

# **Snakes and Ladders: towards a post-maturity evaluation index of Integrated Library System ownership**

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## ***ABSTRACT***

Although the integrated library system (ILS) increasingly dominates the information activities of library staff and users, there are very few objective measures available by which to evaluate its medium to long-term impact. This article moves towards the production of a simple, numerical index of ILS evaluation. It applies a variety of context-dependent evaluation methods to the different phases of the ILS lifecycle culminating in a 'draft' index of evaluation. Although this methodology and index should not be regarded as a finished product, it should act as a useful starting point for further, comparative studies, particularly those that seek simple ways to incorporate relevant, non-subjective criteria into the ILS evaluation process.

## **1. Introduction**

The integrated library system (ILS) is amongst the most significant of all operations running in a library. Almost every aspect of information management and retrieval is influenced and, more often, directed by system functionality. Reliance on the ILS has never been so great – but do we know just how well the system is performing beyond subjective judgements? Morse (2002) states:

During the development of information management systems—or any other type of complex application—most of the effort expended is on getting the system to run, incorporating novel features, and allocating resources to accomplish project goals in a timely fashion. Many times evaluation of these systems is viewed as something that can be postponed until the end of the process, but all too frequently there is no time to do the needed testing then; at other times, evaluation is not even factored into the goals of the development effort. If convenient, easy to use methods were available in an environment in which evaluation were being fostered, then evaluation might be an activity that serves as an end-point for development.

Published literature describes many examples of ILS procurement and implementation but does not abound with descriptions of subsequent ILS evaluations. This article does not seek to provide a finished model for ILS evaluation. Instead, it uses that quest to unravel some of the many, and complicated, issues to be explored in the production of a robust and comparative evaluation index. As Tenopir (2003) points out, 'Models show human interaction with information systems as a complex multidimensional process that involves many aspects of an individual's cognitive processes as well as aspects of the information system. A model is developed through observation and experimental studies and is then tested and refined'. This exploratory index of ILS evaluation will inevitably resemble the board game 'Snakes and Ladders' – both in concept and application. In 'Snakes and Ladders', a dice throw can land you on a 'normal' square (standard move), a ladder (a 'shortcut' move up the board towards the finish), or a snake (a slide back down the board towards the start). Snakes are usually longer than the ladders. In this analogy, ILS systems will have expected ('normal') features, often some major advances of varying impact ('ladders') and possibly some disadvantages ('snakes'), too. The evaluation methodology described here reflects those moves and impacts.

## **2. The need to know**

Breeding and Roddy (2003) provide considerable evidence of the financial value and future demand of the ILS market place. They point to the fact that over 3,700 existing 'legacy' library systems will need to be replaced over the next three to five years. Lugg and Fischer (2003) underline the significance of institutional investment in the ILS and emphasise 'total cost of ownership' factors involved in acquiring and running a library system. For example, they show that between 55% and 60% of the total costs of the ILS occur post-procurement – and we can expect that percentage to continue to rise as increasing vendor competition influences purchase price. That, vendors must balance by ensuring a sound financial basis for continuous product development. Breeding and Roddy (2003) estimate that 39% of vendors' revenues stem from system maintenance charges rather than sales. Library managers must be able to evaluate their purchases over a sustained period to ensure maximum effectiveness is maintained.

### **3. How much can we find out?**

The global library system marketplace is extremely varied. There are different types and sizes of library – including multi-site consortia - with widely differing clientele and cultures. In each of these environments the ILS must operate. Library systems, although generally designed to be customised rather than re-programmed to suit every individual requirement, are developed to meet divergent specifications. The purchase cost of a specific system may vary considerably between libraries to take account of special features (such as special character indexing or significant data conversion issues), institutional and database size (such as the number of concurrent users or data storage capacity), and specific, local requirements. Nor, as Breeding and Roddy (2003) show, is there an obvious market leader so neither, logically, is there one system that is clearly 'better' than any other in every circumstance.

