

# Library Systems: Synthesise, Specialise, Mobilise.

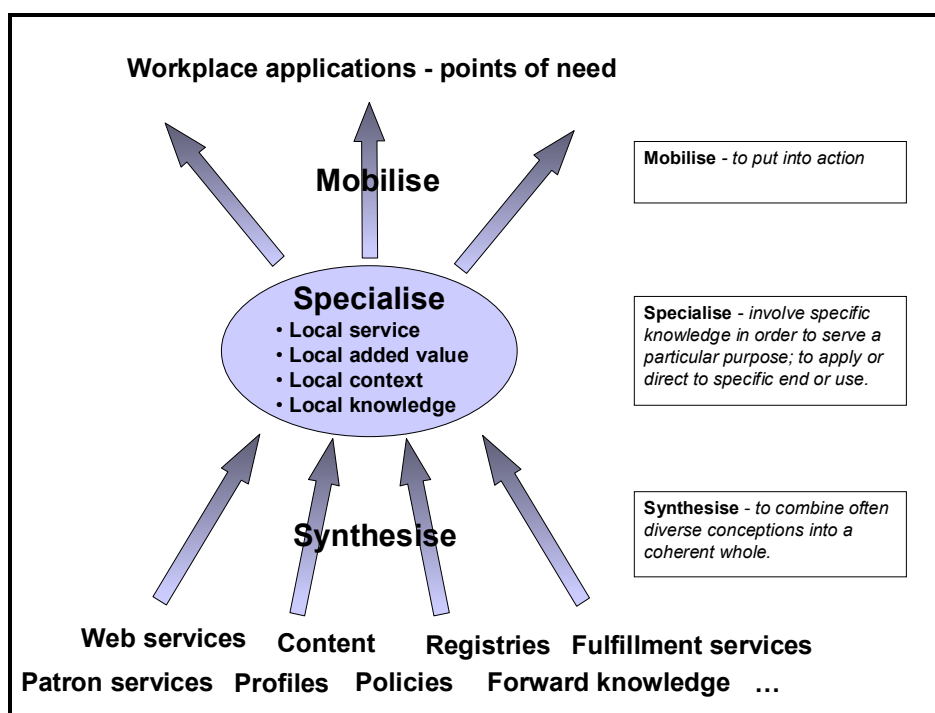
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## Context

The role of the library management system is, and always has been, to efficiently and effectively help manage the delivery of library services. This has traditionally been anchored on the management of the catalogue and physical collection. The core business and service model could be described as 'Acquire – Catalogue – Circulate'. This is increasingly not the case.

Whilst the physical collection remains a critical aspect of the library service, it is just one of a number of 'atomic' or 'granular' services presented by the library. The only distinguishing feature of the local collection is the physical location of the resources; a facet that is increasingly irrelevant in today's networked world. Libraries today present a more holistic information environment; the role of library systems therefore is to make the management and delivery of this effective and efficient.

The business and service model is evolving from acquiring, cataloguing and circulating physical collections to synthesising, specialising and mobilising web-based services. Whilst the transition is undoubtedly evolutionary, it is not at all clear that the systems required to support the new paradigm are an evolutionary development of the traditional ILS.



*Library Systems: Synthesise, Specialise, Mobilise*

The current generation of federated search systems, link resolvers, resource sharing systems and ERM systems are starting to address the new model; the approach however is somewhat piecemeal driven by the identification of specific market opportunities. The fact that these new components are typically being delivered as stand-alone, yet integratable components is indicative of the current state of the evolution:

