,500	£10,000
OPENQuery (reporting)	£10,000	£15,000	£15,000
Rent Accounting and Arrears	£12,500	£15,000	£17,500
Allocations & Waiting Lists	£10,000	£12,500	£15,000
Service Charges	£5,000	£7,500	£8,500
Progress Run-Time Licence	£3,725	£11,175	£30,000
Financials Core Modules (4 Users)	£16,000	£16,000	£16,000
Implementation (Day rate £800 + expenses)	100 days	100 days	100 days

Implementation would likely be a collaborative effort with Progress SA picking up from an IBS advance team.

#### 6.4.10.4 - Conclusion

IBS OPENHousing provides an impressive solution to Social Housing requirements. However, customization will be required for the South African version. One such requirement is to introduce the instalment sale functionality. The main obstacle to implementation in South Africa is that the proposed partner – Progress SA – has not previously managed an implementation this system nor provided any support. Much of the functionality is specific to the UK and customisation would be required. IBS proposes to do the first half of the implementation themselves – a process that will attract additional costs of travel and accommodation. The lead time for a first implementation in a new country is also likely to be longer than for an implementation of a system already supported here.

## **6.4.11 - FatFish (Cubit)**

### **6.4.11.1 - Architecture**

Cubit and FatFish are built on a PostgreSQL database using PHP as the development language. The system is browser based using the Mozilla Firefox browser as the preferred delivery mechanism.

### **6.4.11.2 - Functionality**

Cubit covers the full accounting functions of General ledger, cash book, journals, receipting, and bank reconciliations and is able to handle payment of salaries, wages and so on. Some document management is included – copies of original documents whether in image or electronic forms can be attached to any item. The system uses browser technology as the delivery mechanism and runs on the Mozilla Firefox browser. The database is PostgreSQL. The Fat Fish component is primarily aimed at commercial estate agents and handles sales, property listings and rentals. It is able to calculate interest for housing loans and to detail the costs associated with buying or selling property. The rental side includes lease details, owner and tenant information, details of the accommodation. Copies of lease agreements and so on can be attached to the property details. The system will produce invoices for rentals and other charges can be added on. However, each invoice must be requested separately each month. Invoices can be emailed, faxed or printed from the system. The system has no facility for managing or scheduling property maintenance or for handling sales by instalment.

### **6.4.11.3 - Pricing**

Cubit is a commercially open-source accounting system developed and maintained in South Africa. Fat Fish is an estate agents system built onto the Cubit accounting system. Although cubit is open source, there is a licensing fee to cover updates – including the annual tax tables and changes due to changes in South African legislation. The licence fee is waived for NGOs. FatFish charge an annual licence fee of R1400 per installation.



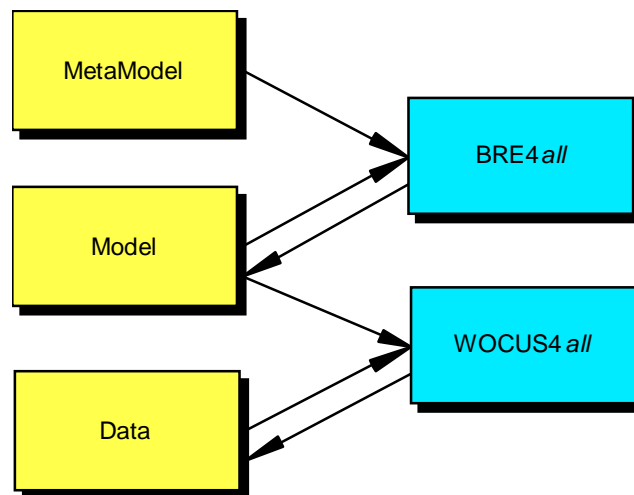
#### 6.4.11.4 - Conclusions

This system falls short of the requirements of the Social Housing sector, but represents a low cost option for smaller SHIs if some modifications to the system are put in place. The suppliers of FatFish will allow changes to be made to the system.

#### 6.4.12 - Wocus4All

##### 6.4.12.1 - Architecture

WOCUS4all Is built using an RAD/case tool BRE4all. This tool can be used to facilitate additional changes to the system either by Centric or by the user. System design is object oriented. The system runs on a Windows platform. Generic functionality is built into the system, and business specific functionality is added by means of business rules. The system is rules based which is a plus, although the underlying rules architecture and depth could not be evaluated. The system is based on three-tier architecture:



(Productinformatie WOCAS4all)

Figure 14 – High Level ICT Architecture for Social Housing Sector

The structure is open allowing for simple links or integration with third party applications.

### 6.4.12.2 - Functionality

There was little opportunity to examine the functionality of this system. However, the system appears to be very comprehensive in its functionality.

- User access is secure, using user roles to define access to various aspects of the system.
- The system is focused on the customer which forms a central part of the system.
- The system includes functionality for budgeting, forecasting and scenario building.
- Full financial functionality
- Property maintenance – repairs
- Planned maintenance
- Full rental functionality
- GIS
- Architectural drawings
- Development (project management)
- Work flow
- Document management

The system does not currently include instalment sale functionality. However, according to the information at hand, additional functionality can be added quickly and easily using the tools shipped with the product

### 6.4.12.3 - Pricing

Details of licensing costs of the system are not available at present. However, the task of translating the system to English was estimated at R4.5 million in 2001. Since then, the system has been further enhanced with new features..

#### 6.4.12.4 - Conclusions

A product description in Dutch was received. From the documentation it appears that the product is very comprehensive, but would require some modifications for the South African market. These could probably be managed using the BRE4all engine. The major task facing implementation of the product is the translation of the entire module to English from Dutch. Apart from the cost associated with this, the lead time to implementation would be severely impacted.

#### 6.4.13 - Rascal

This was one of two wildcard options included in the evaluation to test the thinking of COTS solutions and evaluation methodology. The second is covered in the next section. Neither one has any specific property management functionality, but represent very different approaches to the provision of property management functionality.

The Rascal system is in essence a proprietary software engine managing a comprehensive open source set of business objects and business rules as the building blocks of rich, agile systems. Many of its key value propositions talk directly to pressures and requirements of the Social Housing sector.

Rascal's

- methodology maximises economic value added
- framework provides for business process re-engineering
- implementation customises workflow systems
- application repository contains decades of business knowledge

Furthermore, Rascal

- offers the best of object technology
- makes expert systems practical
- ensures easy access to up to date management information

- builds information hierarchies for drill-down enquiry

It was not documented further here since there were some concerns over its pricing, especially in light of its lack of specific functionality and the frequency of updates to its technology base. It was however included in the evaluation model to test assumptions and set standards for criteria, many of which it scored well on.

#### 6.4.14 - Compiere

Similar in its scope and application to JD Edwards and other ERP systems, the Compiere system represents a radical shift in the economics of software, and perhaps an even more dramatic change in the concept of vendor, developer and owner of the software. As an open source system – with a broader user base than JD Edwards. Compiere is worth considering as a wildcard option even though it would require property management functionality to be defined and integrated.

Some of its key features include:

##### **Fast Implementation without final decisions:**

- Implementing Compiere is a matter of hours, not weeks or months. Competitive products use templates to tailor the software to specific needs – so does Compiere – but unlike their competition, Compiere does not restrict functionality - no "cookie cutter" predefined system.
- Compiere does not require any irreversible implementation time decision – nor does it make such a decision for its customers. The dynamic nature of the product talks directly to business agility concerns – meaning that changes can be made on the fly, long after implementation, including charts of account, business calendars or even the accounting currency or accounting principles. Importantly, these changes do not require any specific technical skills or intervention.
- This allows customers to go into production fast and incrementally define or refine the system as required.

- Traditional ERP systems are often criticised for being easy to customise at the outset, but extremely difficult to change once in production – likening the customisation to cutting channels for concrete to flow through, then having to chip out the set concrete to make any changes.

### **True Multi-Client**

- Compiere offers two parallel user interfaces: A browser based DHTML web based interface designed to reach applications from anywhere on the Internet and a high performance Windows Application with a rich user interface - allowing high speed (mouse-less) data entry.
- Both user interfaces are generated using the same rules with the same look and feel, while exploiting the advantages of their platform.
- Few competitive products were designed for and fully support both user interfaces. In environments, where fast reaction is key and where you need to access multiple information sources - like in order entry - the "traditional" Windows based user interface cannot be replaced (yet) by an HTML based application. The client application is self-installing and automatically upgrading, for easy operation.
- For remote offices, at client sites or via wireless devices, you want to access the application fast. Compiere provides a light DHTML interface with low server requirements. The Client Application is used in production with just 128k bandwidth - the browser interface provides reasonable response with just 56k.

### **Smart User Interface (Personalisation)**

- Complex applications have a long learning curve as you need to know what the different options mean. Compiere uses a different approach.
- Compiere uses context sensitive Personalization. You only see what you need! For example, if you don't use foreign currencies, you don't see it - but it is there in the situations where you need to transact in a foreign currency.

- Another example is the different processes and fields required for different payment options. You only see the information required in that specific situation and context.
- All information entered is immediately validated; data entry tips are provided. The consistent user interface is generated based on rules, resulting in an extraordinarily stable application. Without hand-coding, Compiere provides cross field validation and supports field dependencies (e.g. the address is dependent on the customer selected).
- You can rearrange the entry forms, hide fields, change colours and fonts as well as change labels and add customer specific help and hints. Advanced users can add fields and create validation rules.
- The Compiere dynamic user interface makes the application easy to use and decreases the learning curve. The functionality is available in both, the HTML interface and the Windows Application.

### **Rule Based Fail-Safe Architecture**

- Compiere is based on extensible business rules. Not only is the user interface rule based, but also processes and procedures.
- The system provides an extensive set of rules and advanced users can refine and extend their business rules. The system always ensures its integrity, and a user cannot accidentally overwrite these rules.
- In contrast to its competitors, Compiere was not designed assuming that everything works perfect and is fail-safe. Humans make mistakes, systems fail and there might even be the odd program bug.
- Compiere allows the application to fail safely, always maintaining its integrity. Failed transactions can be resubmitted or in the case of a process error (e.g. wrong rule) transactions can be reprocessed, correcting the previously unnoticed error.

### **Truly Integrated Application**

- Compiere's "Front Office" functionality - the customer relationship management - is fully integrated with the "Back Office" functionality - the traditional ERP. No interfaces, processes or time delays.
- If you enable optional functionality like Project Management or Marketing Management functionality, the required details are captured directly at the source, providing you with the details required for exhaustive analysis.
- The integrated OLAP Analysis functionality allows you to view your information in a slice and dice fashion.

### **For the Global Market**

Today's marketplace - even for smaller business - is becoming global. You may need to provide additional languages - for customer and vendor interaction as well as your staff and you may need (or want) to accept foreign currencies.

- Compiere is designed to provide all "multi" dimensions:
- Multi-Language for Documents and User Interface
- Multi-Currency for transacting or reporting foreign currencies
- Multi-Tax supporting different tax systems (Sales, VAT, and combinations)
- Multi-Costing in parallel (e.g. Standard Costing, Average, LIFO, ...)
- Multi-Accounting for your legal reporting using different accounting principles (e.g. Cash/Accrual, International/US/German/.. GAAP)
- Multi-Organization for different branches/outlets and/or legal entities

## **6.4.15 - Microsoft Excel and Pastel Accounting**

SOCHO is using excel spreadsheets combined with Pastel with three custom add-on packages to manage their business. The add-on modules are:

- interest fluctuations
- client retention details

- an Invoice module

The add-on modules are currently under development. The current systems handle some aspects of the business, and SOCHO are expecting the add-on modules to handle most of the required information. While very flexible and potentially rich in functionality, the Excel approach is not a desirable system in the longer term since it raises a number of important concerns:

- skills required – results can readily be obtained by anyone with basic skills but there are countless ways of doing things wrong or assuming results to be correct when they are not
- consistency of business rules and process – there is no way of embedding business logic short of convoluted programming of the Excel engine through VBA or Macros
- security and control – there is no way of limiting access to elements of the process, meaning that anyone can do anything (an all or nothing approach to security)
- replication – it is not uncommon for different versions of the Excel databases with different data to exist on different PC's and servers, with versioning and lack of master copies becoming a nightmare

This solution can at best be seen as a make-shift solution to allow small SHIs to function at their current levels of activity. Details are captured to some degree on Excel spreadsheets and accounting entries captured into Pastel Accounting. The process can be seen as a largely manual one allowing little potential for growth. In some cases, very little information is captured at all. Interestingly, Microsoft Excel in capable hands is a tremendously powerful “expressive” system – allowing for virtually anything to be done since it is so open. It is this openness and lack of structure however that also lets it down, especially in multi-user environments, where skills are of mixed and uncertain quality. It is therefore very valuable to model and refine business requirements – appropriate in an evolving environment – but has limited value where automation requirements are high, business processes need to be controlled and enforced, and where skills cannot be counted on.



## 6.4.16 - Microsoft Excel / SQL Monitoring System

While not aiming to achieve the same as other systems, the SPSH has introduced a basic interim monitoring system consisting of a four page questionnaire using an Excel spreadsheet to facilitate the monitoring of the performance or non-performance of SHIs. The system has been developed by Praxis and is providing valuable feedback to the SPSH on the employment of funds aimed within the sector.

25 SHIs are included in this system. The questionnaire is completed monthly by each participating SHI providing details of projects, instalment sales, rentals, arrears and financial position. The 25 participating SHIs are those that can be seen as the more successful SHIs in terms of providing housing. Information received from the SHIs is captured manually into an SQL database for analysis. While the purpose of the collection of information is to monitor the progress of the SHIs for the SPSH and the EU, the information collected is proving to be a valuable tool to the SHIs themselves – many had no prior financial information linked to activities.

Because of a general lack of Property Management systems amongst the smaller of these SHIs, data must be captured manually by each SHI. Once an ICT system has been implemented it will be possible to simply map information from the application to the questionnaire thereby increasing the accuracy of the system. Information being captured and recorded by this system includes:

- Monitoring of the progress of housing projects by SHIs
- A summary of the performance of SHIs in terms of
  - Housing stock management – housing units completed, occupied and vacant
  - Rents in arrears – number and percentage
  - Budgeted rental income
  - Average cost of housing unit
  - Average rent of housing unit
  - Number of units per staff member
  - Income – rentals & other
- Expenses

- Resources
  - Development finance Secured
  - Development financing used
  - Capacity building grants – secured, used, spent
- Staff and tenants
  - Number of staff and turnover
  - Training and costs
  - Tenants – number, turnover
  - Tenant training
  - Tenant feedback

Although the system was designed to provide information to the SPSH on the effectiveness of its programmes, the SHIs are finding the information of use since it provides them with a clearer picture of their own performance.

## 6.5 - Summary of COTS (Package) Options

The various packages reviewed above range from the very comprehensive to those that meet only some of the requirements specified for the Social Housing sector. The range included packages that may be used off-the-shelf without customisation or rules to differentiate one company from another to the super sophisticated.

Off-the-shelf systems included **FatFish** – a system for estate agents coupled with an open-source accounting package – Cubit. Cubit allows a certain degree of flexibility including the ability to run a number of companies simultaneously from the same installation. Very attractively priced, the system included functionality to manage rentals, runs on the web and is platform independent but fell short in its ability to manage automatic invoicing, property maintenance and sales by instalment. It is certainly not designed for a large rental portfolio.

**Manage-IT** is a competitively priced Windows based US system that manages not only the rental portfolio, but includes some functionality to handle property maintenance, automatic invoicing and even a letter writing feature. The shortfalls

included an inability to cope with any great flexibility or to handle sales. Made to be used as is, the system lacks any local support and is not web-enabled.

**Novtel** is a new South African property management package attracting what looks like a competitive price but in fact turning out to be rather expensive. Its origins as a car-rental system clearly show through and the user interfaces are ugly. Written in Visual Basic, the program runs on an access database using MS Terminal Services for all networking requirements. The system lacks the ability to handle multiple companies, automatic invoicing, property maintenance or sales. It is not web-enabled.

**Nicor** is the most widely used property-management software in the South African Social Housing sector. It has excellent functionality for managing rental portfolios and a comprehensive accounting system that works but is difficult to use. Its roots in JH Isaacs where a number of buildings were managed on behalf of various owners shows through, and the accounting system is very much geared to meet that scenario. The system does not currently have property management functionality. Functionality that was added for instalment sales is limited to calculation of interest on a monthly basis and cannot calculate the instalment. The system runs on a Progress database using the Progress development language. The system is not web enabled, but can be accessed on the web using MS Terminal Services. The system is platform independent.

**MDA** was developed and designed primarily for commercial property management but is able to handle residential rentals very adequately. The property maintenance functionality includes performance measurement of service providers. The system uses an MS SQL Server database and will run on MSDE as a cheaper alternative. The system is very effective and works well, but is very much an off-the-shelf use-as-is type of system. There is no sales functionality in the system.

The **MRI** system is an ERP system owned and marketed by Intuit. A property-management module has been added and the functionality for managing rental property is good. The residential property system is not used in South Africa as it is too US oriented, but the commercial property-management system works well as an alternative. There is no sales functionality in the system, and the price was amongst the highest of the locally available systems.