In all of this, evaluations must seek as much hard fact as objectively (and preferably, effortlessly) as possible, rather than depend on subjective judgement. In many instances this isn't a case of good versus bad, it's more a question of how good or how bad. We should also be careful to seek a longer-term view, perhaps a minimum of five years post-implementation, to experience the full potential of a system and working relationship with the vendor in all its aspects. Additionally, the factors considered should be quantifiable by some means – some (such as purchase price) easier than others (such as efficiency-rich functionality). This leads to the following attempted development of a draft index of ILS evaluation.

### **4. Methodology**

In such a diverse environment there are a number of methods that can be applied in this quest. For example, the eVALUED project (2002) seeks to develop a 'toolkit' for the evaluation of electronic library services in the academic sector. In general, tools range from examples of best practice, benchmarking, self-assessment checklists, consideration of management statistics, and key indicators such as achieving targets in service level agreements.

Because of the varied effects of the ILS, consideration of each of these 'tools' against library practices suggests a hybrid approach. Van House (1989) endorses that view.

‘The multiplicity of library effectiveness measures that have been used suggests that a single, operational definition of library effectiveness probably does not exist, but rather that effectiveness is a multidimensional construct.’ Depending on the phase of the ILS life cycle, a base evaluation technique most relevant to that specific phase can be applied. Each phase can therefore be considered for its intrinsic value and a token applied to mark its value. To ensure comparability (both in time and with other systems and institutions), the token should reflect constants (e.g. percentages of total costs) rather than actual sums. Where judgement-based scales are used, the scalar should be kept short to avoid distortion arising from the effects of too much subjective opinion. As different phases will have differing impacts, a weighting factor can be applied to the token as required to develop a well-rounded view. Some facets, e.g. training and support, or rich functionality will run through a number of phases and must be considered separately in different contexts. For some aspects, information gathering or availability will be easier than others and, to be ultimately effective in a global library setting, the quest must move towards using easily-obtainable but verifiable data.

## **5. Phases of ILS operation**

Over a five-year timescale these might include:

- Pre-Procurement
- Purchase
- Implementation (including data conversion) and initial training and support
- Operation and continued training
- Development
- Upgrade or replacement

### **5.1. Pre-Procurement**

Whether legally required or just common sense, few systems will be purchased without a detailed procurement process involving drawing up a specification, product demonstrations, site visits and negotiation. Individual library activity in the pre-purchase process will more adequately reflect local requirements than ILS-dependent issues. However, the benefits of healthy competition should not be underestimated - especially in terms of comparisons of functionality and bargaining.

Formula: In this case, allocate two points for every viable short-listed contender (maximum 4 contenders), but exclude systems that do not closely relate to the required specification.

### **5.2 Purchase**

This phase relates to the purchase costs of the ILS, including software, set-up costs, support fees and taxes. It excludes annual maintenance charges, increased post-implementation staffing costs, and the cost of system enhancements beyond the original specification, as these are dealt with later. The purchase phase is highly significant and might typically account for anything between 25% and 40% of Lugg and Fischer’s (2003) total cost of ILS ownership. ILS vendors use complex algorithms for calculating their prices and this article relies on that value as a benchmark. Over a period of five years, taking into account all real costs including

software maintenance, hardware support, system operation (including the cost of 'Systems Librarians' and support staff), upgrades and training, this might reduce to between 15% and 30% of the total. Bearing in mind the wide variation in ILS purchase costs across the sector, the best comparator is against other competitors at the time of purchase, preferably as a result of competitive tenders all closely matching the original library system specification.

Cheapest is not always best and the most expensive system tender may not be the most cost-effective. As an additional factor, it is likely that any new system will bring a number of extra 'infrastructure' requirements. These might include a new server, higher-specification PCs/terminals, new network wiring etc. In terms of developing an evaluation index, those aspects that were not required by close competitors and *ceteris paribus* bring no significant operational benefit (e.g. a replacement for a functioning operating system or database management system) should be included and their full costs added to the ILS base purchase cost. Finally, not all systems provide the specified functionality on implementation – sometimes modules such as Inter-Library loans or serials check-in are developed or released post-purchase.