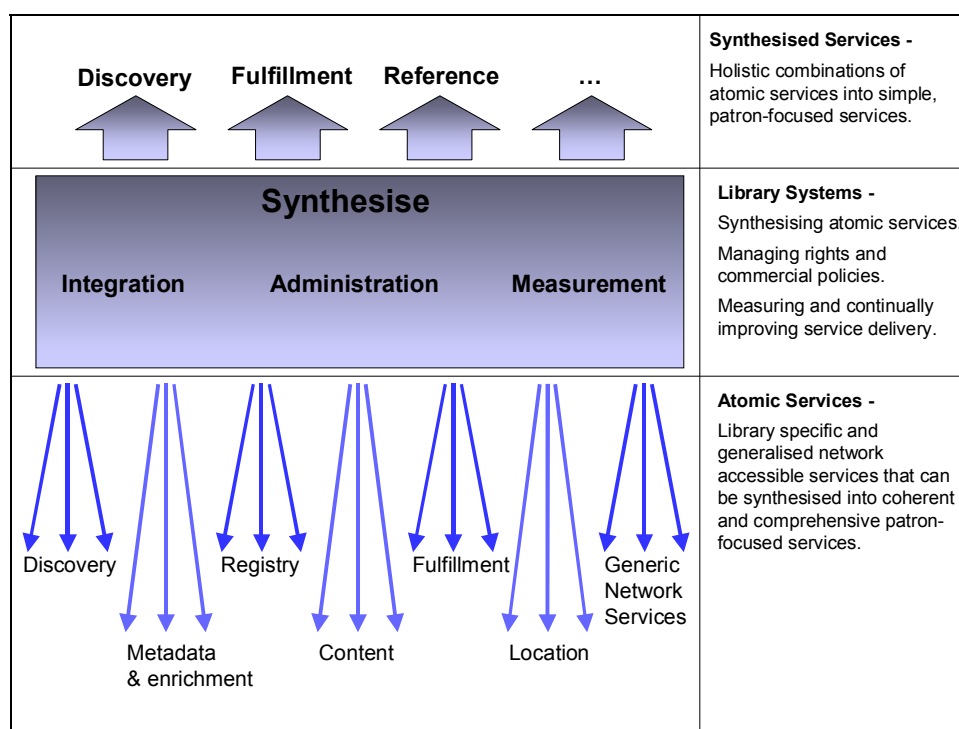
- No clear model yet exists for the shape of future library services and systems.
- It is unclear where the LMS fits in the future strategy.
- There is a period of market disruption providing opportunities for new and existing players to reposition themselves in the market.

In transitioning to this new model there are many significant challenges to be overcome by all players in the information supply chain: libraries, system vendors, content suppliers and network service providers.

## Synthesising

There are a bewildering and increasing number of 'atomic' services that are relevant to library provision. These range from traditional library services such as content and metadata, to more generic web services such as authentication, taxonomies and spell-checkers. The role of the library, and its supporting systems, is to synthesise these atomic web services into a cohesive user-centric environment.

A significant change that has occurred in recent years is that, historically the component services have been provided by players from within the "library industry" – content providers, cataloguing services, reference services etc. Increasingly, rich network services are being made available from players outside of the traditional library industry. Trivial examples of these today include the likes of the web service access to Amazon book reviews and Google's spell-checker. As developments progress such services will become richer and more commonplace; this means that library systems have to be far more open and externally focused than in the past. It also has profound implications for library standards organisations that have traditionally been internally focused and now need to be far more outward looking.



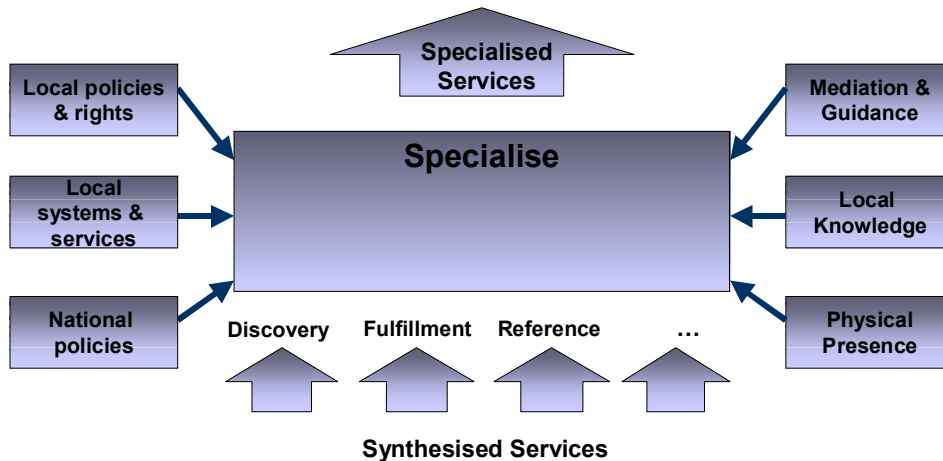
*Synthesising atomic services into coherent and comprehensive patron services*

New-model library systems need to offer a 'plug-and-play' environment to allow holistic user-focused services to be synthesised from this ever-changing sea of web services. There are three core aspects to such an environment:

- Integration – providing the core technological capability to integrate disparate services into the environment.
- Administration – providing a management environment that takes into account the commercial licensing and maintenance issues of the underlying services
- Measurement – providing an environment that drives continuous improvement by measuring and monitoring user behaviour and system use.

## Specialising

The key value proposition of the local library derives from its physical presence, integration of local services and the detailed knowledge of the user population it serves. In a flattened world where information services can be delivered from anywhere on the network, to maintain relevance it is essential the library leverages these unique strengths to provide a specialised service for its patrons.