**IFCA** is a purpose built property system from Malaysia for anyone who builds, manages or sells property. The functionality is extensive and the company's track record includes Social Housing initiatives in Namibia and Botswana. Pricing is by the modules chosen and the number of concurrent users. The system runs on an MS SQL Server database built with Power Builder. The system is not currently web-enabled, but a web version of the system is under development and expected in December 2005. The system is able to handle multiple entities with varying rule sets. Price-wise the system is rather expensive even after the generous 50% discount offered to the Social Housing sector.

The **JD Edwards** ERP system is supported in South Africa by Deloitte and as such is probably the most strongly supported property management system available locally. The system is fully web-enabled, is platform independent and supports multiple entities at a number of levels. Deloitte have developed a number of templates and a fast track implementation methodology to deliver within three months. The functionality of the system is comprehensive and includes added functionality for managing instalment sales. The system is priced competitively and once purchased may be rolled out to an unlimited number of users without additional licensing costs.

**WOCUS4all** is a Dutch system developed specifically for the Netherlands' Social Housing sector. The system was strongly recommended but unfortunately only limited information became available during the course of this project. The system is built using an RAD / case tool, and seems to have extensive functionality, although we could not identify any functionality for sales. The system is entirely in Dutch. Translating the system to English is a formidable task costing many millions of Rands.

**BSI OPENHousing** and a number of supporting modules are available from the UK. This system was developed for the UK Social Housing sector. Functionality appears excellent, but sale by instalment is not currently available. The price by South African standards appears very high, and customisation to suit local conditions would be required. Not currently supported in South Africa, Progress SA is willing to partner with BSI to provide local support. The system is Windows based but includes an OPENAccess module that allows web access.

Two other UK systems – **Sx3** and **MIS** – looked promising, but telephonic and email communication proved insufficient to provoke any response.

**RASCAL** is a South African ERP system that is entirely rule-based and functionality would be provided through using the rules of the system. This offers total flexibility, but the system runs on old technology, is not specifically web-based or an ‘open’ system and proved to be rather expensive. The major part of implementation would revolve around setting up a comprehensive set of business processes and rules to fit the Social Housing sector which would involve all of the risks and challenges consistent with major software development efforts.

Finally, **Compiere** is a web based open-source ERP application which offers many of the same advantages of JD Edwards, with some additional advantages in terms of its licensing and development models. It is supported in South Africa and is the only system reviewed which would tie in with the South African Government initiative to promote open source, and therefore raises some interesting possibilities. It must be highlighted though that although it has a solid accounting base and many of the generic features found in the other systems, it has no specific property management functionality and therefore must be evaluated as a higher risk, consistent with a major software development effort.

While this is not an exhaustive review of all systems available world-wide, the main players in South Africa have all been adequately represented.

## 6.6 - Open Source Software

### 6.6.1 - Overview

Open-Source software offers a very different paradigm for software users when compared to proprietary software. The key difference is, as the name implies, that the source code for the product is open and visible to the user. Coupled together with the fact that the software source code is openly available is the fact that the software itself is usually free. As a result of this vital difference between proprietary (closed-source) software and open-source software it is important to highlight many of the differences and advantages of using open-source software.

## 6.6.2 - Key Differences

### 6.6.2.1 - Multiple Installation Bases

Due to reduced license restrictions open-source software packages can be installed numerous times without additional costs. This has direct advantages for the users:

- additional installations can be provided for training
- developers or integrators can install their own copies in environments that best meet their needs
- users can easily set up additional installations for disaster recovery procedures (DRP)
- independent installations can be created for testing new functionality without affecting the production system

Due to the freedom around installing the software most open-source software systems will run on a wide range of hardware and operating system platforms. Thus, although a production environment may run on high-end servers and use expensive proprietary operating systems, developers can often still work on standard desktop machines using operating systems of their choice. Similarly, test environments can be set up without the need for duplicating a possibly expensive and complex hardware environment.

### 6.6.2.2 - Support

Support is an important need when using any software and open-source software is no different. New users of open-source software often feel that there is not sufficient support. However, many of these products have a large user base. Additionally, the user bases associated with open-source products are often proactive and self supporting. Thus, although many of the support channels may be informal, many problems can often be solved within a few minutes by consulting the appropriate sources. That is to say that generally other users have already found solutions to the

given problem and a simple search via a search engine such as Google, or a search through user forums will often open uncover a suitable solution.

This is in contrast to proprietary software that normally has more formal support structures. However, these support structures are often bureaucratic and layered. As such, a simple query will often take many hours, if not days or weeks before a suitable response is provided. Even then, this may require a lot of leg work on the part of the user to find the right channel of communication with the vendor.

Furthermore, depending on the support contract or SLA this may result in direct additional expenses. These expenses would then need to be managed by the users' organisation and often the user (or administrator) simply leaves the problem unresolved. In addition to the informal support channels, many open-source products provide explicit support or customisations services as a means of generating revenue. In this way, the products will still have a core team of maintainers and developers that will extend and enhance the product.

### **6.6.2.3 - Extensibility and Customisation**

It is very rare for a system to perform all the functions that are needed for by a user or organisation. Furthermore, there is a much greater likelihood that a large organisation will have complicated and unique requirements. When this occurs then the requirements either need to be met via third-party products or bespoke development. In either case this new functionality will need to be integrated into the system at large. Integration work is much easier to carry out when the system uses open standards and has a clear and rich set of APIs. Additionally, such integration work is facilitated by being able to see the source code so as to understand explicitly technical requirements and obstacles.

Furthermore, many open-source projects inherently use a modular approach because these projects often reuse other open-source components that already exist and perform necessary tasks. This in turn results in open-source products exhibiting a clean internal design, architecture and code base that already caters for modular extensibility.

Inter-vendor politics can also inhibit the ease of integration of third party systems, whereas with open-source products it is unlikely that the maintainers or user community would try to prevent or inhibit the integration process.

#### 6.6.2.4 - Security

Security is an inherently difficult aspect to ensure. One of the fundamental principals that has arisen in the security sector is that 'security through obscurity' simply does not work. That is, hiding the inner workings does not create a secure system. It merely means that more work must be carried out by an attacker to expose bugs that can be exploited.

**Table 4 – Computer Economics Survey Results**

Perceived Advantage	Percentage
Less dependence on vendors	44%
Lower cost	22%
Easier to customize	17%
Better security	3%
No advantage	14%

(Scavo. F)

The corollary to this is that if the inner workings of a system are totally visible to everybody then the security must be as a result of sound design, high quality implementation and good processes. In this way open-source products generally rapidly move towards a state of improved security.

#### 6.6.2.5 - Robustness and Quality

No computing system is ever totally bug-free – be they proprietary or open-source. However, many of the bugs are relatively simple to fix. With open-source software anybody with the requisite skills can attempt to fix a bug because the source code is available for inspection and changing.



As such, most open-source software maintainers receive a steady stream of small patches and fixes for their software. This obviously translates into direct benefits for the entire user community as all these bug fixes are incorporated into the next release or immediately made available as patches.

With proprietary software, only the vendor (and maybe a few key partners) can access the source code and as such only they have any chance of fixing bugs. Therefore, there is a much smaller team involved in bug fixes. To compound this problem, many bugs only show up in particular settings and this makes it very difficult for the vendor to reproduce the bug in order to fix it. This also of course relates to vendor lock which is discussed on page 62.

#### **6.6.2.6 - Skills Availability**

Skills are needed to maintain and support products as well as to customise products. Ultimately individuals need to develop, maintain and grow their own skills base so as to make them available to the market place.

To do this the individuals will need access to the tools and products in question. As discussed in above, open-source software is usually more freely available and can generally be installed on wider range of computing platforms. As such, is it easier for a prospective developer or system administrator to obtain a copy for themselves from which they can teach themselves the needed skills?

This leads to a situation where the skills either more readily available or are acquired by individuals that are more proactive and very likely will be competent and as such a valuable asset to an organisation. By contrast, skills for proprietary products can often only be gained via explicit training courses and require the individual to gain access to expensive systems in order to learn.

### 6.6.2.7 - Independence

In addition to the many valid points mentioned above it has come to light that an important consideration is ability of the buyer to reduce their dependence on the vendor. Computer Economics carried out a survey (Frank Scavo) of visitors to their website regarding the perceived advantages in the use of open source software. *Table 4 – Computer Economics Survey Results* on page 104 reproduces the findings of the survey. To quote from the survey analysis (Frank Scavo, Key Advantage of Open Source is Not Cost Savings)

“For software buyers, the best strategy is to consider mature and established open source products as well as proprietary software products that adhere to open standards. In this way, buyers can choose the best software product for the job, knowing that the value of their investment will be preserved without locking the organization in to a single vendor solution.”

### 6.6.3 - Conclusion

Open-source software offers many unique advantages to the end user and the community using the product. In addition to the advantages, open-source has cast light on different perspectives from which a product should be evaluated. In the end the most important point is that the business or organisation should attempt to understand all their needs and the implications of potential choices. In this way they are in a better position to ensure that the decisions they make provide the best opportunity to meet the immediate and future expectations and requirements that they have of an ICT system.

## 6.7 - Business Process Outsourcing

The biggest challenge that Social Housing in South Africa faces in the delivery of houses, is the shortage of skilled staff in management, finance and information technology. In this environment, some of the SHIs have opted for an outsourced solution which has become necessary for success.

Outsourcing is a management strategy by which an organisation outsources major, non-core functions to a specialised and efficient service provider. It is therefore the strategic use of outside resources to perform activities traditionally handled by internal staff and resources.

Organisations outsource for various reasons, but some of the reasons might include:

- Cost reduction. The Housing Institutions do not have to appoint and train personnel, implement and upgrade IT infrastructure, acquire and customise software, etc. Through the “sharing” of the above with other outsourced clients, the Housing Institutions greatly reduce their costs related to the above functions.
- High standards of service quality because the service provider is focussing on their core functions.
- Gaining access to expertise that is difficult to acquire. These include specialist services such as legal, enterprise risk services, internal audit, forensics, etc.
- Improving the Housing Institutions focus by encouraging management to focus on their core functions. Outsourcing provides management with extra time because they don't have to focus on the non-core processes.

The outsourcing solution provides for the financial, project and property management information system on an Application Service Provider (ASP) model. Thus the non-core activities are provided on a form of rental basis related to a monthly charge per unit. The daily management, control, decisions and customer interaction for the operation of the Organisation remain that of internal management employed by the SHI.

The Application Service Provider (ASP) provides a highly cost-effective and efficient data management, processing and data storage solution to support the financial management function, through the use of cutting edge IT technology.

The service provision can be divided into four distinct areas.

### **IT Systems Management Services**

- Hardware and software configuration. Advice on the supply of equipment to be used
- System upgrades
- WAN support
- All maintenance to ensure the smooth and efficient operation of the system
- Development of alterations or additions to the software to ensure the smooth and efficient operation of the system
- Security - a security infrastructure to protect the integrity, confidentiality, availability, as well as access of the organisations data. This infrastructure should consist of dedicated protection components to ensure that the highest levels of security are implemented, maintained and controlled. The security infrastructure should consist of the following secure components:
  - Hosting - By hosting the hardware and software centrally the users can tap into the dedicated and customised application using Diginet, ISDN, or Telkom lines. Thus the institution does not need to invest in expensive resources, hardware or software and the costs associated in the maintenance thereof. The hosting facility must be protected by multiple access control systems to protect the confidentiality and security of the integrated business system. This will ensure that only restricted people have access to the hardware and software of the business system.
  - Firewall and Intrusion detection - The firewall and intrusion detection systems ensure secure level of access control to the business system. The firewall must offer complete firewall protection with IP Security (IPSec) Virtual Private Network (VPN) capabilities to provide secure communications between the ASP and the SHI. The firewall service should provide restricted Internet access to the secure servers on the VPN. The intrusion detection system must ensure that any attempts to gain unauthorised access to the systems will be detected and terminated in real time. This will ensure that unauthorised access to the systems are denied and repudiated.

- Application Security - Object-level application security such as user profiles, database security and operating system security must also be provided for. The object-level security ensures that application users are constantly validated to restrict information confidentiality to authorised users only. Security profiles must restrict users and to specific user roles and components of the software system. The operating system security must ensure restricted access to operating system functions to protect the system platform. This ensures that multiple tiers of protection measures have been implemented to protect confidentiality and access to the organisation's information.
- Technology planning
- Daily data back-ups and disaster recovery
- Application of the installation of data communication channels for the purposes of the operation of the system
- Network administration and network monitoring and management for the provision of this outsourced function by the ASP
- Training to the financial manager, or any other staff of the SHI, in the use of the application software and the workings of the internal control systems. A structured implementation methodology is crucial to the success of the implementation of software of this nature. The methodology should include tasks and deliverables. A project plan will must detail the stages of the implementation, together with the time scales and indicative effort of all parties involved. Product and technical consultants will be required throughout the implementation process to work alongside the staff and management of the SHI.

### **The Application Service Provider (ASP) Service.**

This service offering should provide the SHI with a system that will enable the organisation to manage and administer all their financial transactions. The ERP (Enterprise Resource Planning) solution offered for this purpose should include a financial module, as well as the property management modules. These modules should be flexible enough to provide for them to be customised to cater for the unique needs of the organisation. Furthermore, as part of this service offering this

ERP solution must be hosted on behalf the SHI. This hosting will include aspects concerning, redundancy, back up, disaster recovery, etc.

The ASP service offering should be seen as the base service offering provided to the Housing Institution. The ASP services should provide for the following:

- Implementation of systems of internal control.
- Payroll administration. A payroll system for the payment of all employees and contract workers, temporary staff and casual labour and for any expenses subject to PAYE. All current legislation, including that relating to public entities, must be applied in calculating PAYE. The ASP will be responsible for registering Semag for all relevant taxes and levies if and when required. All tax calculations, transfers and queries to and from SARS and the issue of IRP5 and IT 3 certificates, must be provided.
- Management and reconciliation of bank accounts
- Collection of monthly tenant payments electronically
- Management of deposits by tenants or owners
- Facilitation of payment of creditors. It must have the capability of effectively managing the procurement and payment process. The system must ensure that a payment can only take place if it has been budgeted for, if it has been matched to a previously approved order and invoice and if the payment itself has been authorised to take place. This will restrict unauthorised, fruitless and wasteful expenditure.
- Preparation of monthly management accounts as when agreed. These reports must allow management to plan and make proper financial decisions, and should include:
  - Income Statement
  - Balance Sheet
  - Cash Flow
  - Debtors Age Analysis
  - Occupancy Levels
  - Amortisation schedules for outstanding capital on houses

- Variance reports

The system must facilitate the monthly reconciliation of all general ledger accounts, including debtors and creditors, to ensure that monthly management accounts are produced within seven working days of month end. A solid system for the authorisation and validation of journal entries must be provided for. The funding of some of projects and contributions by Donor funding must be catered for. These funds would normally come with certain requirements. In some cases funds may be donated for a specific purpose and the Institutions will be required to report not only on the operational success but also on the way the funds were spent. The system must facilitate the required administration and reporting thereof.

- Preparation of annual financial statements
- Attendance of external audits
- Preparation of annual budgets and cash flows. The sustainability and success of any organisation rests on its ability to manage its budget and cash flows effectively. To this extent the ASP will be required to work closely with management to put together an expenditure framework that will translate into meaningful budgets against which the SHI will be able to measure its performance.
- Statutory secretarial work

SHI's generally obtain revenue from one main source, the provision of houses. This might either be rental or rent-to-buy or instalment sale or a combination of all three. It is important that adequate steps are taken to collect all funds timeously to ensure that the organisation maintains a positive cash flow position. The system should cater for electronic payment (either bank debit order, Electronic Funds Transfer (EFT) or Transwitch payments) rather than payment by cash. It must be flexible enough to cater for cash payments as and when they occur. These payments are to be automatically allocated against the debtors/ tenant (this allocation does depend on the correct details being 'attached' to the payment). Other bank deposits can be manually allocated on the system. It will be of utmost importance to ensure that the financial system promotes the vigorous collection of funds from tenants/owners. It is also submitted that a petty cash system will have to be implemented to take care of the minor, unexpected and incidental expenses that the Housing Institution is certain to incur.

## **The Business Process Outsourcing (BPO) Service.**

This service entails the performance or execution of certain business processes on behalf of the organisation e.g. financial advice, capturing of information, billing, posting, etc.

The BPO service offering can be divided into the various business processes that can be outsourced by the SHI. Therefore, providing the organisation with the luxury of selecting these business processes for outsourcing and performing the remaining business processes in-house. The BPO services should provide for the following:

- Financial support
- Processing and capturing of data
- Recording of movements in tenancy and ownership
- Monthly movements of in owners/tenants charge updates and adjustments
- Printing and delivery of monthly invoices and tenant statements
- Rent roll, disbursement, arrears and vacancy reports
- Registration of new tenants

## **General Consulting Services**

These are generally performed on a project-by-project basis, for e.g. preparation of a business plan etc. The following additional services should be provided to management on request:

- Advisory services - these services, are value-adding services available at a strategic level to capacitate management to make informed decisions when allocating limited resources to a variety of needs. Services include:
- Strategic and financial policy advice, feasibility studies, business planning, performance management, benchmarking, risk analysis, capacity building and printing and posting of invoices.