Although the prices set by vendors are rarely immediately comparable, consideration of cost is an essential part of the procurement process of the ILS and something that must be done before deciding which system to purchase and the necessary data should be easily identifiable.

Formula: In this case, the token should reflect a proportional value relating to the proximity of actual purchase price to the average (mean) price from all viable competitors. If the chosen system fell below or within 5% of the average cost, that achieves 30 points (i.e. representing 20% of the maximum possible token value to match the significance of purchase cost over a five-year term). There should be a deduction of 3 points from this token for every additional 5% increase above the average price. The token should also be reduced by 3 points for every unavailable module included in the original specification. This reflects a later, additional training and operational overhead – although that is tempered (and reflected in the points allocation) by the ability of the library and vendor to work together on development.

### **5.3 Implementation and initial training and support**

There are two main aspects to implementation. One is the cost of data profiling, testing, conversion and loading. The second is the cost of training and immediate support, relevant to library staff and users.

#### **5.3.1. Data costs**

It is likely that all grades of library staff will be involved in the implementation process. Technical issues relating to data conversion are normally the responsibility of library systems staff, often in consultation with other senior library colleagues. Consideration of test loads containing partial data is usually carried out across a wider group of grades.

Given wide-ranging professional practices, it would be a very brave librarian who consigned the entire profiling and loading process to the vendor and spent no time on

this themselves. Equally, spending too much (whatever that may be) library staff time probably reflects a critical lack of understanding of key concepts and poor system customisation by the vendor. In a perfect world, a time/grade calculation should suffice. However, anecdotal evidence suggests data loading can produce problems including the loss of records, indexes and even corruption of loan files. The staff cost of any rectification should therefore be calculated and added to the factor.

Provided all the information is available, it is possible to work out the staff costs of data profiling, testing, communication and loading with reference to pay scales, calculating an hourly rate for each grade involved and factoring by the time taken. This can then be stated as a proportion of the actual purchase cost (including local add-ons). It is obvious that these are not quick and simple calculations to make although use of average grade points and approximate timings can be encompassed by an equally approximate formula. It should not, therefore, be necessary to spend many hours working these staff costs out to a fine degree of detail.

Formula: Allocate 10 points if the data costs did not exceed 5% of the total purchase price. Otherwise, deduct 3 points for each additional 5% of the purchase price thereafter (with no maximum deduction).

### **5.3.2. Training, documentation and immediate support costs**

Training is delivered for a number of purposes, at different levels, and by different players. Whether the training is good or not so good will have serious consequences for library staff and end users as this is essential in maximising the value of the system. The most sensible means of evaluating training is to seek the views of the recipients and to test or monitor that knowledge through practical experience. Producing a token value, therefore, ought to represent the end result of training rather than personnel involved, time taken or costs (including staff time and vendors' charges) of training delivery.

Sub-functions of implementation training include documentation and support. Immediately available, current, easy-to-navigate but detailed documentation is a necessity - as is sympathetic, responsive support.

Self-assessment seems the best means of determining the values for this token. The scales have been kept short in an attempt to avoid undue distortion due to potentially subjective ratings:

1. On a scale of 0 (very poor) to 5 (excellent) points, rank how effective library staff training was in achieving the aims of the ILS implementation – irrespective of duration and delivery (this should be backed up by anecdotal and staff appraisal-related evidence)
2. On a scale of 0 (very poor) to 5 (excellent) points, rank how effective library user training was in enabling users to maximise the features of the ILS – irrespective of duration and delivery (this factor should be derived from user surveys - where available)
3. Are system documentation/manuals available? Award points as follows:
  - Full Documentation is available. Award 2 points otherwise none.
  - Document reflects current software release. Award 2 points otherwise none.

- Documentation is immediately available (either online or in print). Award 2 points otherwise none.
4. Was implementation system support:
- Available 24/7? Award 2 points; otherwise, award 1 point if support was only available for part of the day/week and 0 points if support was only available during closed hours (e.g. if the vendor is based in a substantially different time zone).
  - Responsive to substantive enquiries (all significant requests for support are handled with due urgency)? Award 3 points, otherwise none.
  - Responsive to general enquiries (requests were handled efficiently)? Award 1 point.