*Added value is generated by specialising services according to local needs & capabilities*

It is the library system's role to support this local specialisation of services. Examples include:

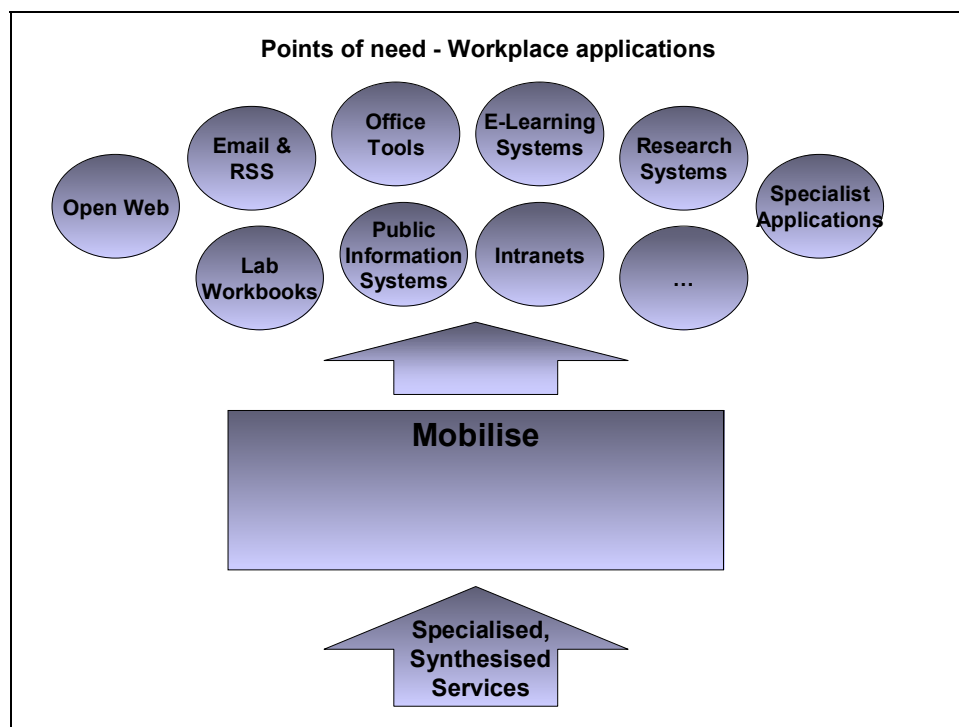
- Respecting local rights and policies – comprehensive authentication and authorisation can only be by integrating the local context; the rights and policies appropriate to a particular individual will include rights derived from local library affiliation. The service provided through the library can therefore be more specialised than that through generic network services.
- Respecting national policies and copyright law - the access policy in the content provider contract that has to be understood, respected and enacted in the specialised service.
- Applying local knowledge of the user population to the service - understanding holistic user profiles and requirements allows the service to be tailored to specific user groups and individuals. The library has greater access to specific profiling information than is available to generic network service providers.
- Integration of local systems and services – specific local systems and services (which may or may not be library services) can be integrated into the overall specialised service offering.
- Mediation and guidance – of critical importance is the library's ability to integrate a local personal service with an IT-based service. This clearly distinguishes from any generic network-based services. The challenge is to provide this mixed human and IT based service as integrated system with a strong unified brand.

It is clear that as the new model evolves, any services that can be abstracted to generic network services will be. This will be driven by the inexorable need to reduce redundancy and generate wider economies of scale. Throughout this evolution:

- Libraries have to be alert and responsive to changes and be ready to take advantage of the economies and service enhancements generated.
- Network service providers have to be continually looking for opportunities to provide new 'synthesisable services',
- Library systems have to be sufficiently flexible to support the changing nature of service provision.

## Mobilising

Mobilisation is a key catalyst to drive library use and value. The library service must find the user at their point of need, wherever that is: Users are on the web; they are using their suite of office applications; students are using their e-Learning environments; doctors are in their clinical management systems; researchers are in their electronic lab books – this is where the library service has to meet them if it is to realise its full value.



*Mobilisation: embedding the library in workplace applications to meet the user at their point of need.*

Mobilisation is the next frontier of development for library systems. The ability to tightly integrate rich, synthesised library services into workplace applications has the promise of unlocking the latent value in information services.

It should be noted that producing well-synthesised services is a necessary pre-cursor to mobilisation – whilst, for example, there is undoubtedly some value in presenting a library catalogue search within an e-Learning environment, the true value is realised when a comprehensive information discovery service is integrated.