- Financial Advice - should the SHI require the services of a Financial Manager or require additional assistance. This service would include:
  - Financial planning
  - Interpretation of the monthly management accounts
  - Strategic financial support to the General Manager
- Contract drafting - Legal assistance with the drafting of the various legal agreements needed within the organisation. These documents may include:
  - Rental agreements
  - Supplier agreements
  - Documentation relating to the eviction process
- Call centre - To assist with the business requirements to ensure effective communication. A call centre to deal with queries from the relevant business partners, when the volume of stock under management requires this function. To ensure effectiveness of this function the system should be integrated with the systems of the call centre.

## 7. - Analysis and Evaluation of Options

### 7.1 - Selection of a Decision Support Tool

Usually decisions are made by a group of people who first gather all the information, and then have a series of round table meetings to come to a consensus decision. In practice this process is usually painfully slow with a lot of time wasted by collecting data that in the end may have contributed very little to the final decision. Often this process may involve using a spread sheet to allocate weights or scores – in an attempt to deal with the complexities of the decision. There are many pitfalls using this approach – firstly the misuse of numbers.

When assigning weights, exactly what does the number mean? If alternatives are ranked according to preference, then it is meaningless to add various ranking numbers to get a total score. Usually interval scales are used - meaning that corresponding intervals on different parts of the scale has the same meaning, i.e. the difference between a score of 1 and 2 is the same as the difference between a score of 4 and 5. Interval scale numbers can be added and subtracted, but it is meaningless to multiply two or more interval numbers. When using weights and scores, ratio scale numbers should be used. (The same ratio on different parts of the scale has the same meaning). If one uses the wrong type of scale the answers will not be accurate at best, or even meaningless. The other problem with scores is that the assignment of weights is a somewhat arbitrary process. If a criterion scores a 3, why not a 4 or 2, and if I were to make that adjustment, how will it influence my final answer?

After an evaluation of the various decision and support tools, the Analytical Hierachy Process was selected as the favourable method, as it includes both the rating and comparison methods of the other models. An important benefit of using this process is that it is much easier to compare more than two options at a time, and then to be able to justify the judgement, than to try to guess the relative importance of all the criteria, and then justify this decision. This method is capable of structuring a complex problem into a logical hierarchy, and has a credible track record of clients that have adopted this model as an evaluation tool. It is able to group decisions and make good, transparent and defensible decisions in a systematic and scientific way.

Application areas within the tool include vendor selection, risk analysis, strategic decision making, resource allocation and project portfolio management.

The AHP method addresses the need to assess benefits, costs and the risks to the proposed solutions. AHP breaks the problem down and then aggregates the solutions of all the sub problems into a conclusion. It facilitates decision making by organising perceptions, feelings, judgements and memories into a framework that exhibits the forces that influence a decision. A further benefit is that there is a measure of how consistently pair wise judgments were made. This is called the inconsistency ratio. If someone says B is two times more important than A, and also say C is two times more important than B, then it is mathematically determined that the ratio between A and C has to be four. If the person were to compare A and C and give a judgement that deviates from this ratio, then they are inconsistent in their judgement. The inconsistency ratio can help us find an error in judgement, or identify if a person is trying to sway the decision by voting in a specific way.

A disadvantage of the traditional decision making methods is that they require specialised expertise to design the appropriate structure to embed the decision making process.

The AHP model is widely used with more than 15,000 users from around the world. International users include IBM, Ford, General Electric, America Online, US National Association of Home builders, and the United Nations. South African users include most universities, SA Defence Force, De Beers, SASOL, SA Reserve Bank, Liberty Life, ABSA, Standard Bank and the CSIR.

The evaluation of options for recommendation in this report was modelled on Expert Choice, the software implementation of the AHP. This product is widely used internationally to facilitate group decisions and make good, transparent and defensible decisions in a systematic and scientific way.

## 7.2 - The Decision Model

Alternatives were rated against the following model:

### **Functionality**

How well the product or option in its current form – i.e. without any customisation, development or enhancement – satisfies the generic requirements. The functional assessment was conducted at a high level using the categories of:

- Accounting
- Property portfolio management
- Property rental management
- Managing property sales
- Reporting

### **Vendor**

This category looked at vendor characteristics, broken down into the following elements:

- Local representation
- Track record (in the Social Housing and property management arena, as well as beyond)
- Business expertise – especially relevant where that level of expertise may not exist or cannot be counted on at many of the SHIs. This is where the vendor can truly add value in terms of best practice, accounting and general business understanding.
- Technology expertise – since the evaluation is ultimately centred around software, this is also critical.

### **Costs**

In an effort to represent the total cost of ownership, rather than just the simplistic initial license costs, this category looked at:

- Capital costs – initial licensing costs
- Implementation costs – in any large-scale system implementation (most notably research has centred around ERP implementation efforts) these can be between 2 and 10 times the initial capital cost.
- Maintenance costs – specifically contractual license fees

- Secondary costs – looking at specific hardware (workstations & servers), software (databases, operating system, web enablement etc.) and infrastructure costs – especially where any of these are unusually high since all systems have some secondary costs
- Growth costs – costs to scale the application to serve more users and costs to enhance functionality

### **Skills**

This factor looked at the requirement of any specific technical skills to support the system in the hub model, as well as any specific user skills – a function of the friendliness of the system and its interface design.

### **Architecture**

The technical characteristics of the system including:

- Whether the web was a part of the original design as opposed to an expensive afterthought – this was also concerned with performance over South African network infrastructure (a system that performs well in the USA for example, where broadband is taken for granted, may simply not work here)
- Openness – and dependence on proprietary technologies
- Maturity – combining a number of software evaluation factors as discussed earlier in this report

Agility – an estimation of the ease of changing the system to track changing business requirements

### **Political Considerations**

An assessment of some of the environmental factors that need to be considered in any decision – namely:

- Open source – as discussed earlier
- Empowerment
- Skills development as a national imperative

### **Risk**

An assessment of risk factors including:

- Technology risk – especially relevant where older technologies are still being used (where support from the technology vendors has disappeared or at risk, and where skills
- Financial risk – especially exposure to foreign currency fluctuations in terms of ongoing costs
- Operational risk
- Strategic risk – the risk of betting on the wrong solution / or solving the wrong problem
- Vendor risk

This model is represented in the hierarchy diagram below:



Figure 15 – Evaluation Model Hierarchy

Each of these criteria and sub criteria were rated with pair wise comparisons and Expert Choice derived the following weights: (L and G refer to Local and Global weights. The local weight is the normalized weight within a branch of the hierarchy. The global weight is how much the local weight contributes towards the goal. So all the global weights will add up to 1.)

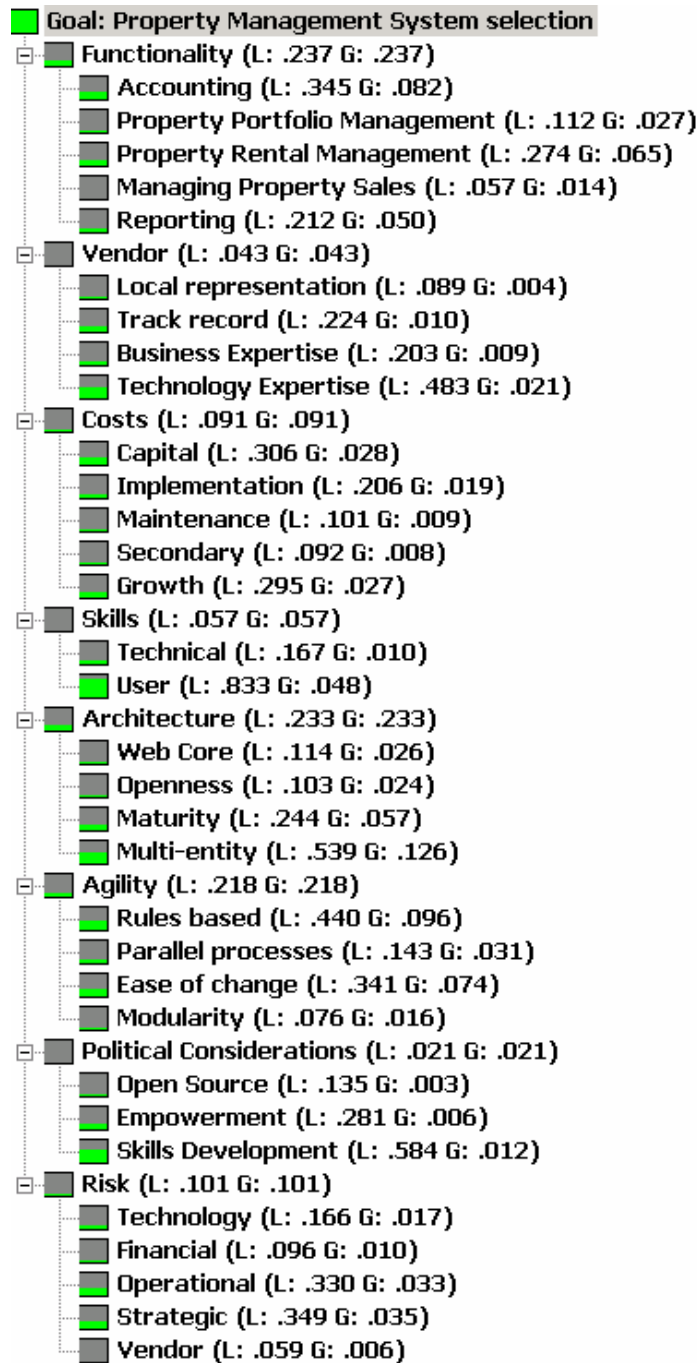


Figure 16 – Evaluation Model Local and Global Weights

This is a graphic representation of the derived main criteria weights:



Figure 17 – Evaluation Model Derived Weights

For each of the lowest nodes in the tree (in this case the sub criteria), a rating scale was developed. The wording and weight of these scales are as follows:

### Rating Scales

Accounting (L: .345)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Figure 18 – Sample of Rating Scale

The full set of rating scales has been included on page 186. Each vendor is then rated against the sub criteria. The following is a record of the ratings:



Data Grid

Ideal Score	Weight	WLN002	WLN003	WLN004	WLN005	WLN006
Alternative	Total	Functionality Accounting (L: 015)	Functionality Property Portfolio Management (L: 012)	Functionality Property Rental Management (L: 074)	Functionality Managing Property Sales (L: 057)	Functionality Reporting (L: 032)
WLN002	0.7	Excellent	Excellent	Excellent	Good	Excellent
WLN003	0.7	Excellent	Excellent	Excellent	Excellent	Excellent
WLN004	0.7	Very Good	Excellent	Excellent	None	Excellent
WLN005	0.8	Excellent	Very Good	Very Good	Poor	Good
WLN006	0.79	Very Good	Excellent	Excellent	None	Excellent
WLN007	0.7	Excellent	None	None	None	Good
WLN008	0.78	Good	None	None	None	None
WLN009	0.75	Very Good	Very Good	Very Good	None	Very Good
WLN010	0.79	Very Good	Excellent	Very Good	Poor	Very Good
WLN011	0.64	Very Good	Excellent	Excellent	None	Very Good
WLN012	0.7	Good	Average	Very Good	Average	Very Good
WLN013	0.71	Good	None	Average	None	Average
WLN014	0.7	Very Good	Good	Very Good	None	Good
WLN015	0.68	Poor	Poor	Average	None	Poor

Ideal Score	WLN007	WLN008	WLN009	WLN010	WLN011	WLN012
Alternative	Vendor Initial representation (L: 004)	Vendor Track record (L: 021)	Vendor Business Expertise (L: 005)	Vendor Technology Expertise (L: 001)	Funds Capital (L: 006)	None
WLN002	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
WLN003	Very Good	Excellent	Excellent	Excellent	Excellent	Excellent
WLN004	None	Excellent	Excellent	Excellent	None	Very Excellent
WLN005	None	Good	Excellent	Very Good	None	Very Excellent
WLN006	Very Good	Very Good	Good	Excellent	None	Excellent
WLN007	Excellent	Very Good	Poor	Very Good	None	None
WLN008	Very Good	Very Good	None	Excellent	None	Excellent
WLN009	Excellent	Excellent	Excellent	Excellent	None	Average
WLN010	Average	Very Good	Excellent	Excellent	None	Very Excellent
WLN011	None	Very Good	Excellent	Good	None	Very Excellent
WLN012	Excellent	Good	Excellent	Very Good	None	Average
WLN013	None	Average	Average	Very Good	None	Cheap
WLN014	None	Very Good	Very Good	Very Good	None	Cheap
WLN015	Good	Poor	Average	Poor	None	Cheap

Ideal Score	WLN007	WLN008	WLN009	WLN010	WLN011	WLN012
Alternative	Funds Implementation (L: 006)	Funds Maintenance (L: 001)	Funds Advisory (L: 002)	Funds Growth (L: 005)	Skills Technical (L: 007)	None
WLN002	Excellent	Excellent	Excellent	Good	Average	None
WLN003	Excellent	Excellent	Very Excellent	Excellent	Excellent	None
WLN004	Very Excellent	Very Excellent	Excellent	Excellent	Average	None
WLN005	Very Excellent	Very Excellent	Excellent	Excellent	Good	None
WLN006	Excellent	Excellent	Excellent	Excellent	Good	None
WLN007	Very Excellent	Excellent	Excellent	Excellent	Average	None
WLN008	Very Excellent	Good	Average	Excellent	Good	None
WLN009	Available	Available	Excellent	Available	Good	None
WLN010	Very Excellent	Very Excellent	Excellent	Excellent	Good	None
WLN011	Very Excellent	Excellent	Excellent	Excellent	Very Good	None
WLN012	Average	Average	Excellent	Average	Good	None
WLN013	Cheap	Cheap	Cheap	Cheap	Average	None
WLN014	Cheap	Good	Excellent	Good	Very Good	None
WLN015	Cheap	Good	Excellent	Good	Very Good	None

Ideal Value	Q1 (280)	Q3 (320)	IR (160)	Q1 (280)	Q3 (320)	Z-Score
Alternative	Skills Based (L: 309)	Analogue Web Page (L: 311)	Analogue Openness (L: 309)	Analogue Mobility (L: 311)	Analogue Multi-tenancy (L: 309)	
Q10 (100%)	Good	Excellent	Excellent	Excellent	Good	98%
Q1 (25%)	Good	Good	Very Good	Excellent	Excellent	95%
Q100 (0%)	Good	Good	Excellent	Excellent	Excellent	98%
Q105	Good	Poor	Very Good	Very Good	Good	95%
Q101	Good	Good	Very Good	Very Good	Very Good	98%
Q102	Good	Excellent	Excellent	Good	Good	95%
Q103	Average	Very Good	Excellent	Very Good	Good	98%
Q104	Very Good	Good	Very Good	Excellent	Excellent	95%
Q105	Good	Very Good	Excellent	Excellent	Excellent	95%
Q106	Good	Good	Good	Very Good	Very Good	98%
Q107	Poor	Poor	Good	Very Good	Good	95%
Q108	Good	Excellent	Very Good	Average	Average	98%
Q109	Good	Good	Good	Good	Good	95%
Q110	Average	None	Average	Poor	None	90%

Ideal Value	Q1 (280)	Q3 (320)	IR (160)	Q1 (280)	Q3 (320)	Z-Score
Alternative	Agility Rules Based (L: 310)	Agility Parallel processes (L: 313)	Agility Fast of change (L: 311)	Agility Flexibility (L: 309)	Partial Considerations Open Source (L: 315)	
Q10 (100%)	Yes	Yes	Very Good	Excellent	None	95%
Q1 (25%)	Yes	Yes	Very Good	Excellent	None	95%
Q100 (0%)	Yes	Yes	Very Good	Good	None	95%
Q105	Yes	Yes	Very Good	Very Good	None	95%
Q101	Yes	Yes	Good	Very Good	None	95%
Q102	Yes	Yes	Very Good	Average	Good	95%
Q103	Yes	Yes	Excellent	Average	Good	98%
Q104	No	No	Good	Good	None	95%
Q105	No	Yes	Good	Excellent	None	95%
Q106	No	No	Average	Very Good	None	95%
Q107	No	No	Average	Average	None	95%
Q108	No	No	Good	Poor	Good	98%
Q109	No	No	Average	Average	None	95%
Q110	No	No	Average	Poor	None	95%

Ideal Value	Q1 (280)	Q3 (320)	IR (160)	Q1 (280)	Q3 (320)	Z-Score
Alternative	Partial Considerations Empowerment (L: 310)	Partial Considerations Skills Development (L: 313)	Risk Technology (L: 316)	Risk Financial (L: 316)	Risk Operational (L: 310)	
Q10 (100%)	No	No	Low Risk	Low Risk	Low Risk	Low Risk
Q1 (25%)	No	No	High Risk	High Risk	Low Risk	Low Risk
Q100 (0%)	No	No	Low Risk	Low Risk	Low Risk	Low Risk
Q105	No	No	Low Risk	High Risk	Low Risk	Low Risk
Q101	No	No	Average Risk	Average Risk	Average Risk	Average Risk
Q102	Yes	Yes	Average Risk	Low Risk	High Risk	High Risk
Q103	Yes	Yes	Average Risk	Average Risk	Low Risk	Low Risk
Q104	No	No	Low Risk	Low Risk	Low Risk	Low Risk
Q105	No	No	Low Risk	High Risk	Low Risk	Low Risk
Q106	No	No	Average Risk	High Risk	Average Risk	Average Risk
Q107	No	No	Average Risk	Low Risk	Average Risk	Average Risk
Q108	No	Yes	Average Risk	Low Risk	Average Risk	Average Risk
Q109	No	No	Low Risk	Low Risk	Average Risk	Average Risk
Q110	No	No	High Risk	Low Risk	High Risk	High Risk