## 5.4. Operation and training

### 5.4.1. Operation

The central question is 'does the ILS work'. The answer has many components that could involve conflicting views from different users, or raise questions regarding functionality etc. While it would be possible to view operational issues from a library-only viewpoint, it is in this longer-term phase that real questions about the value of the ILS to its users arise. The oft-quoted work by Orr (1973) points to what needs to be evaluated in a library service:

- How good is the service? (quality)
- How much good does it do? (value)

He suggests that the quality of performance measures in this area should be:

- Appropriate
- Informative
- Valid
- Capable of being reproduced
- Comparable
- Practical

Further work conducted recently at the Texas A&M University and reported by Ho and Crowley (2003), pinpoints reliability as the key indicator highlighted by library users with other areas such as assurance, responsiveness, empathy and tangibles playing an important role. At the operational stage, functionality must be regarded as 'does the system perform to specification'. However, measures such as a checklist of desirable features will vary between libraries, any enumerated list of features would soon become out of date and functionality is more substantially a critical selection criteria at the point of purchase. Building on these considerations, a series of self-assessment questions will point the way forward, especially if based on results of user surveys and other tools such as those described for assessing catalogue quality by Chapman and Massey (2002). Few libraries can exist in the present environment without running regular user satisfaction surveys. The data required to answer some of the questions below should be implicitly (if not explicitly) found in those. The other answers will derive from factual experience.

1. Do users find the OPAC easy to use? Grade on a scale of 0 (unusable) to 5 points (very easy to use)?

2. Do users generally find the materials they require [in the age of the electronic library and especially metadata-enabled and open-url-based systems this should include materials ‘anywhere’ rather than just in the home library]? Grade on a scale of 0 (users cannot locate any items using the ILS features) to 10 points (where users can find meaningful links to any materials including those not ‘owned’ by the library)?
3. Does the system offer (either as part of the base set-up or as an option) secure, user-friendly self-service functions such as self-issue (subject to additional hardware), loan renewals, address changes, telephone reminders, WAP-based catalogue? 3 points for all of these, 2 for just user renewals and reservations and self-issue, and 1 for self-issue only or user renewals and reservations only.
4. As a percentage of planned availability [usually 24/7] how much OPAC (rather than system-wide) downtime is there on an annual basis – excluding planned upgrades? Of course, this is more likely to reflect hardware issues than software but reliability is an important user issue. Deduct 2 points for every half-day lost per year (up to 10 points).
5. Are apparent OPAC design issues (especially those raised by users) dealt with responsively (these might be by the vendor or by the library staff depending on access to web page code)? Award 2 points, otherwise none.
6. Is the vendor adept at recognising areas for product development to specifically aid library users? Award 1 point.

To these we can add some questions raised by library staff (with acknowledgement to Lugg and Fischer (2003)):

7. How much expertise is required to operate normal system activity on a daily basis (UNIX, SQL, PERL, JAVA programming etc.)? Award 2 points if no significant expertise is required, otherwise none.
8. How well does the vendor understand your individual library’s operations and requirements? Award points on a scale of 0 (no understanding) to 3 points (full understanding).
9. Is management information readily available in the format required? Award on a scale of 0 points (no management information and/or statistics) to 5 points (fully functional and library-specific management information readily available).
10. How well do the various system modules integrate? Award 2 points for a fully-integrated system, otherwise none.
11. Does the software function as specified? Award on a scale of 0 points (not at all) to 5 points (fully functional).
12. Does the system integrate with other third-party software or resources (such as OPEN-URLs, vendors of MARC records and Z39.50)? Award on a scale of 0 points (no third-party integration) to 3 points (full use of external systems).
13. Does the annual maintenance charge exceed 10% of the original, total purchase price? Deduct 5 points.
14. Have ILS-related staffing costs risen substantially in direct consequence of the system’s implementation? If these additional costs are greater than 20% of the average purchase price (in 5.2), deduct 10 points.