It is also apparent that generating this level of integration will necessarily mean significant interaction with bodies from outside of the traditional library sphere; integrating library systems into 'foreign' applications necessarily means interacting with players in those domains. Sometimes these foreign applications will be mainstream de-facto standard applications such as Office suites – in this case the integration standards will be defined by the likes of Microsoft and the library systems will simply have to fall in to line. In other cases the foreign systems will be niche applications operating in similar 'island communities' to the library community.

In both these situations mobilisation will have profound effects on library system development organisations and the relevant standards organisations:

- It will drive the more rapid uptake of modern mainstream technologies within library systems.
- It will see bridges being built between 'niche island communities' in order to foster cross-application integration.

## An example: The UK National Library for Health

### Background

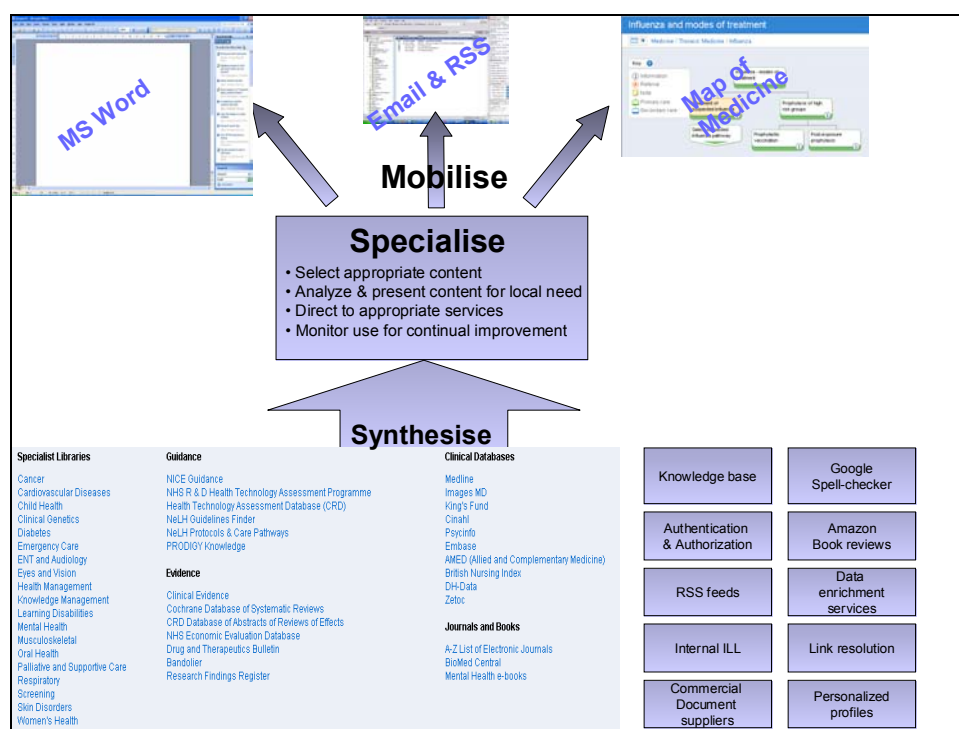
The UK National Health Service (NHS) is committed to providing excellence in healthcare, free at the point of use. Everyone in the UK – no matter how much they earn, who they are, how old they are, where they come from or where they live – should have the health care they need from themselves and for their families. 80% of the UK population say the NHS is critical to British society and the country must do everything it can to maintain it.

To achieve this vision the NHS has grown into a phenomenally complex organisation – it is the world's third largest organisation with around 1 million employees. Every day the service provides around 2 million consultations with approximately 10 million clinical decisions being made.

Critical within the NHS's service delivery is the mandatory use of 'Evidence-based healthcare'. To support this, a well-mobilised and synthesised evidence base is clearly essential. The value placed on knowledge services within the NHS is perhaps best summarised by the following quote from Dr. Muir Gray:

*Knowledge is the enemy of disease; the application of existing healthcare knowledge will have a greater impact on health and disease than any drug or technology likely to be introduced in the next decade.” -- Dr. Muir Gray<sup>[1]</sup>*

The National Library for Health has embarked on an ambitious programme to synthesise, specialise and mobilise the evidence base to support the NHS's core mission.



### The National Library for Health – Synthesising, Specialising and Mobilising

At the heart of this programme is a synthesised information discovery and fulfillment service. This programme represents a good example of the evolution of the new library model:

#### Synthesising

- A single search environment is provided across multiple specialist library services, commercial databases and internal information sources.
- The search process is augmented and enhanced with various web services such as the Google spellchecker, Amazon book reviews and data enrichment services. These services originate from sources from within, and from outside of the traditional library sphere.