Objective	Weight	Risk	Vendor	Score
Alternative	Risk Weight (L: 100)	Risk Vendor (L: 100)		
WOCUS4all	Low Risk		Low Risk	
IFCA	Low Risk		Low Risk	
Wocus4all	Low Risk		High Risk	
HIS	Low Risk		High Risk	
HRI	Average Risk		Low Risk	
Compiere	Low Risk		Low Risk	
Basel	Low Risk		Low Risk	
Confera	Low Risk		Low Risk	
Basel	Low Risk		Low Risk	
IBS	Low Risk		High Risk	
IFCA	Low Risk		High Risk	
WOCUS4all	Average Risk		Average Risk	
WOCUS4all	Average Risk		Low Risk	
WOCUS4all	High Risk		High Risk	
WOCUS4all	High Risk		High Risk	

Figure 19 – Data Grids

### 7.3 - Results

The sub-objective values are then weighted according to the weights of the model. This then adds up to give each vendor a score – the totals column. The results are as follows:

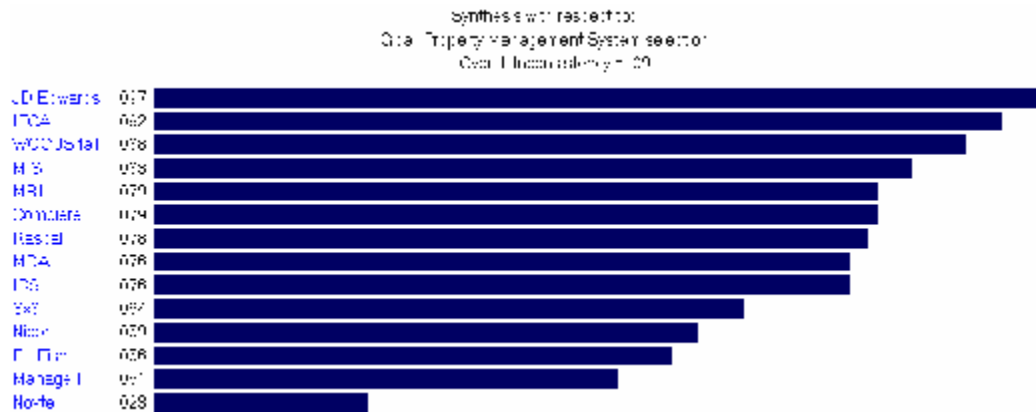


Figure 20 – Synthesised Results

The top candidate is JD Edwards, followed by IFCA and Wocus4all.

## 7.4 - Sensitivity Analysis

To perform sensitivity analysis, we extracted the top six candidates and normalized their respective scores.

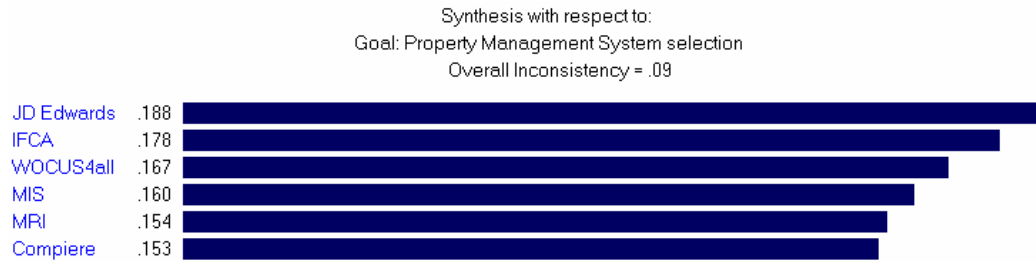


Figure 21 – Synthesised Results (Top 6)

The sensitivity graph is shown below:

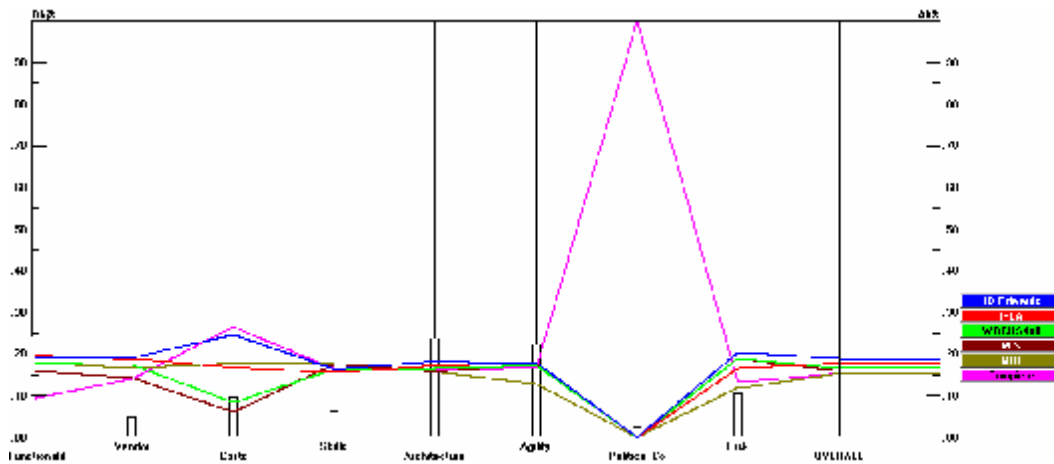


Figure 22 – Overall Sensitivity Graph

The eight main criteria are displayed at the bottom of the graph, with the bar height corresponding to the derived weight of that criterion. Scale for the criterion weight is on the left vertical axis. The alternatives are shown on the right vertical axis, with the order of preference top to bottom.

By adjusting the main criteria weight, one can do a what-if analysis to see how a variation in the main criteria weight would have affected the outcome. In this case JD

Edwards would still be the preferred vendor even if any one criterion were to be changed considerably. This excludes the Political consideration criterion. This is the only criterion where only one vendor – Compiere scored high.

The three criteria that received most importance, i.e. Functionality, Architecture and Agility will now similarly be examined.

**Functionality:**

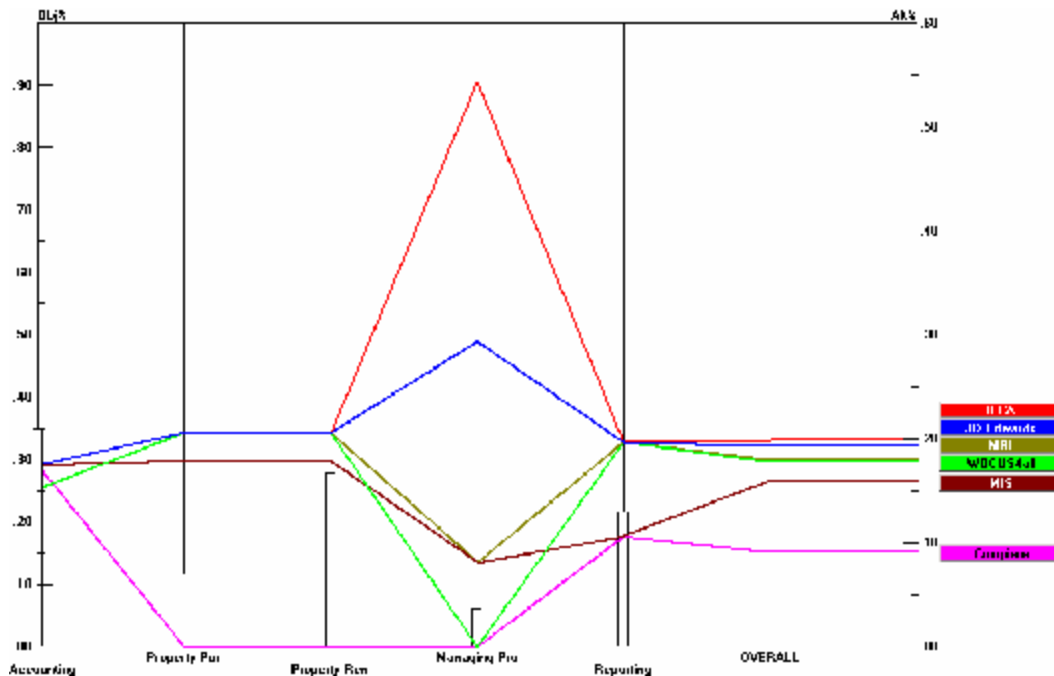


Figure 23 – Sensitivity Graph - Functionality

The preferred vendor, considering functionality in isolation of all other factors, is IFCA. The reason is that it scored very high for the Managing Property Criterion. This was rated to be the least important sub criterion at .057. This value has to be increased to about .50 to make IFCA the overall preferred vendor. This is clearly not a reasonable increase.

## Architecture:

JD Edwards scores best on all the sub criteria, and the decision is therefore insensitive to variation of the sub criteria weights.

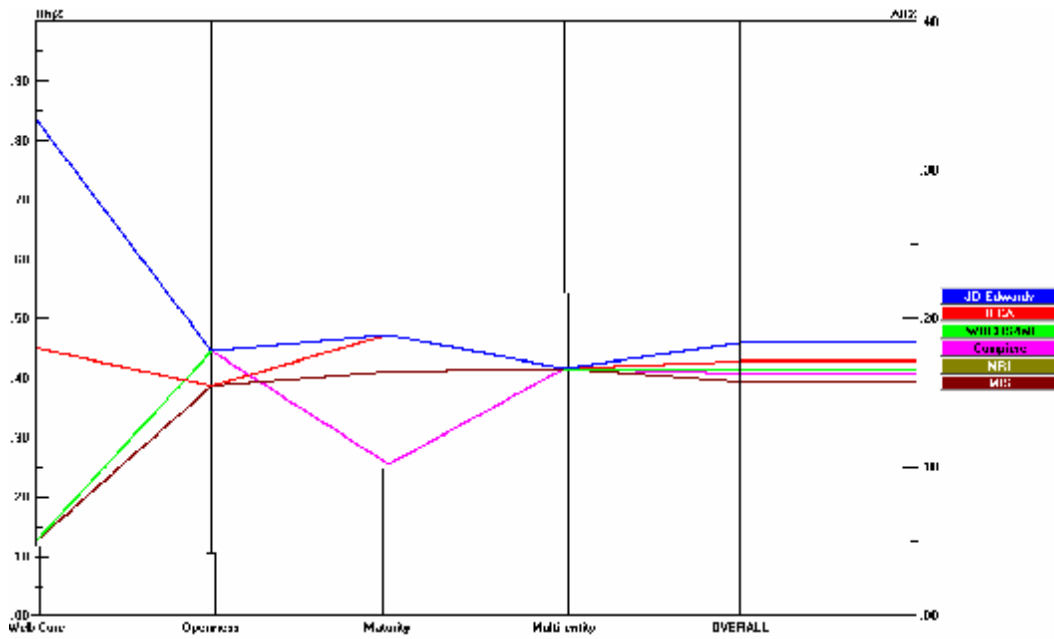


Figure 24 – Sensitivity Graph - Architecture

## Agility

In this graph, JD Edwards and IFCA both have the top score on all the sub criteria. The graph only displays the blue line, but the red for IFCA is underneath. Also it just displays the IFCA label higher than JD Edwards, but they have exactly the same score. The effect of varying sub criteria will also not have an effect on the overall preferred vendor.

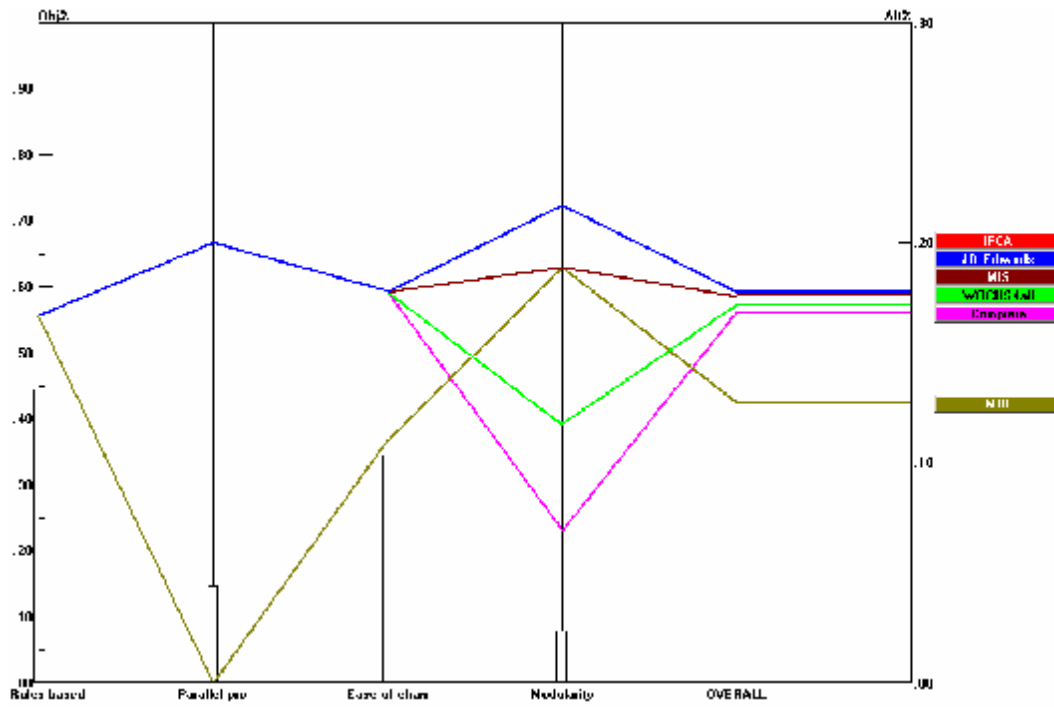


Figure 25 – Sensitivity Graph - Agility

## 8. - Results

### 8.1 - Evaluation of Outcomes

The value of the above approach is that it encourages decision makers to think more carefully about what is important in a particular decision, and how the alternatives perform with respect to objectives (Annotated Bibliography of COTS Software Evaluation).

Based on the evaluation outcomes, it is evident that JD Edwards ranks 1<sup>st</sup> above all the other vendor products, meeting the overall ICT strategy requirements for the housing sector in South Africa. This vendor is the preferred solution under each of the eight ranking criteria.

Compiere is a web based open-source ERP application which offers many of the same advantages of JD Edwards, with some additional advantages in terms of its licensing and development models. It is supported in South Africa and is the only system reviewed which would tie in with the South African Government initiative to promote open source, and therefore raises some interesting possibilities. It must be highlighted though that although it has a solid accounting base and many of the generic features found in the other systems, it has no specific property management functionality and therefore must be evaluated as a possible higher risk, consistent with a major software development effort.

Conducting a focused feasibility study into Compiere as a wild-card option – before committing to JD Edwards - would be most beneficial, since it would open up some interesting opportunities as described earlier. This of course needs to be decided in light of budget constraints, service delivery pressures and capacity to drive such a study.

## **8.2 - Test of the Hypotheses**

### **8.2.1 - The Main Hypothesis**

JD Edwards came through consistently as the leading system to meet the requirements of the strategic model for the housing sector in South Africa. The JD Edwards system complies with all of the requirements of the Social Housing sector in South Africa. It is web-based, easy to use, is an open system and is scalable enough to handle any number of housing units as may be required. Importantly, the system is capable of including many entities in the form of SHIs and can accommodate the different requirements of each of these. Based on the conclusions of the research, we can therefore deny the main hypothesis posited.



## 8.2.2 - The Sub Hypothesis

Results from the research that was undertaken, reflect a clear dichotomy between SHIs. The larger of the SHIs have well established IT infrastructure with current hardware and property management software that either has integrated accounting capabilities or is supported by a stand alone, off the shelf accounting package.

On the other hand, the smaller SHIs seem to be running budget hardware and software. Networking is rudimentary and connections to the internet are either through ADSL or dialup. Very few are running property management software and typically keep records using MS Excel, if computerised at all. Skill levels in applications range from very low to adequate.

Based on the conclusions from the research, we can therefore confirm the sub hypothesis posited.

## 9. - Recommendations

### 9.1 - Implementation

The complexity of implementing an ERP package such as JD Edwards must not be underestimated. The political and contextual issues are as much of a risk in the case of an ERP implementation. In fact they are often exacerbated as the perceived inflexibility of such a system may be seen as a political tool to enforce compliance on the part of the users, who are in this case other organisations. In addition the implementation costs of an ERP are typically anywhere from two to ten times the cost of the actual software itself, and such projects often overrun on time. The package 'exists' but cannot function in the organisation without configuration, or even customisation.

It is recommended that the minimum requirements are selected for the initial implementation. These are the financial and property management modules. This will both reduce the initial cost and the complexity of the implementation. A number of initial steps are recommended before commencing with the recommended implementation of the system. These are:

- Identify those SHIs that are willing to participate
- Identify the SHIs that are suitable candidates for participation – including their current record of managing properties. SHIs that do not do any business should of course be excluded.
- Identify the level of computer literacy of the staff in the selected SHIs, and the extent to which basic ICT skills training is required.
- Identify where and by whom the system will be hosted – this could be at the National Department of Housing, the SPSH or an outsourced partner able to provide the required level of support and service.
- Selection of a platform (Linux is recommended for the server)
- Selection of a database.