#### **5.4.2 On-going training and support**

In general, most purchases are protected by a ‘warranty’ period. Considerable vendor support and assistance should be available for a (sometimes fixed) period immediately following implementation. Vendors have a vested interest in ensuring this. After this ‘warranty’ (honeymoon?) period has elapsed, the library has to compete with other customers for the attentions of the helpdesk, product trainers and other support mechanisms. In all probability, vendor-provided training becomes chargeable and product teams assigned to cover implementation are withdrawn.

1. Is ILS vendor support significantly worse in the post-implementation phase? To determine this objectively involves a comparison of logs of calls, graded in severity of impact on the library service, recorded in the implementation phase and an identical number of match-graded calls in the post implementation phase. Is this feasible or worth the considerable effort required to produce detailed data? As most vendors rely on e-mail helpdesks, it is likely that sufficient data should be available.

Obtain the average response time (in hours) for satisfactorily resolving all urgent calls during the implementation phase. Compare this with a similar average calculated for the same number of urgent calls in the immediate post-implementation phase. If the figure is less than or equal to 10% more than in the immediate implementation phase add 3 points. Otherwise, if the figure is more than 10% deduct 3 points.

It is possible to develop this further for each grade of helpdesk call – however, as libraries will be primarily concerned about urgent calls, that should provide a significant indicator. If the staff time required to calculate this or reliable data are not available, the library staff most involved with service call resolution should be able to provide reliable anecdotal data for this facet.

2. Is training and similar support for software releases available and appropriate? If vendor-provided training costs £1000 per day and is required for every, hopefully regular, software release, when added to the library staff cost (which could easily match that figure) this becomes a significant charge. Nonetheless, training should be very worthwhile and cost-effective. Alternatively, although library staff costs may be greater, self-directed training tutorials allow more flexibility and possibilities for group working.

If there are satisfactory online tutorials and/or FAQ files provided by the vendor, add 2 points. If free training is available for product enhancements, add another 2 points. Otherwise, if chargeable training is available, add another 1 point.

## **5.5. Development**

The potential development path of an ILS must be a key factor in the initial procurement decision. Evaluation criteria must take account of actual development against that promised by the vendor but that also hides a multitude of other



considerations. The following assessment provides a token value, again with considerable reference to Lugg and Fischer (2003).

1. To reflect product development and efficient operation, can the system be described as 'state-of-the-art' (in current terms that might mean fourth (web) generation rather than windows-based)? Add 3 points, otherwise none.
2. What degree of user [library staff] input is there into the enhancement process? Library staff will know more about the features that they and library users would like to use, although vendors will hopefully have an eye on the competitive marketplace, technical advances and a corporate user-base. Add 3 points if the enhancement process involves formal mediation by the user group, otherwise none.
3. Does the ILS have a good track record of development and enhancement with at least one major annual upgrade? Add 5 points. If upgrades are sporadic (less than once per year) but generally well-regarded, add 3 points. Otherwise, no points.
4. Are all modules updated annually? Add 2 points, otherwise none.
5. Are new releases mainly remedies to reported problems or are they mainly enhancements? Add 5 points for enhancements and remedies, 2 points for enhancements or 2 points for problem fixes, otherwise none.
6. Are there additional charges for significant new products as opposed to product enhancements? If so, deduct 3 points, although deduct another 3 points if the annual maintenance charge also exceeds 10% of the original, total purchase price.
7. Are upgrades supported through updated documentation and training? Add 2 points, otherwise none.
8. Does the vendor share developmental concepts amongst its user base at the pre-programming stage? Add 1 point.