- Authentication and authorisation is provided through an external, NHS-wide authorisation network service. This forms the basis of a comprehensive user profiling service that can be used to specialise the service to the individual.
- For fulfillment services a synthesised environment can be presented integrating OpenURL resolution, Inter-Library Loan from internal NHS libraries and links to commercial document suppliers.

### ***Specialising***

- Appropriate presentation of the evidence base is central requirement of the service - within the health environment there is a specific requirement for grouping information according to types such as 'patient information', 'clinical guidance', 'clinical evidence' etc. These information types cut across the underlying atomic sources; the specialisation layer performs real-time data analysis in order to categorise and present the information according to the target user requirements.
- Local service integration – the system can direct users to the local library service centres or the appropriate specialist libraries depending on the profile of the particular user

### ***Mobilising***

It is clear that mobilisation represents the key activity that can drive improvement in the delivery of evidence-based healthcare; the evidence-base must meet the user at their point of need. It is also clear that mobilisation cannot properly occur until the services have been fully synthesised. Initial points of mobilisation include:

- Office suite applications – integrating the evidence base into the Microsoft Research Pane.
- Email & RSS – delivering update information tailored to the user's profile through email and RSS.
- Integration with the Map of Medicine – the Map of Medicine is a specific workplace application that maps over 250 different patient journeys. These journeys are symptom-based and clearly map out the steps to be taken by the clinician. Points in the journeys can be contextually linked to the evidence base through clickable buttons.

This is a compelling example of the synthesise, specialise, mobilise paradigm in action. If this model can be delivered effectively within the health service there is unquestionably immense and tangible value to be realised. The model clearly does translate into all spheres of the library service, though clearly the value proposition is particularly dramatic in the health space.

## Conclusions

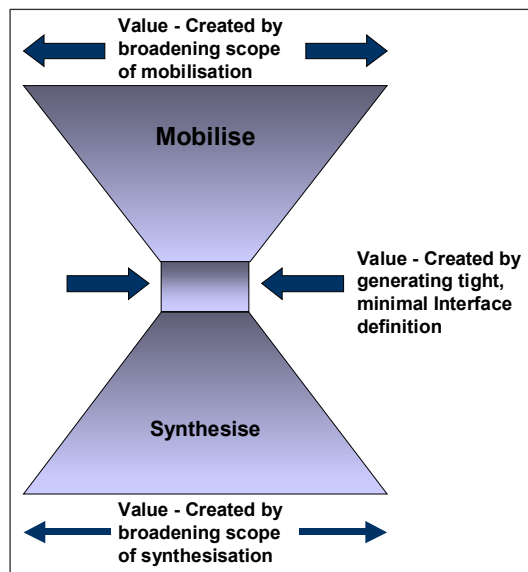
Library systems have traditionally been synonymous with the Library Management System. The classical Library Management System is increasingly managing and focused on a legacy business process. Whilst the Library Management System will remain a critical component in the management of a library service, its functions will gradually become peripheral to the core of the library service.

Whilst the 'new library model' is an evolution of the traditional model, the IT systems required to support it are clearly not an evolutionary developments of the Library Management System. At some point there will be a critical jump in perception as to what is the core system supporting the library.

The core of the library system will become an environment that is focused on synthesising, specialising and mobilising web services to deliver user-centric services at the point of need.

Significant added value can be realised from library and information services through this model. This value will be maximised by:

- Maximising the scope and breadth of services that we can synthesise
- Minimising and simplifying the interface definition to the core synthesised services.
- Maximising outreach of the service through mobilising as widely as possible.



The development of this model has been caught in a 'chicken-and-egg' scenario: there is no market for 'synthesisable services' until systems are capable of using them; systems will not be developed to synthesise services until compelling services are available. This cycle can be broken either through ad-hoc identification of market opportunities, or through some form of vertical market alignment whereby the systems and services are developed in concert; the latter is more likely to generate a strategic catalyst to development.

During this period of re-alignment, significant opportunities exist for more globalised strategic initiatives both in development of reusable, synthesisable services and in the front-end systems to exploit such services. All players in the supply network need to be cognisant and alert to such changes:

- Libraries need to keep aware of new services that can be synthesised into their offering.
- Libraries need to be ready to outsource internal services to network service providers who can realise economies of scale.
- Network service providers have to be looking for opportunities to provide new 'synthesisable services'.
- Library systems providers have to ensure 'plug-and-play' compatibility with network services.

Above all, to maximise the value of our library services the industry needs to be far more externally focused than it has traditionally been. The services we are synthesising will increasingly be coming from 'foreign' parties and our services will need to be mobilised into domains outside of the traditional library sphere. The industry needs to foster links with these adjacent domains at all levels if we are to realise the value inherent in our services.