## 10. - Conclusion

Housing in South Africa for many remains a critical issue and a huge backlog of affordable housing remains a priority of the Government's National Housing Strategy and the more recent Breaking New Ground document. The solution has attracted funding and support from the European Union (EU) as well as the South African Government. The latter have committed large-scale financing to address the housing crisis more speedily than has been the case over the last ten years.

The Social Housing sector is made up of a number of organisations, with the SHF and SPSH playing key roles in the provision of housing. What is required now is a delivery mechanism that will be able to accelerate the process of delivering housing where needed. The grass-roots of the housing initiatives in place in South Africa are the Social Housing Institutions (SHIs). These are essentially the delivery mechanism for the provision of Social Housing.

To respond to this situation required a strategy that will assist the sector in its core business of providing housing. The strategy that has been developed recommends a central hub to allow for both large and small SHIs to use a system made available across the sector while allowing SHIs the choice of using their own system. In support of the strategy, the Internet was examined as an effective and efficient delivery mechanism for this strategy. Web based systems are both open and simpler to administer - especially for a widely distributed system.

A wide range of options were examined to identify a suitable system. Using a sophisticated decision tool, the JD Edwards system was identified as the most suitable option available in South Africa. While a few of the other system evaluated displayed as much functionality, the JD Edwards system scored in terms of its open architecture, platform independence, the web-based nature of the system, the ability to handle multiple independent entities, flexibility, rule based and the pricing model. The product is priced at an enterprise level allowing for major growth without incurring additional licensing fees.

Open-sourced software options were also examined – in particular Compiere – a fully fledged ERP system capable of providing a solid basis for the ICT requirements of the sector, especially as these requirements are not yet stable.

Compiere is fully rules based, providing the mechanism for adding property management functionality. The system offers great flexibility, platform and vendor independence, and supports business agility as discussed earlier. In terms of the strategic objectives, this could prove to be the most viable option for the sector allowing for a truly incremental approach, a lower overall cost-of-ownership and the development of skills to support the sector.

## Appendix A - National Housing Strategy

The National Housing Strategy originated from the 1994 Department of Housing White Paper - A New Housing Policy and Strategy for South Africa. This document outlined the government's objectives, the current situation and a proposed housing strategy for the country (p23-24).

Government's overall approach to the housing challenge is aimed at mobilising and harnessing the combined resources, efforts and initiative of communities, the private, commercial sector and the State. It seeks to do this through pursuing seven key strategies:

- stabilizing the housing environment in order to ensure maximal benefit of State housing expenditure and mobilising private sector investment;
- facilitating the establishment or directly establishing a range of institutional, technical and logistical housing support mechanisms to enable communities to, on a continuous basis, improve their housing circumstances;
- mobilising private savings (whether by individuals or collectively) and housing credit at scale, on a sustainable basis and simultaneously ensuring adequate protection for consumers;
- providing subsidy assistance to disadvantaged individuals to assist them to gain access to housing;
- rationalising institutional capacities in the housing sector within a sustainable long term institutional framework;
- facilitating the speedy release and servicing of land;
- coordinating and integrating public sector investment and intervention on a multifunctional basis.

The National Housing Strategy has been revised and is detailed in a new document – “Breaking New Ground” released in September 2004. While rooted on the 1994 White Paper new priorities have become important:

- Integration and the building of secure communities
- A three tier categorization of housing beneficiaries
- Redefining the role of government in the housing market

The document aims to facilitate increased capacity of the Social Housing Institutions “through the introduction of the new establishment grant which will provide operational support and through the establishment of a focused support institution in the form of the Social Housing Accreditation Institution” (Breaking New Ground, National Department of Housing, 2004)

The information and communication requirement has “been broadened to focus on the broader residential market”.

Intervention to be undertaken to enhance data collection, management information, monitoring

“Performance Measurement - A comprehensive housing sector monitoring, information and reporting system based on key performance indicators must be developed, This system must be capable of regular, structured reporting on the performance (quantitative as well as qualitative) of the various housing programmes and housing institutions. This information should be used to support policy development and enhancements and should form the basis for developing reports to institutions established in terms of Chapter 9 of the Constitution (e.g. Human Rights Commission, Office for Women etc.), Parliament and international agencies such as UN Habitat.” (ibid p 27).

The structure of the sector is set to change:

There are three national housing agencies which are of specific relevance. They are:-

1. The Social Housing Accreditation Corporation has been conceptualized under the Social Housing Policy and the Social Housing Bill. This corporation will accredit Social Housing Institutions to qualify for access to state grant support in the form of project capital grants through the Institutional Housing Subsidy Programme. However, most SHIs applying for accreditation and registration would not be successful in obtaining such accreditation unless they were provided with support in establishing or improving their operations. This support would be administered by the Social Housing Accreditation Corporation in the form of the pre-establishment grant, the establishment cost grant, and the capacity building grant as outlined in the Social Housing Policy. The combination of regulation and grant making functions would place the Social Housing Accreditation Corporation in a position to play a proactive, value adding roll rather than merely a reactive regulatory or policing roll. This is the model used by the British equivalent (Social Housing Corporation), and which has worked successfully for many years,

2. The Social Housing Foundation (SHF) has a mandate from national government to build the capacity of Social Housing Institutions (SHIs), The SHF is geared chiefly as a training and capacity building organization However, consequent to the direct intervention of the Department in the administration of (he Social Housing Support Programme by the SHF, this organization has undergone some restructuring in an effort to define B clear roll for the future. The SHF has also lost 20% of its staff through resignations subsequent to the Intervention of the Department. In modelling the Social Housing Accreditation Corporation, the Department will consider assuming the SHF within the Social Housing Accreditation Corporation as the training and capacity building department of the corporation. Although this model is only a concept at this stage, and must be researched in detail as part of implementing this business plan, the opportunity of establishing the Corporation as "successor in title" to the SHF, but with a regulatory/accreditation function, a grant making function, and a capacity building function (rather than only a capacity support function), is attractive to the Department, and will therefore be pursued further under this business plan.

3. The National Housing Finance Corporation (NHFC} was established by national government in 1995 in order to leverage debt financing from the private sector into the low to moderate housing market. Within the NHFC, the Alternative Tenure Division is responsible for processing applications for loans for Institutional Housing. The Institutional Housing Programme is reliant to a significant extent on the performance of the NHFC in both directly financing, and co-financing or leveraging loans for the construction of Institutional Housing.

## **Housing Institutions (private sector)**

Housing Institutions are the implementing agents for the development and management of Institutional Housing. Substantial reliance is placed upon these institutions (primarily private sector and local authority initiated Social Housing Institutions). To date, the expectations placed upon these institutions to deliver institutional housing has not been matched by adequate investment into ensuring that these Institutions are capacitated to the required level in order to carry the social and developmental mandate placed with them. The National Housing Strategy proposed here proposes investment into ensuring just such capacitation.

### **CAPACITY REQUIREMENTS:**

Capacity shortfalls for the Institutional Housing Programme are strongly evident within the current reality. Government's programme must inflate the current capacity levels substantially so that the Institutional Housing Programme is successful.

The most critical area requiring greater capacity is the area of housing management. This area of focus is substantially more critical than the area of housing production. Although capacity levels of the housing construction sector have declined between 1997/98 to 2004/05 and this is a matter of some concern, the capacity levels of local authorities and Social Housing Institutions (SHIs) or private housing management companies to competently and effectively maintain and manage Institutional Housing are inadequate by a sizeable margin.

The Department will have to establish the proposed dedicated Social Housing Unit and provinces with high rental need should mirror such structures in their organisations. These structures will require intensive training

The capacity of the Department's national agencies, such as the Social Housing Foundation, will need to be built and improved through initiatives of the Department such as the Support Programme for Social Housing. Also, entirely new capacity on top of that existing within the SHF will be required in order to operationalise the Social Housing Accreditation Corporation.

### **TIMEFRAMES:**

There are six (6) sub-programmes within the Institutional Housing Programme. Aspects of this programme are already under implementation through existing policy which had been in existence prior to the development of this national housing strategy (notably Social Housing, Transitional Housing, and Cooperative Housing),

The Social Housing Bill will be promulgated in early 2005;

Detailed implementation guidelines will be developed during November 2004 to March 2005 with a view to implementation in April 2005.

The accreditation body will be established and operationalised during April 2005, Accreditation will commence in June 2005;

Housing institutions will continue delivery of rental housing, and will experience enhanced performance in this area by late 2005, beginning of 2006.

**MONITORING AND EVALUATION:**

Monitoring will be undertaken by the Accreditation regulator and the Social Housing Directorate through the accreditation process and evaluation initiatives. The Capacity building dimension will be monitored by the Social Housing Foundations and the Accreditation Corporation,

KPI1: Promulgation of Social Housing Bill in March 2005.

KP12. Approval of Social Housing Policy Review by Minmec in November 2004,

KPI3: Approval of Social Housing Policy Guidelines by Minmec in March 2005.

**Table 5 – Urban and Rural Visions**

Urban Vision	Rural Vision
<p>Urban settlements that by 2020 will be:</p> <ul style="list-style-type: none"> <li>• Spatially and socio-economically integrated, non-segregated, free of racial and gender discrimination, enabling people to make residential and employment choices to pursue their ideals.</li> <li>• Centres of economic, environmental and social opportunity where people can live and work in safety and peace.</li> <li>• Centres of vibrant urban governance managed by democratic, efficient, sustainable and accountable metropolitan and local governments in close co-operation with civil society and geared towards innovative community-led development.</li> <li>• Environmentally sustainable, marked by a balance between quality built environment and open space; and between consumption needs and renewable and non-renewable resources. Sustainable development meets the needs of the present while not compromising the needs of future generations.</li> <li>• Planned for in a highly participative fashion that promotes the integration and sustainability of urban environments.</li> <li>• Marked by housing, infrastructure and effective services for households and business as the basis for an equitable standard of living.</li> <li>• Integrated industrial, commercial, residential, information and educational centres, which provide easy access to a range of urban resources.</li> </ul>	<p>Rural settlements that by 2020 will ensure:</p> <ul style="list-style-type: none"> <li>• Much greater access for rural people to government support and information and to commercial services, with a more logical spatial network of towns, services, roads and transport systems serving both market traders and customers;</li> <li>• Close availability of water, sanitation and fuel sources, giving everyone more time for economic productivity and better health;</li> <li>• Dignity, safety and security of access for all, especially women, to useful employment, housing, and land, with people able to exercise control over their society, community and personal lives, and to invest in the future.</li> </ul>



- Financed by government subsidies and by mobilising additional resources through partnership, more forceful tapping of capital markets, and via off-budget methods.

(Housing Code)

The Department of Housing intends to meet the following qualitative strategic goals in line with the mission:

- To improve overall service efficiency and become a transformed, performance orientated Department;
- To have a vision and strategic objectives that are at all times relevant to the political imperatives and to the housing environment;
- To proactively guide housing policy development/review by precise analysis of the housing environment; and
- To be the leading authority on housing and human settlement information in the country and to provide speedy, user-friendly access to information at all times.

**Table 6 – Summary of Policy Initiatives**

Arising out of the Seven White Paper Strategies (Housing Code)

STRATEGY	POLICY INITIATIVE	
1. Stabilising the housing environment	Record of Understanding	<ul style="list-style-type: none"> <li>• Banking Code of Conduct</li> <li>• Mortgage Indemnity Scheme</li> <li>• National Home Builders Registration Council</li> <li>• Servcon Housing Solutions</li> <li>• Masakhane Campaign</li> </ul>
	"New Deal"	Thubelisha Homes
	Housing Consumers Protection Measures Act	
2. Mobilising credit	National Housing Finance Corporation	<ul style="list-style-type: none"> <li>• Rural Housing Loan Fund</li> <li>• Niche Market Lenders Programme</li> <li>• Housing Equity Fund</li> <li>• Housing Institutions Development Fund</li> <li>• Gateway Home Loans</li> </ul>

	Nurcha	<ul style="list-style-type: none"> <li>• Guarantee Programmes</li> <li>• Joint Venture Development Fund</li> </ul>
	Social Housing Foundation	
3. Providing subsidy assistance	Housing Subsidy Programme	<ul style="list-style-type: none"> <li>• Project-linked</li> <li>• Individual</li> <li>• Consolidation</li> <li>• Institutional</li> <li>• Relocation</li> <li>• Rural</li> </ul>
	Discount Benefit Scheme	
	Hostels upgrading programme	
	Bulk & Connector Infrastructure Grant (now part of CMIP) <a href="#">[1]</a>	
4. Supporting the people's housing process	National Housing Policy: supporting the People's Housing Process	Institutional Arrangements: <ul style="list-style-type: none"> <li>i. Support organisations</li> <li>ii. Funding</li> <li>iii. Decision-making</li> </ul>
		Project Application Process: Community workshops
		Peoples Housing Partnership Trust UTshani Fund
5. Rationalising institutional capacities	Housing Act, 1997	
6. Facilitating the	Development Facilitation Act, 1995 <a href="#">[2]</a>	Land Development Objectives

speedy release and servicing of land	Legislation and Policy for the release of land[3]	<ul style="list-style-type: none"> <li>• Less Formal Townships Establishment Act, 1991</li> <li>• Provision of Certain Land for Settlement Act, 1993</li> <li>• Settlement and Land Acquisition Grant</li> <li>• Extension of Tenure Security Act, 1997</li> <li>• Communal Property Association Act, 1996</li> <li>• Interim Protection of Land Rights Act, 1996</li> <li>• Land Reform (Labour Tenants) Act, 1996</li> <li>• Upgrading of Land Tenure Rights Act, 1991 (amended in 1996)</li> <li>• Protection of Illegal Evictions from, and Unlawful Occupation of Land Act, 1998</li> </ul>
	Housing and Infrastructure Services	<ul style="list-style-type: none"> <li>• Norms &amp; Standards</li> <li>• Environmental Standards[4]</li> <li>• Physical or Engineering Standards</li> </ul>
	Technology choice and infrastructure on site	
7. Co-ordinating state investment in development	Urban Development Framework	<ul style="list-style-type: none"> <li>• Integrating the City</li> <li>• Improving Housing and Infrastructure</li> <li>• Building Habitable and Safe Communities</li> <li>• Promoting Urban Economic Development</li> </ul>
	Rural Development Framework[5]	
	Local Government Transition Act[6]	Integrated Development Plans

	Co-ordinated Government	<ul style="list-style-type: none"> <li>• Housing Minmec</li> <li>• Heads of Housing Committee</li> <li>• Budget Management Committee</li> <li>• Integrated &amp; Co-ordinated Information systems</li> </ul>

The Department of Housing's qualitative strategic objectives rely on the availability of an accurate and up-to-date source of information for effective implementation. This implies that:

1. The organizations involved in the provision of housing are able to keep accurate records of actual housing provided and the nature of that housing and
2. That the information accumulated by these organizations is available in a meaningful way to the department of housing.

The department is aiming to achieve improved overall service efficiency – a goal that requires timeous access to the right information; to guide policy 'by precise analysis of the housing environment' and to 'be the leading authority on housing and human settlement information in the country and to provide speedy, user-friendly access to information at all times' both imply access to complete information of the housing sector.