## **5.6. Upgrade or replacement**

It is likely that an ILS product that is constantly being upgraded and developed (whether as part of an annual maintenance charge or as extra-cost items) will be cheaper – in total cost - to maintain over a long-term (at least a 10 year period) than changing systems within the same time frame. Issues concerning company viability, investment in product development (features and underlying technology), and politics (such as vendor/purchaser cooperation) are all significant. Evaluation of this area may also be set against some criteria:

1. Companies need to prove their products and this can only be done in the light of experience. ILS vendors that have existed for a long time, and survive, can prove they are delivering what at least some of the market wants. However, it is also important not to shift the balance too much against ambitious, younger companies. Although desirable, it is probably impractical to identify, and therefore deduct marks, from vendors facing uncertain medium-term survival. To a large extent, this factor is far more likely to influence the decision to purchase rather than long-term evaluation. Award 1 point for every three years the vendor has existed in the library marketplace (up to a total of four points).
2. Vendors that don't operate on a multi-national (but not necessarily global) basis are less likely to develop feature-rich products capable of long-term

- sustainability. Deduct 2 points if the ILS doesn't have customer libraries in at least three countries.
3. Many vendors are accused of targeting sales at the expense of product refinement and development. Award 5 points if the percentage of vendor employees assigned to product development is more than 30% of the actual workforce, otherwise none.
  4. Excellent relationships with customers are vital both in terms of product development and politics. A vendor that doesn't listen to its customers will soon find itself in serious trouble. Award 2 points if the vendor shares in at least annual user group meetings with its customers plus an additional point if there is a significant, on-going user group interchange (such as a dedicated mailing list).

## **6. Consideration**

This series of calculations and the resulting index need very careful consideration on a number of counts to ensure a sensible and robust approach.

First, are the phases the right ones? A consideration based on personal experiences and the published narratives of system migration and implementation would suggest that they are – although the actual groupings, such as separating implementation training from ongoing training, may be more open to discussion. Second, are the evaluation factors correct? The discussion in each phase is based on a consideration of scant current library science literature and considerable practice. Third, are the tokens correct in balance? Would a poorly performing system be easily identified? What are the main indicators? Fourth, who is best-placed to make the calculations? Systems' staff will be at the operational centre but senior library management will be at the financial and reporting hub. Is there room for a coordinated approach? Fifth, is the data-gathering balance between quick and subjective versus lengthy and scientific consideration correct? Are the results from this hybrid approach reliable?

### **6.1. Ladders (and Snakes)**

The phases and facets awarded the highest points (in order) are:

- Operation (practical experience, ease of use, functionality, accuracy, system reliability) – short scalar values but with deductions for unreliability i.e. does the ILS work effectively?
- Purchase and procurement costs – with deductions for expensive and/or incomplete systems: i.e. is the ILS overpriced and unsuitable?
- Enhancement and development – with deductions for extra-cost add-ons and excessive maintenance costs (and especially for both of these): i.e. is there an-ongoing and substantial commitment to product development?
- Training and support – for library staff and users, both at implementation and on-going – scalar values (hopefully based on library staff and user feedback mechanisms). Deductions for lack of long-term support i.e. is system operation and development adequately supported by training and documentation?

- Data loading – with deductions (no limit) for corrupt or missing data and excessive site involvement: i.e. was the system unnecessarily difficult (and/or expensive) to implement?

A theoretical case study may further aid this judgement.

## 6.2. Case Study – SYSTEM ‘X’ at library ‘Y’

*‘Y’ is a large-sized academic library with a user base of around 30,000 staff and students and over 2 million bibliographic records. The library has used automated housekeeping systems for over 30 years and has been running SYSTEM ‘X’ for the past 5 years.*