## Appendix B - Sample Group of Housing Institutions

No.	NAME OF SHI	CONTACT PERSON	PHYSICAL ADDRESS	POSTAL ADDRESS	TEL.NO.	FAX. NO.
1	Alexandra Social Housing Company (ASHCO)	Maneo Thelejane	209 Smit street, UCS building, Braamfontein, 2107		011-276 1459	011-3761784
2	Cape Town Community Housing Company (CTCHC)	Mervyn Bregman	Block E, Belveder, Bellarosa street, Tyger valley, 7530	PO Box 5522, Tyger valley, 7530	021-914 3990	021-914 3988
3	First Metro Housing Company (FMHC)	Patrick Lemmens	Suite 201, 2nd floor, Salisbury Centre, 332-334 Smith Street, Durban, 4001	P.O. Box 6049 Durban 4001	(031) 307 7676	(031) 307 7656
4	Greater Middleburg Housing Association (GMHA)	Thomas Ntuli	148 Jan van Riebeeck str, Middelburg, 1050	PO Box 1197, Middelburg, 1050	(013) 282 9595	(013) 282 9599
5	Johannesburg Housing Company (JHC)	Taffy Adler	53 Main Str.JHB & Maclaren Str. Marshalltown, Johannesburg, 2001	P. O. Box 61738 Marshalltown 2107	(011) 241 6900	(011) 836 6887
6	Johannesburg Trust for the Homeless	Chris Lund			011 688 7810	011 688 7801
7	Mbombela Housing Association	Ben Maseko	3rd floor, Midcity Building, Cnr Brown & Paul Kruger street, Nelspruit	P.O. Box 4612, Nelspruit, 1200	013-7554897	013-7554927
8	Msunduzi Housing Association (MHA)	Mayash Chetty	303 Loop street, Pietermaritzburg	P.O. Box 2318 Pietermaritzburg 3200	033-345 2184	033-345 2190
9	Reahola Housing Association	Simon Tlale	38 Heeren street, Welkom, 9460	PO Box 3932, Welkom, 9460	057-352 7143/4	057-352 7616
10	Social Housing Company (SOHCO)	Heather Maxwell	Durban			
11	Yeast City Housing (YCH)	Stewart Talbot / Stephen De Beer	288 Burgerspark lane, Pretoria central, 0001	P.O.Box 11047, Tramshed, Pretoria, 0126	(012) 320 7962	(012) 3207962

## **Appendix C - Functional Requirements of a Generic Specification**

### **C.1 - Manage Space and Leases**

- Tenant liaison and contact reports
- Deal with vacating tenants and deposit refunds, termination costs
- Occupancy rates per building or group of buildings
- Vacancy schedules and ratios
- Lease expiry profiles
- Tenancy schedules
- Arrears ratios
- Diary reports
- Lease checklists
- Operating cost ratio reports
- Tenant deposit reports
- Tenant retention
- Tenant renewal ratios
- Insurance details and policy renewal dates

### **C.2 - Bill Tenants**

- Automated invoicing of rentals and recoverable operating costs
- Automated escalation in rental based on lease
- Must provide for varying rent increase options
- Bank deposit slips
- Debit order collections
- Customised bank deposit slips

### **C.3 - Collection of Rental**

- The amount of rent to be derived from the lease. Finalisation of the lease should activate the rent collections
- Handling of cash and collection of rentals
- Reconciliation and remittance advices on statements
- Import tenant receipts from electronic bank statements

On line, Bank download, ACB or EFT

### **C.4 - Debtors Control (Accounts Receivable)**

- Statements to tenants
- Record of accounts in dispute, credit ratings, attorney cases, black listings etc.
- Late payment interest calculations and/or penalties
- Age analysis
- Tenant transaction history
- Advance rent control
- Arrears letters, letters of demand, arrears reports

### **C.5 - Creditors Control (Accounts Payable)**

- Payment to suppliers and contractors
- EFT or cheque run processing
- Creditors reconciliation
- Payment registers
- Payment remittances
- Payment to non registered suppliers
- Regional Services Council (RSC) returns and payments

- VAT returns and payments
- Facility to capture ad-hoc charges or adjustments
- Must provide both accrual and cash based postings
- Creditors reporting

## **C.6 - Control Cash Flow**

- Manage disbursements
- Supplier financial summary with age analysis
- Supplier transaction history
- Consolidated cash book
- Per property cash book
- Real time cash situation per property
- Cash flow statements
- Cash flow exposure

## **C.7 - Maintenance Management**

- Management to be preventative and reactive
- Must provide for recurring and ad-hoc
- Maintenance management to be centralised
- Record inspection details
- Log service requests
- Prioritise and monitor service requests
- Issue requests for quotation
- Status reports
- Repairs and maintenance commitment
- Interface to call centre



- Scheduling of routine maintenance tasks

## **C.8 - Asset Management**

The objective of property asset management is to ensure that the property continues to provide maximum return on investment. In this process, the market demand, condition, performance, costs and projected returns are monitored.

## **C.9 - Instalment Sale / Loan Management**

The sale of property units by instalment is undertaken by a number of SHIs. The system must be able to retain information and calculate variables.

- Current rate of interest
- Instalment amount
- Amount of original loan (capital)
- Loan balance
- Interest rate basis
- Interest accrual date
- Payment Arrears
- The system must be able to calculate the instalment amount based on the prevailing rate of interest, and to vary this with interest rate changes
- Record of price of unit
- Record of date of sale
- Expected date of final payment
- Copy of the agreement

## **C.10 - Projections and Budgets**

- Contractual income and recoveries
- Reversion of rentals to market on expiry

- Budgeting and forecasting
  - Current year
  - Revised current budgets
  - Next years
  - Last years
  - 5 year income projections
- Actual versus budgeted

## **C.11 - Key Performance Indicators**

- Profitability
- Net income
- Gross profit
- Returns
- Net present values
- Internal rates of return
- Age analysis
- Arrears trends
- Vacancy trends
- Expiry profiles
- Discrepancy reports
- Statistical portfolio analysis

## **C.12 - Investment Analysis**

- Contribution and investment returns
- Exposure in terms of vacancies
- Capital growth in asset
- Discounted cash flow valuation

- Income capitalisation

## **C.13 - General Accounting**

The ICT system requires the ability to retain details and history of accounting transactions and to manage all accounting functions. The accounting function should either be through a built-in accounting function or through a seamless interface to an adequate accounting package.

- Flexible chart of accounts
- Full double entry accounting procedures
- Provision for multiple bank accounts with analysis per property or consolidated
- Interface into external off the shelf accounting systems, general ledgers, cashbooks, salaries and wages systems
- Automation of cash book reconciliations
- Reconciliation of expenses to recoveries
- Bank service fee calculations
- VAT accounting dealing with both exempt and non exempt supplies
- Provision for multi year end reporting
- Unlimited financial periods with separate period controls for tenant statements
- Controlled procedures for deleting transaction history
- Income statement and balance sheet
- Trial balances
- Regional Services returns and automated payments
- Corporate tax and allowances
- Management of sinking funds



Figure 26 – Accounting Systems – Core Components

## C.14 - Asset Registers

The Asset management component of the system must have the ability to maintain a complete register of all assets and their location.

Details to be retained against assets include:

- The cost of the asset
- Depreciation and basis of depreciation calculation
- Valuation details and frequency of valuations
- Scheduling of valuations
- Condition of assets and maintenance requirements
- Additions
- Disposals
- Transfer of assets

- Write-offs

## **C.15 - Security and Access Control**

- Profiles per user, including passwords and preferences
- Detailed activity logs
- Critical events to be logged with exception reporting
- Audit trails for all financial transactions
- Facility for roll back of database
- Either single or multi user

## **C.16 - New Business Opportunities**

- Waiting list management of prospective tenants
  - Prioritisation according to need and affordability
  - Name and contact details of applicant and dependents
  - Accommodation required
  - Gross monthly family income
  - Details of subsidy eligibility
  - Urgency of the request
- Market information of similar properties
- Opportunities arising from business contacts
- Tenant surveys
- Demographic information - age, income groups, range of ages per household, occupations etc.

## **C.17 - Other Tools and Utilities**

- Built in financial calculator

- Flexible end user report writer. While a number of reports may be pre-defined, some of the reporting requirements are specific to specific organisations and time periods. A report definition (or an SQL reporting wizard) is useful to define reports required by a specific user.
- Easy administration and management of the database
- Optimisation of system backup and restoration
- Interface to third party products e.g. Microsoft excel
- On line help
- Building images and video
- Printing and spooling

# Appendix D - COTS Software Evaluation Forms

**Table 7 – Evaluation Form – Nicor**

<b>Property Management System - Evaluation Form</b>		<i>Key to ratings</i>		
<b>Nicor</b>		<b>A</b>	Good	
		<b>B</b>	Adequate	
		<b>C</b>	Poor	
		n/a		
		Details	Rating	Comments
<b>Vendor</b>				
	Vendor Name	Nicor		
	Product Name	PolPro, FinPro		
	When Established	1977		As part of JHI, Became independent 1997
	Vendor Country (Base)	South Africa		
	South African Representation & Support Partners	Nicor Outsourcing Holdings	A	Wide client base - demands on support availability
<b>Customers</b>				
<b>Social Housing Sector</b>				
	International (#, sample)	0	C	
	South African (#, sample)	JHC, SEMAG, First Metro and others	A	JHC have used the system extensively. Others are using Nicor on an outsourced basis
	Reference Sites	JHC	B	On the property management side, system handles most required functionality. Accounting system is comprehensive but very difficult to use
	Customer Feedback	Positive	B	Good
<b>Other Property Related Customers</b>				
	International (#, sample)			
	South African (#, sample)	50, JHI, Investec	A	50 operational sites
<b>Product</b>				
<b>Licensing model</b>				
	Nature of Model	Based on number of users, modules chosen and whether hosted. In-house involves an initial capital investment and an annual licencing fee. The bureau option involves a monthly		

		charge.		
	Estimated Licensing Cost	From R26000 per user licence. (PropPro Lite available at R5000 per user)		Rental model based on number of users - works out at +/- 2 times purchase cost
	5 users		n/a	
	50 users		n/a	
	500 users		n/a	
	5 users			
	50 users			
	500 users			
	<b>Technology Architecture</b>			
	Overview/Summary			
	Client/Server	Yes	A	Client Server system - can be used over web using MS Terminal Services
	Web Based	No	C	
	Database Management System	Progress	A	User choice
	Operating System	Any	A	Linux, Windows, UNIX
	Client Requirements	Workstation and Office software	A	Client software must be installed on each w/s, or use Client Server
	Server Requirements		?	Must be powerful enough to cope with bulk remote usage
	Network Requirements	Any Network configuration	A	Using Diginet for remote connections. Trying out using ADSL
	Reliability		A	
	Availability		A	
	Usability		B	
	Openness		B	
	Scalability		A	
	Manageability		B	
	Security		A	
	Ease of Implementation		B	Client server environment client software - must be installed at each workstation. Requires fairly substantial training
	<b>Functionality</b>			
	<b>Core Functionality</b>			
	<b>Integration</b>	Yes	B	
	<b>Property Portfolio</b>			



	Asset Management	Strong	A	
	Project Management	No	C	Project management not included
	Property development	No	C	
	Tender process management		?	
	Property purchase	Can add new property	B	
	Property Improvements	No	C	
	Property Maintenance	No	C	Full management system for managing maintenance tasks including task cards
	Preferred contractor selection			
	<b>Rentals</b>			
	Rent Collections	Yes	A	Auto links to other charges - meter reading, etc.
	Management of Arrears		A	
	Annual rent increase		B	At building level or unit level only
	Manage a waiting list		?	
	Tenant information		A	
	Lease		A	
	Unit Swapping		A	
	Owner Details		A	
	<b>Instalment Sales</b>	Calculates interest on monthly balance only. Cannot calculate instalment amount	C	Functionality has been added but is barely adequate
	<b>Accounting</b>	Full accounting functionality fully integrated with real-estate functionality	B	Although the accounting system is quite comprehensive, it is very difficult to use
	Full Accounting functionality		A	
	Automatic Invoicing		A	
	Budgeting		C	Budgeting more difficult than in Excel according to one client
	Customisable		B	Invoices and accounting reports can be customised
	<b>Reporting</b>	Comprehensive reporting available	A	Reports may be customised, can be exported to excel, and include powerful drill-down facilities. A letter-writing facility is also available
	Ad-Hoc Reporting	Able to create custom reports	B	DB not user friendly - New Data Warehouse Module must be purchased to facilitate as hoc reporting

Related Systems				
	Integrated workflow	No	C	
	Document Management	No	C	
	Rules Base	No	C	
	Business Process Management	No	C	
	CRM	No	C	

**Table 8 – Evaluation Form – JD Edwards**

Property Management System - Evaluation Form		Key to ratings		
<b>JD Edwards...</b>		A	Good	
		B	Adequate	
		C	Poor	
			n/a	
		Details	Rating	Comments
<b>Vendor</b>				
	Vendor Name	Deloitte		
	Product Name	JD Edwards		
	When Established			
	Vendor Country (Base)	USA		
	South African Representation & Support	Partner/Channel	A	
	Partners	Deloitte, IBM, EY		
<b>Customers</b>				
	<b>Social Housing Sector</b>			
	International (#, sample)	0	C	
	South African (#, sample)	1	B	CTCH - have used the system
	Reference Sites	CTCH		System does what they need, good support, but enhancement turnaround time longer than expected. Expensive for an independent SHI
	Customer Feedback	Positive	B	Good
	<b>Other Property Related Customers</b>			
	International (#, sample)			
	South African (#, sample)			
<b>Product</b>				
	<b>Licensing model</b>			
	Nature of Model	Revenue based		A rental model also available
	Estimated Licensing Cost	R1.3 m complete		Based on estimated revenue of R500 m p.a. Includes implementation, Real Estate, Financial, Project Management, CRM, Workflow & Training

	5 users		n/a	Rental model based on number of users
	50 users		n/a	
	500 users		n/a	
	Estimated Additional Costs	Server, Software & Appropriate data base.		
	5 users			
	50 users			
	500 users			
	<b>Technology Architecture</b>			
	Overview/Summary			
	Client/Server			
	Web Based		A	
	Database Management System	DB2, Oracle, SQL Server, etc	A	User choice
	Operating System	Any	A	Linux, Windows, UNIX
	Client Requirements	Workstation with Browser and Office software	A	No installation on individual W/S
	Server Requirements		?	Must be powerful enough to cope with bulk remote usage
	Network Requirements	Internet or any network	A	Can be run directly from the Internet or through a LAN or WAN
	Reliability			
	Availability		A	
	Usability		A	
	Openness		A	
	Scalability		A	
	Manageability		A	
	Security		A	
	Ease of Implementation		B	Rules must be set-up for each entity, but can be implemented at a central point
	<b>Functionality</b>			
	<b>Core Functionality</b>			
	<b>Integration</b>			
	<b>Property Portfolio</b>			
	Asset Management	Strong	A	
	Project Management	Strong	A	Includes project management with full financials
	Property development	Strong	A	
	Tender process management		?	
	Property purchase	Strong	A	
	Property Improvements		A	
	Property Maintenance		A	Full management system for managing maintenance tasks including task cards
	Preferred			

	contractor selection			
	<b>Rentals</b>			
	Rent Collections		A	
	Management of Arrears		A	
	Annual rent increase		A	
	Manage a waiting list		?	
	Tenant information		A	
	Lease		A	
	Unit Swapping		A	
	Owner Details		A	
	<b>Instalment Sales</b>		B	Interest calculation function added, but treated as a lease
	<b>Accounting</b>	Full accounting functionality fully integrated with real-estate functionality	A	
	Full Accounting functionality		A	
	Automatic Invoicing		A	
	Budgeting		A	
	Customisable		A	
	<b>Reporting</b>	Wide range of reporting available	A	
	Ad-Hoc Reporting	Able to create custom reports	A	
	<b>Related Systems</b>			
	Integrated workflow	Option available	A	
	Document Management		A	
	Rules Base		A	
	Business Process Management		A	
	CRM		A	

**Table 9 – Evaluation Form – MDA**

<b>Property Management System - Evaluation Form</b>  <b>MDA</b>		<b>Key to ratings</b> A Good B Adequate C Poor n/a		
		<b>Details</b>	<b>Rating</b>	<b>Comments</b>
<b>Vendor</b>				
	Vendor Name	MDA Property Systems		
	Product Name	MDA Property Manager		
	When Established	1990		
	Vendor Country (Base)	South Africa		
	South African Representation & Support	MDA	A	

	Partners	MS		
<b>Customers</b>				
	<b>Social Housing Sector</b>			
	International (#, sample)		?	
	South African (#, sample)		?	
	Reference Sites			
	Customer Feedback		?	
	<b>Other Property Related Customers</b>			
	International (#, sample)			
	South African (#, sample)	110	A	
<b>Product</b>				
	<b>Licensing model</b>			
	Nature of Model	Number of users renewable annually		Will give 20% discount to Social Housing
	Estimated Licensing Cost			
	5 users		104500	Renewable annually at 18% of initial non-discounted cost + 9% escalation
	10 users		170500	Renewable annually at 18% of initial non-discounted cost + 9% escalation
	20 users		302500	Renewable annually at 18% of initial non-discounted cost + 9% escalation
	Estimated Additional Costs	Windows 2000 Server, Server, & MS SQL Server	?	Can run on MSDE (most clients using this)
	5 users			
	50 users			
	500 users			
	<b>Technology Architecture</b>			
	Overview/Summary			
	Client/Server	Yes	A	
	Web Based	No	B	Terminal Services
	Database Management System	MS SQL Server	B	Restricts choice of operating system & platform
	Operating System	Windows	A	Windows
	Client Requirements	Workstation with Browser and Office software	A	Client software on each workstation
	Server Requirements		?	Must be powerful enough to cope with bulk remote usage
	Network Requirements	Lan, Wan	B	
	Reliability		A	
	Availability		A	
	Usability		A	
	Openness		A	
	Scalability		A	

	Manageability		A	
	Security		A	
	Ease of Implementation		B	Client Server environment
	<b>Functionality</b>			
	<b>Core Functionality</b>			
	<b>Integration</b>			
	<b>Property Portfolio</b>			
	Asset Management	Yes	A	
	Project Management	No	C	
	Property development	No	C	
	Tender process management		?	
	Property purchase	No	B	Can be reflected through Accounting
	Property Improvements	Yes	A	Good facilities management
	Property Maintenance		A	Full management system for managing maintenance tasks including task cards
	Preferred contractor selection	KPIs on suppliers	A	
	<b>Rentals</b>			
	Rent Collections		A	
	Management of Arrears		A	
	Annual rent increase		A	
	Manage a waiting list		?	
	Tenant information		A	
	Lease		A	
	Unit Swapping		A	
	Owner Details		A	
	<b>Instalment Sales</b>	No	C	
	<b>Accounting</b>	Full accounting functionality fully integrated with real-estate functionality	A	Integrates with standard interface to many other accounting packages
	Full Accounting functionality		A	
	Automatic Invoicing		A	
	Budgeting		A	
	Customisable		B	
	<b>Reporting</b>	Wide range of reporting available	A	over 60 predefined reports
	Ad-Hoc Reporting		B	Can do SQL queries
	<b>Related Systems</b>			
	Integrated workflow	No	C	
	Document Management		B	Can attach documents to clients
	Rules Base		B	Limited
	Business Process Management	No	C	
	CRM	No	C	

Table 10 – Evaluation Form – Novtel

Property Management System - Evaluation Form		Key to ratings		
<b>Novtel</b>		A	Good	
		B	Adequate	
		C	Poor	
			n/a	
		Details	Rating	Comments
<b>Vendor</b>				
	Vendor Name	Novtel		
	Product Name	Novtel		
	When Established	2005		
	Vendor Country (Base)	South Africa		
	South African Representation & Support	Novtel	B	
	Partners	Pastel Accounting		
<b>Customers</b>				
	<b>Social Housing Sector</b>			
	International (#, sample)		?	
	South African (#, sample)	Purchased by Secunda & Middleburg May 2005	?	
	Reference Sites			
	Customer Feedback		?	
	<b>Other Property Related Customers</b>			
	International (#, sample)			
	South African (#, sample)			
<b>Product</b>				
	<b>Licensing model</b>			
	Nature of Model	Flat fee + Monthly charge	A	
	Estimated Licensing Cost	R 10 897	A	Per workstation
	5 users			
	50			
	500			
	Estimated Additional Costs		?	Cost of MS Terminal Services, MS Small Business Server 2003
	5 users	R40 000	C	
	50 users			
	500 users			
	<b>Technology Architecture</b>			
	Overview/Summary			
	Client/Server	No	C	Using MS Terminal Services from single instance of program

	Web Based	No	C	Using MS Terminal Services from single instance of program
	Database Management System	Access	B	OK for small client base
	Operating System	Windows	B	
	Client Requirements		?	
	Server Requirements	PC	?	
	Network Requirements	Internet or Lan / Wan	A	
	Reliability		C	Many crashes during demo
	Availability		C	
	Usability		B	Poor user interface
	Openness		B	
	Scalability		C	
	Manageability		B	
	Security		?	
	Ease of Implementation		A	
	<b>Functionality</b>			
	<b>Core Functionality</b>			
	<b>Integration</b>		B	
	<b>Property Portfolio</b>			
	Asset Management	Yes	A	
	Project Management	No	C	
	Property development	No	C	
	Tender process management		?	
	Property purchase	No	C	Can be reflected through Accounting
	Property Improvements	No	C	Good facilities management
	Property Maintenance		B	Has maintenance functionality
	Preferred contractor selection			
	<b>Rentals</b>			
	Rent Collections		B	
	Management of Arrears		B	
	Annual rent increase		B	
	Manage a waiting list		?	
	Tenant information		A	
	Lease		A	
	Unit Swapping		A	
	Owner Details		A	
	<b>Instalment Sales</b>	No	C	
	<b>Accounting</b>	Full accounting functionality fully integrated with real-estate functionality	A	Using Pastel Accounting
	Full Accounting functionality		A	
	Automatic Invoicing		B	Must request



				monthly
	Budgeting	No	C	
	Customisable	No	B	Vendor will customise
	<b>Reporting</b>		B	
	Ad-Hoc Reporting		C	
	<b>Related Systems</b>			
	Integrated workflow	No	C	
	Document Management		B	Can store documents connected to entity
	Rules Base		B	
	Business Process Management	No	C	
	CRM	No	C	

**Table 11 – Evaluation Form – ManageIT**

Property Management System - Evaluation Form		Key to ratings		
<b>Manage-IT</b>		A	Good	
		B	Adequate	
		C	Poor	
			n/a	
		Details	Rating	Comments
<b>Vendor</b>				
	Vendor Name	Logicbuilt		
	Product Name	Manage-IT		
	When Established	?		
	Vendor Country (Base)	USA		
	South African Representation & Support	Not at Present	B	Willing to partner
	Partners			
<b>Customers</b>				
	<b>Social Housing Sector</b>			
	International (#, sample)		?	
	South African (#, sample)		?	
	Reference Sites		?	
	Customer Feedback		?	
	<b>Other Property Related Customers</b>			
	International (#, sample)	Many in US for property rentals		
	South African (#, sample)			
<b>Product</b>				
	<b>Licensing model</b>			
	Nature of Model	User Base	A	Will phone me
	Estimated Licensing Cost	US \$1725 1st user, US\$ 300 subsequent users	?	
	15 users			
	50			

	500				
	Estimated Additional Costs			?	
	5 users				
	50 users				
	500 users				
	<b>Technology Architecture</b>				
	Overview/Summary				
	Client/Server	Yes		A	Using MS Terminal Services from single instance of program
	Web Based	No		B	Have ASP system as well
	Database Management System	Access and MySQL for enterprise version		B	
	Operating System	Windows 98, 2000, XP, NT or Novell.		B	
	Client Requirements			?	
	Server Requirements	Pentium 400 with 128 MB of Ram and 500 MB free disk space. Windows 95, 98, 2000, ME, NT, XP. Windows Compatible laser, inkjet, or dot matrix printer. CD-ROM drive.		?	
	Network Requirements	Internet or Lan / Wan		A	MS Terminal Services or ASP for web
	Reliability			A	
	Availability			A	
	Usability			A	
	Openness			A	
	Scalability			A	
	Manageability			A	
	Security			A	
	Ease of Implementation			A	
	<b>Functionality</b>				
	<b>Core Functionality</b>				
	<b>Integration</b>			A	
	<b>Property Portfolio</b>				
	Asset Management	Yes		A	
	Project Management	No		C	
	Property development	No		C	
	Tender process management	No		C	
	Property purchase			B	Can be reflected through Accounting
	Property Improvements			B	
	Property Maintenance			A	Has maintenance functionality

	Preferred contractor selection			
	<b>Rentals</b>			
	Rent Collections		A	
	Management of Arrears		A	
	Annual rent increase		A	
	Manage a waiting list		?	
	Tenant information		A	
	Lease		A	
	Unit Swapping		A	
	Owner Details		A	
	<b>Instalment Sales</b>		?	
		Full accounting functionality fully integrated with real-estate functionality	A	
	<b>Accounting</b>			
	Full Accounting functionality		A	
	Automatic Invoicing		A	
	Budgeting		A	
	Customisable		?	
	<b>Reporting</b>		A	
	Ad-Hoc Reporting		?	
	<b>Related Systems</b>			
	Integrated workflow	No	C	
	Document Management		B	Can store documents connected to entity
	Rules Base		?	
	Business Process Management	No	C	
	CRM	No	C	

**Table 12 – Evaluation Form – MIS Housing Solutions**

<b>Property Management System - Evaluation Form</b>  <b>MIS Housing Solutions</b>		<b>Key to ratings</b> A Good B Adequate C Poor n/a		
		<b>Details</b>	<b>Rating</b>	<b>Comments</b>
<b>Vendor</b>				
	Vendor Name	MIS Active Management Systems		
	Product Name	MIS Housing Solutions		
	When Established	1988		
	Vendor Country (Base)	United Kingdom		
	South African Representation & Support	Not at Present	C	

	Partners	MS		
<b>Customers</b>				
	<b>Social Housing Sector</b>			
	International (#, sample)	UK - Medina Housing Ass. , Western Isles ...	A	
	South African (#, sample)		?	
	Reference Sites		?	
	Customer Feedback		?	
	<b>Other Property Related Customers</b>			
	International (#, sample)			
	South African (#, sample)			
<b>Product</b>				
	<b>Licensing model</b>			
	Nature of Model		?	Awaiting response from UK
	Estimated Licensing Cost		?	
	5 users			
	50			
	500			
	Estimated Additional Costs		?	
	5 users			
	50 users			
	500 users			
	<b>Technology Architecture</b>			
	Overview/Summary			
	Client/Server	Yes	A	
	Web Based	No	B	Customer web enablement facilities
	Database Management System	MS SQL Server & Great Plains	B	
	Operating System	Windows	B	
	Client Requirements		?	
	Server Requirements	PC	?	
	Network Requirements	Internet or Lan / Wan	A	
	Reliability		A	
	Availability		A	
	Usability		A	
	Openness		A	
	Scalability		A	
	Manageability		A	
	Security		A	
	Ease of Implementation		?	
	<b>Functionality</b>			
	<b>Core Functionality</b>			
	<b>Integration</b>		A	
	<b>Property Portfolio</b>			
	Asset Management	Yes	A	
	Project Management		A	
	Property development		A	
	Tender process management		A	

	Property purchase		B	Can be reflected through Accounting
	Property Improvements		A	Good facilities management
	Property Maintenance		A	Has maintenance functionality
	Preferred contractor selection			
	<b>Rentals</b>			
	Rent Collections		A	
	Management of Arrears		A	
	Annual rent increase		A	
	Manage a waiting list		?	
	Tenant information		A	
	Lease		A	
	Unit Swapping		A	
	Owner Details		A	
	<b>Instalment Sales</b>		?	
	<b>Accounting</b>		A	MS Great Plains
	Full Accounting functionality		A	
	Automatic Invoicing		A	
	Budgeting		A	
	Customisable		?	
	<b>Reporting</b>		A	
	Ad-Hoc Reporting		A	
	<b>Related Systems</b>			
	Integrated workflow		A	
	Document Management		A	Can store documents connected to entity
	Rules Base		A	
	Business Process Management		A	
	CRM		A	

**Table 13 – Evaluation Form – Sx3**

<b>Property Management System - Evaluation Form</b>					<b>Key to ratings</b> A Good B Adequate C Poor n/a	
<b>Sx3</b>						
		<b>Details</b>	<b>Rating</b>	<b>Comments</b>		
<b>Vendor</b>						
	Vendor Name	Sx3				
	Product Name	Sx3				
	When Established	?				
	Vendor Country (Base)	UK				
	South African Representation & Support Partners	No	C			

<b>Customers</b>				
	<b>Social Housing Sector</b>			
	International (#, sample)	Large Social Housing base in the UK	A	
	South African (#, sample)	None	C	
	Reference Sites		?	
	Customer Feedback		?	
	<b>Other Property Related Customers</b>			
	International (#, sample)			
	South African (#, sample)			
<b>Product</b>				
	<b>Licensing model</b>			
	Nature of Model	?	?	
	Estimated Licensing Cost		?	Requested more information, but no response
	15 users			
	50			
	500			
	Estimated Additional Costs		?	
	5 users			
	50 users			
	500 users			
	<b>Technology Architecture</b>			
	Overview/Summary			
	Client/Server	Yes	A	Using MS Terminal Services from single instance of program
	Web Based	Yes	B	Have internet enablement for queries etc
	Database Management System		?	
	Operating System		?	
	Client Requirements		?	
	Server Requirements		?	
	Network Requirements		?	
	Reliability		?	
	Availability		?	
	Usability		A	Claim to be intuitive
	Openness		A	
	Scalability		A	
	Manageability		A	
	Security		A	
	Ease of Implementation		?	
	<b>Functionality</b>			
	<b>Core Functionality</b>			
	<b>Integration</b>		A	
	<b>Property Portfolio</b>			
	Asset Management	Yes	A	
	Project Management	Yes	A	
	Property development	Yes	A	
	Tender process management	No	C	
	Property purchase		A	
	Property Improvements		A	

	Property Maintenance		A	
	Preferred contractor selection			
	<b>Rentals</b>			
	Rent Collections		A	
	Management of Arrears		A	
	Annual rent increase		A	
	Manage a waiting list		?	
	Tenant information		A	
	Lease		A	
	Unit Swapping		?	
	Owner Details		A	
	<b>Instalment Sales</b>		?	
	<b>Accounting</b>		C	
	Full Accounting functionality		?	
	Automatic Invoicing		A	
	Budgeting		A	
	Customisable		?	
	<b>Reporting</b>		A	
	Ad-Hoc Reporting		?	
	<b>Related Systems</b>			
	Integrated workflow		A	
	Document Management		A	
	Rules Base		?	
	Business Process Management		?	
	CRM		?	

**Table 14 – Evaluation Form – IFCA**

Property Management System - Evaluation Form		Key to ratings		
<b>IFCA</b>		A	Good	
		B	Adequate	
		C	Poor	
		n/a		
		Details	Rating	Comments
<b>Vendor</b>				
	Vendor Name	IFCA MBS SA		
	Product Name	PropertyPlus		
	When Established	1987		
	Vendor Country (Base)	Malaysia		
	South African Representation & Support	Subsidiary + Partner Co	A	
	Partners	MBS		
<b>Customers</b>				
	<b>Social Housing Sector</b>			
	International (#, sample)	Namibia - National Housing Enterprise, Botswana Housing Corporation	A	
	South African (#, sample)	Transnet Housing,	A	

		Transnet Housing, Namibia - National Housing Enterprise, Botswana Housing Corporation	A	
	Reference Sites		A	
	Customer Feedback		A	Enthusiastic feedback from NHE, reservations about support from Botswana Housing Corporation
	Other Property Related Customers			
	International (#, sample)	Over 1000 worldwide users	A	Some large international clients
	South African (#, sample)	?		
<b>Product</b>				
	Licensing model			
	Nature of Model	Number of users and Modules taken		
	Estimated Licensing Cost			
	15 users	174 000	?	Implementation 287000
	100 users	1234000	?	
	500 users		?	
	Estimated Additional Costs	MS SQL Server, 9750	?	
	5 users			
	50 users			
	500 users			
	Technology Architecture			
	Overview/Summary			
	Client/Server	Yes	A	
	Web Based	No	B	Web version under development 12 to 18 months
	Database Management System	MS SQL Server	B	Restricts choice of operating system & platform
	Operating System	Windows	A	Windows
	Client Requirements	P3 450 MHZ, 64MB RAM, 500 MB Disk space, Windows	A	Client software on each workstation
	Server Requirements	P3 450 MHZ, 256 MB RAM, 4 GB SCSI HDD, Windows server, MS SQL Server	A	Must be powerful enough to cope with bulk remote usage
	Network Requirements	Lan, Wan	B	
	Reliability		A	
	Availability		A	
	Usability		A	
	Openness		A	
	Scalability		A	
	Manageability		A	
	Security		A	



	Ease of Implementation		B	Client Server environment
	<b>Functionality</b>			
	<b>Core Functionality</b>			
	<b>Integration</b>			
	<b>Property Portfolio</b>			
	Asset Management	Strong	A	
	Project Management	Strong	A	Includes project management with full financials
	Property development	Strong	A	
	Tender process management		?	
	Property purchase	Strong	A	
	Property Improvements		A	
	Property Maintenance		A	Full management system for managing maintenance tasks including task cards
	Preferred contractor selection		A	
	<b>Rentals</b>			
	Rent Collections		A	
	Management of Arrears		A	
	Annual rent increase		A	
	Manage a waiting list		?	
	Tenant information		A	
	Lease		A	
	Unit Swapping		A	
	Owner Details		A	
	<b>Instalment Sales</b>		A	Interest calculation function added, but treated as a lease
	<b>Accounting</b>	Full accounting functionality fully integrated with real-estate functionality	A	Can run own or link to other accounting software
	Full Accounting functionality		A	
	Automatic Invoicing		A	
	Budgeting		A	
	Customisable		A	
	<b>Reporting</b>	Wide range of reporting available	A	
	Ad-Hoc Reporting	Able to create custom reports	A	
	<b>Related Systems</b>			
	Integrated workflow	Option available	A	
	Document Management		A	
	Rules Base		A	
	Business Process Management		A	
	CRM		A	

**Table 15 – Evaluation Form – MRI**

Property Management System - Evaluation Form		Key to ratings		
<b>MRI</b>		A	Good	
		B	Adequate	
		C	Poor	
			n/a	
		Details	Rating	Comments
<b>Vendor</b>				
	Vendor Name	Intuit		
	Product Name	MRI		
	When Established	1969		
	Vendor Country (Base)	USA		
	South African Representation & Support	Yes	A	
	Partners			
<b>Customers</b>				
	<b>Social Housing Sector</b>			
	International (#, sample)	No	C	
	South African (#, sample)	None	C	
	Reference Sites		?	
	Customer Feedback		?	Good - not for Social Housing
	<b>Other Property Related Customers</b>			
	International (#, sample)	Large number of Clients	A	
	South African (#, sample)	Old Mutual PLC, Transnet Pension Fund	A	
<b>Product</b>				
	<b>Licensing model</b>			
	Nature of Model	Modules + Users	A	Either Concurrent or named users. Software is purchased. Support Agreement at 17% p.a. of licence fees only.
	Estimated Licensing Cost	R500k	B	Lower cost if MSDE used instead of full SQL Server, plus Approximately. R500k for implementation based on 20 concurrent users.
	15 users			
	50			
	500			
	Estimated Additional Costs		?	
	5 users			
	50 users			

	500 users			
<b>Technology Architecture</b>				
Overview/Summary				
	Client/Server	Yes	A	
	Web Based	Yes	A	Choice of Client-server or web-based
	Database Management System	MS SQL	B	
	Operating System	Windows	B	
	Client Requirements		?	
	Server Requirements	Windows NT, Windows 2000, Novell, Data base Server , SCSI drive , 512 MB RAM	A	
	Network Requirements		?	MS Terminal Services or ASP for web
	Reliability		A	
	Availability		A	
	Usability		A	Claim to be intuitive
	Openness		A	
	Scalability		A	
	Manageability		A	
	Security		A	
	Ease of Implementation		?	
<b>Functionality</b>				
<b>Core Functionality</b>				
	<b>Integration</b>		A	
	<b>Property Portfolio</b>			
	Asset Management	Yes	A	
	Project Management	Yes	A	
	Property development	Yes	A	
	Tender process management	No	C	
	Property purchase		A	
	Property Improvements		A	
	Property Maintenance		A	
	Preferred contractor selection			
	<b>Rentals</b>			
	Rent Collections		A	
	Management of Arrears		A	
	Annual rent increase		A	
	Manage a waiting list		?	
	Tenant information		A	
	Lease		A	
	Unit Swapping		?	
	Owner Details		A	
	<b>Instalment Sales</b>	N	C	Can be handled through accounting
	<b>Accounting</b>		A	
	Full Accounting functionality		A	
	Automatic Invoicing		A	

	Budgeting		A	
	Customisable		A	
	<b>Reporting</b>		A	
	Ad-Hoc Reporting		A	
	<b>Related Systems</b>			
	Integrated workflow		A	
	Document Management		A	
	Rules Base		A	
	Business Process Management		A	
	CRM		?	