- 5.1. *Pre-procurement : there were 5 viable short-listed vendors : 8 points (maximum allowed is 4 vendors, i.e. 8 points)*
- 5.2 *Purchase: the system cost (with a new operating system) 25% more than the competitor average: deduct 15 points i.e. award 15 points. (maximum is 30)*
- 5.3 *Implementation: 29 points (maximum is 32)*
- 5.3.1 *Data costs: total staff costs (by grade) for data profiling, testing and loading was approximately £5,000. This was easily within the 5% purchase cost: 10 points*
- 5.3.2. *Training, documentation and implementation support: 19 points*
- staff training: 4 points*
- user training (delivered in-house): 3 points*
- Full documentation is available: 2 points*
- Documentation is current : 2 points*
- Documentation 24/7 :2 points*
- Implementation support 24/7 : 2 points*
- Response to urgent support requests : 3 points*
- Response to general enquiries: 1 point*
- 5.4 *Operation and training: 35 points (maximum is 48)*
- 5.4.1 *Operation: 29 points*
- user OPAC usage: 4 points*
- Accurate location of resources :8 points*
- Self-service functions: 3 points*
- Unscheduled Downtime: average0.5 day per year: minus 2 points*
- OPAC design: can be completely self-customised including style-sheets: 2 Points*
- Vendor-initiated development: is good: 1 point*
- Expertise required: basic (i.e. not SQL, JavaScript, PERL etc.): 2 points*
- Vendor understanding of local situation: good (not perfect): 2 points*
- Management information: excellent (both pre-programmed, user-specified and output formats): 5 points*
- Module integration: excellent: 2 points*
- Software operation: highly reliable and functional: 4 points*
- Software integration with third parties: NetLibrary, Z39.50, OPEN-URL enabled, OCLC ILL and catalogue records etc: 3 points*
- Annual Maintenance charge: more than 10% of the original purchase cost: minus 5 points*
- No additional staffing costs associated with post-implementation operation (i.e. no deduction)*

*5.4.2 Training: 6 points*

*Post implementation support: response unchanged: 3 points*

*Continuous training support: online tutorials and documentation provided by the vendor. Vendor-provided training available at charge: 3 points*

*5.5 Development: 14 points (maximum is 21 points)*

*State-of-the-art system: 3 points*

*Usergroup mediated enhancements: 3 points*

*Excellent enhancement track record: 5 points*

*Annual upgrade to all modules: 2 points*

*New releases consistently provide significant enhancements and remedies: 5 points*

*New products charged for: minus 3 points; Annual maintenance charge*

*Exceeds 10% of purchase price: minus 3 points*

*Upgrades fully supported by online documentation: 2 points*

*Vendor rarely discusses developmental issues with userbase: 0 points*

*5.6 Upgrade or replacement: 11 points (maximum is 11 points)*

*Vendor has been a long-term player in the market: 4 points*

*Vendor has widespread-multinational sales: No deduction*

*More than 30% of vendor workforce are assigned to product development: 5 points*

*Annual usergroup meeting, multi usergroup e-mail lists with vendor*

*Representation: 2 points*

*TOTAL: 112 points (theoretical maximum is 150)*

*In the view of library 'Y', SYSTEM 'X' has a maximum upgrade token and is, therefore, likely to retain the majority of its customer base over a long-term. It also has a maximum value for pre-procurement and so compares very well with competitors. Its scores are excellent for implementation and has very good (just under 70% of the maximum) levels of operation, training and support. Scores for product development are almost as good. At the same time, initial product cost, purchase of 'add-ons' and high annual maintenance costs are negative factors.*

Although this case study token of 112 points has some intrinsic meaning especially if compared with other implementations of the same, or other ILS elsewhere, the detailed consideration of the various facets that have been brought together are far more important in the context of this article.

## **Conclusion**

Winkworth (2001) states 'An acknowledged omission from 'the effective academic library' were any indicators for electronic services. There is no need here to recap the difficulties in achieving this. Suffice to note that everyone wants indicators, and no one has satisfactory answers.' From the conclusions of this article, it is not difficult to see the reasons for Winkworth's statement or even for the paucity of measures of evaluating the ILS. The attempt here to quantify evaluation factors into an index of ILS evaluation is fraught with pitfalls and problems. It should be noted that the amount of historical information (such as helpdesk calls) required to calculate many facets of this index is substantial and that subjective judgements are still far too apparent. Much more work is needed to refine and hone the methodology used in the

light of further thought, future changes and measurement against real systems. If not, we'll risk sliding down the snake back to the starting square.