**Table 16 – Evaluation Form – IBS OpenHousing**

<b>Property Management System - Evaluation Form</b>  <b>IBS OPENHousing</b>		<b>Key to ratings</b> A Good B Adequate C Poor n/a		
		<b>Details</b>	<b>Rating</b>	<b>Comments</b>
<b>Vendor</b>				
	Vendor Name	IBS		
	Product Name	OpenHousing		
	When Established	?		
	Vendor Country (Base)	UK		
	South African Representation & Support	No	B	Keen to partner through Progress SA
	Partners	Progress		
<b>Customers</b>				
	<b>Social Housing Sector</b>			
	International (#, sample)	Yes - 70+ UK	C	
	South African (#, sample)	None	C	
	Reference Sites		?	
	Customer Feedback		?	
	<b>Other Property Related Customers</b>			
<b>Product</b>				
	<b>Licensing model</b>			
	Nature of Model	Modules + Concurrent Users	B	See write-up for full details
	Estimated Licensing Cost	?		
	40 concurrent users			
	80 concurrent users			
	120 concurrent users			
	Estimated Additional Costs		?	
	5 users			
	50 users			
	500 users			

<b>Technology Architecture</b>				
Overview/Summary				
Client/Server	Yes		A	
Web Based	Yes		A	
Database Management System	Progress		B	
Operating System	Windows /Unix		B	
Client Requirements			?	
Server Requirements	Windows /Unix		A	
Network Requirements			?	
Reliability			A	
Availability			A	
Usability			A	Claim to be intuitive
Openness			?	
Scalability			A	
Manageability			A	
Security			A	
Ease of Implementation			?	
<b>Functionality</b>				
<b>Core Functionality</b>				
<b>Integration</b>			A	
<b>Property Portfolio</b>				
Asset Management	Yes		A	
Project Management	Yes		A	
Property development	Yes		A	
Tender process management			?	
Property purchase			A	
Property Improvements			A	
Property Maintenance			A	
Preferred contractor selection			A	
<b>Rentals</b>				
Rent Collections			A	
Management of Arrears			A	
Annual rent increase			A	
Manage a waiting list			A	
Tenant information			A	
Lease			A	
Unit Swapping			?	
Owner Details			A	
<b>Instalment Sales</b>			C	Have facilities for sales and rent-to-buy. No instalment sales.
<b>Accounting</b>			A	
Full Accounting functionality			A	Can use own OPENFinancials or other
Automatic Invoicing			A	
Budgeting			A	
Customisable			A	
<b>Reporting</b>			A	
Ad-Hoc Reporting			A	Additional modules provide additional query capabilities
<b>Related Systems</b>				
Integrated workflow			A	Optional
Document Management			A	Optional

Rules Base		A
Business Process Management		A
CRM		A

**Table 17 – Evaluation Form – FatFish/Cubit**

Property Management System - Evaluation Form		Key to ratings		
<b>FatFish / Cubit</b>		A	Good	
		B	Adequate	
		C	Poor	
			n/a	
		Details	Rating	Comments
<b>Vendor</b>				
	Vendor Name	Black Giant / Cubit		
	Product Name	FatFish		
	When Established	?		
	Vendor Country (Base)	South Africa		
	South African Representation & Support	Black Giant / Cubit	A	
	Partners	Cubit		
<b>Customers</b>				
	<b>Social Housing Sector</b>			
	International (#, sample)		?	
	South African (#, sample)		?	
	Reference Sites			
	Customer Feedback		?	
	<b>Other Property Related Customers</b>			
	International (#, sample)			
	South African (#, sample)	Rose Deubler Estate Agents	B	
<b>Product</b>				
	<b>Licensing model</b>			
	Nature of Model	Flat fee per installation	A	Cubit is free to NGOs, otherwise R950 p.a. to cover changes
	Estimated Licensing Cost	R1400 p.a.	A	Licence for enterprise
	5 users			
	50			
	500			
	Estimated Additional Costs		?	
	5 users			
	50 users			
	500 users			
	<b>Technology Architecture</b>			
	Overview/Summary			
	Client/Server	Yes	A	Can be run as Client server

	Web Based	Yes	A	Uses Mozilla Firefox Browser
	Database Management System	PostgreSQL	B	Stable database but few front-end tools
	Operating System	Windows / Linux	A	
	Client Requirements	Mozilla Browser	A	
	Server Requirements		?	Must be powerful enough to cope with bulk remote usage
	Network Requirements	Internet or Lan / Wan	A	
	Reliability		?	
	Availability		?	
	Usability		A	Easy to use
	Openness		A	
	Scalability		A	Claim to be unlimited
	Manageability		A	
	Security		A	
	Ease of Implementation		A	
	Functionality			
	Core Functionality			Created for Estate Agents Handling Sales, Rentals, Deeds office lookup, SMS facility
	<b>Integration</b>		B	
	<b>Property Portfolio</b>			
	Asset Management	Yes	A	
	Project Management	No	C	
	Property development	No	C	
	Tender process management	No	C	
	Property purchase	No	C	Can be reflected through Accounting
	Property Improvements	No	C	
	Property Maintenance	No	C	
	Preferred contractor selection			
	<b>Rentals</b>			
	Rent Collections		B	Invoices must be activated individually each month
	Management of Arrears		B	Yes - but manual
	Annual rent increase		B	
	Manage a waiting list		C	
	Tenant information		A	
	Lease		A	
	Unit Swapping		A	
	Owner Details		A	
	<b>Instalment Sales</b>	No	C	Can calculate Interest and handle sales - not by instalment

		Full accounting functionality fully integrated with real-estate functionality	A	
	<b>Accounting</b>			
	Full Accounting functionality		A	
	Automatic Invoicing		C	
	Budgeting		C	
	Customisable		C	
	<b>Reporting</b>			
	Ad-Hoc Reporting		B	Can do SQL queries
	<b>Related Systems</b>			
	Integrated workflow	No	C	
	Document Management		B	Can store documents connected to entity
	Rules Base		C	
	Business Process Management	No	C	
	CRM	No	C	

**Table 18 – Evaluation Form – Wocus4All**

<b>Property Management System - Evaluation Form</b>  <b>WOCUS4all</b>		<b>Key to ratings</b> A Good B Adequate C Poor n/a		
		<b>Details</b>	<b>Rating</b>	<b>Comments</b>
<b>Vendor</b>				
	Vendor Name	Centric		
	Product Name	WOCUS4all		
	When Established	?		
	Vendor Country (Base)	Netherlands		
	South African Representation & Support	No	C	Entire system must be customised and translated, and SA representation established
	Partners			
<b>Customers</b>				
	Social Housing Sector			
	International (#, sample)	Yes - Netherlands	A	
	South African (#, sample)	None	C	
	Reference Sites		?	
	Customer Feedback		?	
	Other Property Related Customers			



Product				
	<b>Licensing model</b>			
	Nature of Model	Modules + Concurrent Users	?	
	Estimated Licensing Cost		?	
	40 concurrent users		?	
	80 concurrent users		?	
	120 concurrent users		?	
	Estimated Additional Costs		?	Estimated R4.5 million to translate in 2001. Since then the system has grown
	5 users			
	50 users			
	500 users			
	<b>Technology Architecture</b>			
	Overview/Summary			
	Client/Server	Yes	A	
	Web Based	Yes	A	
	Database Management System	BRE4all RAD/case tool	?	
	Operating System	Windows	B	
	Client Requirements		?	
	Server Requirements	Windows	A	
	Network Requirements		?	
	Reliability		A	Claim by vendor
	Availability		A	
	Usability		A	Claim to be intuitive
	Openness		A	
	Scalability		A	
	Manageability		A	
	Security		A	
	Ease of Implementation		A	
	<b>Functionality</b>			
	<b>Core Functionality</b>			
	<b>Integration</b>		A	
	<b>Property Portfolio</b>			
	Asset Management	Yes	A	
	Project Management	Yes	A	
	Property development	Yes	A	
	Tender process management		?	
	Property purchase		A	
	Property Improvements		A	
	Property Maintenance		A	
	Preferred contractor selection		A	
	<b>Rentals</b>			
	Rent Collections		A	
	Management of Arrears		A	
	Annual rent increase		A	
	Manage a waiting list		A	
	Tenant information		A	
	Lease		A	
	Unit Swapping		?	
	Owner Details		A	
	<b>Instalment Sales</b>		C	
	<b>Accounting</b>		A	
	Full Accounting functionality		A	
	Automatic Invoicing		A	

Budgeting		A	
Customisable		A	
<b>Reporting</b>		A	
Ad-Hoc Reporting		A	Additional modules provide additional query capabilities
<b>Related Systems</b>			
Integrated workflow		A	Optional
Document Management		A	Optional
Rules Base		A	
Business Process Management		A	
CRM		A	

## Appendix E - SHI Questionnaire

Social Housing Initiatives  
Information & Communication Technology  
Questionnaire

Systems - general		
	Details	
What system(s) do you use for property management?		
What system(s) do you use for accounting entries?		
Do you manage residential rentals?		
	Yes / No	Details
Does the system you are using facilitate accounting entries?		
Does the system handle property unit maintenance		
Does the system you are using handle the rentals?		
does the system schedule maintenance tasks		
Do you arrange for any sales?		
Does you system handle sales?		
Does the system handle instalment sales?		
Can the system keep track of vacancies		

### Background

Rentals		
	Yes / No / number	Details
How many rental units does your organisation manage?		
Do you have a property rental management system?		

Is there any kind of rent subsidy system in place?		
Is your current system able to manage all aspects of rental business?		

<b>Sales</b>		
	Yes / No / number	Details
How many sales units does your organisation manage each year?		
Type of sales:		
Normal (housing loan through bank)		
Sale by instalment (deferred transfer)		
Other		
Do you have a property sales management system?		
Is your current system able to manage all aspects of property sales?		

<b>Acquisitions</b>		
	Yes / No	Details
Does your organisation buy properties to provide housing?		
Is the organisation involved in any property development schemes?		
Is your current system able to manage property acquisition and development?		

<b>Stock Management</b>		
	Yes / No	Details
Does the system maintain a registry of rental units?		
Does this keep the address of the property?		
Does it have details of accommodation?		

Maintenance		
	Yes / No	Details
Does the system maintain records of maintenance history of each unit?		
Does the system have a scheduling facility for maintenance?		
Can you capture the cost of maintenance?		
Can you capture what was done?		
Is a detailed inventory of work and materials for maintenance retained?		
Can you capture what needs to be done?		
Is a record of when maintenance is carried out kept?		
Is there a maintenance request facility?		
Is there a maintenance management facility?		

Managing Vacancies		
	Yes / No	Details
Does the system manage vacancies?		
Does the system provide details of leases?		
Does the system record:		
Lease expiry date		
Lease renewal		
Rent increases		
Notice period		
Details of when the unit will become vacant?		

Collections		
Does the system provide details of:		
	Yes / No	Details
Rentals due		
Overdue rental payments		
Arrears		

Deposits		
Payment dates		

**Client Details**

Does the system maintain details of:		
	Yes / No	Details
Client Name		
Size of property required (accommodation requirements)		
Date of occupation		
ID number		
Credit record		
Waiting list		
Priorities in waiting list		

**Tenants**

Does the system record:	Yes/ No	Details / other information
Date of occupation		
Notice period		
Unit occupied		
Client details		
Tenant History		

**Reporting**

Is the system able to report on:	Yes/ No	Details / How effective is this?
Vacancies		
Number of units occupied		
Rental Arrears		
Costs of maintenance		
Rental Income		
Potential rental income		
Commissions (if these apply)		
Maintenance costs		
Other costs		
Condition of the units		
Maintenance summary		

How do you get your accounting details into the general ledger?	
---	--

**ICT Skills**

Which of the following are you able to use:

Package	Yes/No	Proficiency	Months	System Name
---------	--------	-------------	--------	-------------

			Experience	(where applicable)
MS Office:				
Word				
Excel				
Access				
Other				
Open Office				
Email				
Internet				
Accounting Packages - specify				
Property Management System? - specify				
Other packages or systems - specify				

## Appendix F - System Requirements

The system requirements for the sector were defined below. This was used to check completeness of the generic specification.

### 1. Technical infrastructure (architecture)

- Systems (storage area network for shared systems, back-up system)
- Connections (WAN, data lines)
- Information management
- In-house or ASP
- Common and location specific aspects of the BIS

### 2. Functionalities of the BIS

- The primary system should contain the following components/modules and should be integrated and supported by **workflow**:
- Letting (houses, commercial real estate, housing distribution/allocation)
- Relation management (marketing, client contacts, client questions/profiles, (social) complaints registration)
- Maintenance (change of tenant, repairs, planned maintenance)
- Financial management (debtors, housing portfolio, loans/treasury)
- Management information (statistical info, (key) indicators)
- Strategic portfolio management (development, purchase, selling, renovation)
- Services (development of new products and services)

### 3. Overview of subsystems

- Relation info system (tenants, buyer of services, tenant committees, contractors, etc.)
- Performance agreements (spheres of government and tenant committees)
- Complex/unit info system (including material lists and drawings, pictures, floor plans and maintenance data)
- Warehouse info system
- Social complaints info system
- Planned maintenance and budget info system
- Maintenance info system (including work orders, schedule of rates, facilities for inspections and works)
- Area info system
- Strategic housing portfolio info system (including financial scenario modelling)
- Project development info system
- Project realization info system
- Services info system (including arrears management)
- Contract info system (tenants and suppliers)
- Rent price info system
- Subsidy info system
- Service charges info system
- Turn over/transaction info system (termination of rental agreement)
- Financial administration info system (ledger and accounting)
- Financial administration info system (remaining debtors)
- Financial administration info system (liabilities/obligations/creditors)
- Cash and bank info system
- Fixed assets info system



- Budget info system
- Loans/investment info system
- Treasury info system
- Financial analysis and simulation
- Management accounting/information.

Of each subsystem the purpose, the input, the functionalities, the authorization and output will have to be determined.

## Appendix G - Evaluation Model - Rating Scales

### Rating Scales

Accounting (L: .345)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Property Portfolio Management (L: .112)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Property Rental Management (L: .274)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Managing Property Sales (L: .057)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Reporting (L: .212)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Local representation (L: .089)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Track record (L: .224)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Business Expertise (L: .203)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Technology Expertise (L: .483)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Capital (L: .306)

Intensity Name	Priority
Cheap	.820
Free	1.000
Very Expensive	.030
Expensive	.310
Average	.510

Implementation (L: .206)

Intensity Name	Priority
Cheap	.820
Free	1.000
Very Expensive	.030
Expensive	.310
Average	.510

Maintenance (L: .101)

Intensity Name	Priority
Cheap	.820
Free	1.000
Very Expensive	.030
Expensive	.310
Average	.510

Secondary (L: .092)

Intensity Name	Priority
Cheap	.820
Free	1.000
Very Expensive	.030
Expensive	.310
Average	.510

Growth (L: .295)

Intensity Name	Priority
Cheap	.820
Free	1.000
Very Expensive	.030
Expensive	.310
Average	.510

Technical (L: .167)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

User (L: .833)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Web Core (L: .114)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Openness (L: .103)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Maturity (L: .244)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000



Multi-entity (L: .539)

Intensity Name	Priority
yes	1.000
no	.000

Rules based (L: .440)

Intensity Name	Priority
yes	1.000
no	.000

Parallel processes (L: .143)

Intensity Name	Priority
yes	1.000
no	.000

Ease of change (L: .341)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Modularity (L: .076)

Intensity Name	Priority
Excellent	1.000
Very Good	.870
Good	.540
Average	.320
Poor	.150
None	.000

Open Source (L: .135)

Intensity Name	Priority
yes	1.000
no	.000

Empowerment (L: .281)

Intensity Name	Priority
yes	1.000
no	.000

Skills Development (L: .584)

Intensity Name	Priority
yes	1.000
no	.000

Technology (L: .166)

Intensity Name	Priority
High Risk	.000
Average Risk	.500
Low Risk	1.000

Financial (L: .096)

Intensity Name	Priority
High Risk	.000
Average Risk	.500
Low Risk	1.000

Operational (L: .330)

Intensity Name	Priority
High Risk	.000
Average Risk	.500
Low Risk	1.000

Strategic (L: .349)

Intensity Name	Priority
High Risk	.000
Average Risk	.500
Low Risk	1.000

Vendor (L: .059)

Intensity Name	Priority
High Risk	.000
Average Risk	.500
Low Risk	1.000

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