### Appendix 1. Tabular representation of criteria and points (or abridged rules)

<b>Pre-Procurement</b>	<b>add</b> two points for every <u>viable</u> short-listed contender (max 8 points)
<b>Purchase</b>	<b>add</b> 30 points but then <b>deduct</b> 3 points for every additional 5% increase above the average price. Also <b>deduct</b> 3 points for every unavailable module included in the original specification
<b>Data costs</b>	<b>add</b> 10 points <u>only</u> if the data costs did not exceed 5% of the total purchase price. But <b>deduct</b> 3 points from the existing score for each additional 5% of the purchase price (with no maximum deduction).
<b>Training, etc.</b>	<ul style="list-style-type: none"> <li>i. Effectiveness of staff training (<b>add</b> 0 to 5)</li> <li>ii. Effectiveness of user training (<b>add</b> 0 to 5)</li> <li>iii. Documentation: <ul style="list-style-type: none"> <li>a. Full documentation: <b>add</b> 2 points if available</li> <li>b. Documentation is current (<b>add</b> 2 points)</li> <li>c. Documentation always available (<b>add</b> 2 points)</li> </ul> </li> <li>iv. Implementation support from vendor <ul style="list-style-type: none"> <li>a. Available 24/7: <b>add</b> 2 points (or 1 point if partial)</li> <li>b. Appropriate response to requests for assistance (<b>add</b> 3 points)</li> <li>c. Appropriate response to general enquiries (<b>add</b> 1 Point)</li> </ul> </li> </ul>
<b>Operation etc.</b>	<ul style="list-style-type: none"> <li>i. Is the OPAC easy to use? (<b>add</b> 0 to 5)</li> <li>ii. Do users find their materials (<b>add</b> 0 to 10)</li> <li>iii. Self-service features (<b>add</b> on a defined scale 0 to 3)</li> <li>iv. System downtime (<b>deduct</b> 2 points per half day, max 10)</li> <li>v. OPAC design flexibility (<b>add</b> 2 points)</li> <li>vi. Vendor-initiated product development (<b>add</b> 1 point)</li> <li>vii. Expertise required to operate? (<b>add</b> 2 points for simplicity)</li> <li>viii. Vendor understanding of individual libraries (<b>add</b> 0 to 3)</li> <li>ix. Management information (<b>add</b> 0 to 5)</li> <li>x. Module integration (<b>add</b> 2 points)</li> <li>xi. Functioning software (<b>add</b> 0 to 5)</li> <li>xii. Third-party integration (<b>add</b> 0 to 3)</li> <li>xiii. Annual maintenance costs (<b>deduct</b> 5 points if more than 10% of original purchase price)</li> <li>xiv. Additional staffing costs (<b>deduct</b> 10 points if annual increase is more than 20% of average purchase price)</li> </ul>

<b>On-going support</b>	<ul style="list-style-type: none"> <li>i. Post-implementation vendor support (<b>add</b> 3 points/<b>deduct</b> 3 Points)</li> <li>ii. Online tutorials/FAQ files (<b>add</b> 2 points); Free training for enhancements (<b>add</b> 2 points, or 1 point if training is chargeable)</li> </ul>
<b>Development</b>	<ul style="list-style-type: none"> <li>i. State-of-the-art system? (<b>add</b> 3 points)</li> <li>ii. User-input to enhancements (<b>add</b> 3 points)</li> <li>iii. Track record of development (<b>add</b> 0, 3 or 5 points)</li> <li>iv. Annual updates to all modules? (<b>add</b> 2 points)</li> <li>v. New releases (<b>add</b> 0,2, or 5)</li> <li>vi. Charges for new products (<b>deduct</b> 3 points + <b>deduct</b> 3 more points if annual maintenance is more than 10% of the actual purchase price)</li> <li>vii. Upgrade documentation and training (<b>add</b> 2 points)</li> <li>viii. Vendor ideas pre-development? (<b>add</b> 1 point)</li> </ul>
<b>Replacement?</b>	<ul style="list-style-type: none"> <li>i. Vendor lifespan (<b>add</b> 1 point for every 3 years; max 4 points)</li> <li>ii. Multinational vendor? (<b>deduct</b> 2 points if not)</li> <li>iii. Vendor development workforce &gt;30% of total(<b>add</b> 5 points)</li> <li>iv. Vendor participates in user groups (<b>add</b> 2 points plus 1 if interchange is on-going)</li> </ul>

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